WORKING CAPITAL MANAGEMENT AND AIM LISTED SME COMPANIES PROFITABILITY: A MIXED RESEARCH METHOD APPROACH

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ABSTRACT

This research was undertaken to achieve two main objectives. The first objective was to investigation whether working capital management (WCM) is associated with profitability of Alternative Investment Market (AIM) listed Small and Medium Enterprise (SME) companies. The second objective was to investigate through a questionnaire survey the WCM practices of AIM listed SMEs and their effect on profitability from the perspective of financial directors. These two objectives were met by the use of a mixed research method approach.

The study employed two research methods by collecting both quantitative and qualitative data. The financial data analysis is based on the annual reports of 160 AIM listed SMEs over a six year period (960 firm years) for the period 2005 to 2010. The findings of the panel data regression analysis show that SMEs with shorter inventory holding period, shorter accounts receivable period and shorter accounts payable period are more profitable. However, no evidence was found that cash conversion cycle has any effect on profitability of AIM listed SME companies. Under the control variables the corporate governance factors including: board size, Chief Executive Officer (CEO) age, CEO tenure and directors remuneration were found to be statistically significant in explaining the profitability of AIM listed SME companies. Also, the following company specific characteristics were found to have statistically significant effect on AIM listed SME companies' profitability: company age, company size, asset tangibility, gross working capital efficiency and working capital requirement.

In terms of the WCM practices, a questionnaire analysis was used. Questionnaires were sent to 248 companies to examine the WCM practices of AIM listed SME companies from the view point of financial directors. The analysis employed both t-test and one-way Analysis of Variance (ANOVA). The findings of the t-test and one-way ANOVA analysis indicate that there are significant differences in the perception of financial directors about each component of WCM. First, there are differences in the educational level and work experience of financial directors and their attitude towards WCM. Second, there are differences in the importance attached to the effect of each component of WCM to profitability. Third, the results indicate significant differences in the way AIM listed SME companies set target level and strategy pursued for each component of WCM.

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I can do all things through Christ who gives me strength. Unless the LORD builds the house, its builders labour in vain. Unless the LORD watches over the city, the watchmen stand guard in vain (Philippians 4:13; Psalm 127:1).

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DECLARATION

This thesis is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy (Finance and Risk) at the Bournemouth University, United Kingdom. I declare that this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that this thesis has not been previously or concurrently submitted, either in whole or in part, for any other qualification at the Bournemouth University or other institutions.

Godfred Adjapong Afrifa

March 2013

DEDICATION

I happily dedicate this thesis to my three beautiful daughters Davina Adjapong Afrifa, Janice Adjapong Afrifa and Jannel Adjapong Afrifa, because they have suffered the most from my continued absence from home most of the time during my study. I hope they will grow up to appreciate that what I did was for the benefit of the whole family.

LIST OF ACRONYMS AND ABBREVIATIONS

AIM	–	Alternative Investment Market
AMEDEUS	–	Analyse Major Databases from European Sources
ANOVA	–	Analysis of Variance
APP	–	Accounts Payable Period
ARP	–	Accounts Receivable Period
ATAN	–	Asset Tangibility
BS	–	Balance Sheet
BSE	–	Bombay Stock Exchange
BSIZE	–	Board Size
CCC	–	Cash Conversion Cycle
CEO	–	Chief Executive Officer
CEOAGE	–	CEO Age
CEOTURN	–	CEO Tenure
CFO	–	Chief Financial Officer
COAGE	–	Company Age
COSIZE	–	Company Size
CR	–	Current Ratio
DREM	–	Directors Remuneration
EBAN	–	European Business Angle Network
EBIT	–	Earnings Before Interest and Tax
EC	–	European Community

EEA	–	European Economic Area
EI	–	Efficiency Index
EOQ	–	Economic Order Quantity
ESRC	–	Economic and Social Research Council
EU	–	European Union
FE	–	Fixed Effect
FNO	–	Financial Need of Operation
FSA	–	Financial Services Authority
GAAP	–	Generally Accepted Accounting Principles
GDP	–	Gross Domestic Products
GLS	–	Generalised Least Square
GMM	–	Generalized Method of Moments
GOI	–	Gross Operating Income
GOP	–	Gross Operating Profit
GWC	–	Gross Working Capital
GWCAP	–	Gross Working Capital
HSD	–	Honestly Significant Difference
IAS	–	International Accounting Standard
IHP	–	Inventory Holding Period
INDUST	–	Industry
IPO	–	Initial Public Offering
IS	–	Income Statement

ISE	–	Istanbul Stock Exchange
JIT	–	Just-In-Time
JSE	–	Japanese Stock Exchange
KSE	–	Karachi Stock Exchange
LEV	–	Leverage
LIQ	–	Liquidity
LSE	–	London Stock Exchange
M	–	Mean
M&A	–	Mergers & Acquisition
MSG	–	Between Groups Mean Squares
MSW	–	Within Groups Mean Square
N	–	Number
NASDAQ	–	National Association of Securities Dealers Automated Quotations
NEDS	–	Non Executive Directors
NOI	–	Net Operating Income
NOP	–	Net Operating Profit
NSE	–	Nairobi Stock Exchange
NWC	–	Net Working Capital
NWC	–	Net Working Capital
NYSE	–	New York Stock Exchange
OLS	–	Ordinary Least Square
OTCM	–	Over The Counter Market

PAT	–	Profit After Tax
PBT	–	Profit Before Tax
PHD	–	Doctor Of Philosophy
PI	–	Profitability Index
POH	–	Pecking Order Hypothesis
POT	–	Pecking Order Theory
QR	–	Quick Ratio
Q-RATIO	–	Tobin's Ratio
R&D	–	Research And Development
RBV	–	Resource Based View
RE	–	Random Effect
ROA	–	Return On Assets
ROCE	–	Return On Capital Employed
ROE	–	Return On Equity
ROI	–	Return On Investment
ROTA	–	Return On Total Asset
SBRC	–	Small Business Research Centre
SD	–	**S**tandard Deviation
SFIN	–	Short-Term Financing
SMEs	–	Small and Medium Enterprises
TA	–	Total Asset
TSE	–	Tokyo Stock Exchange

UI	–	Utility Index
UK	–	United Kingdom
UKLA	–	United Kingdom Listing Authority
US	–	United States
USA	–	United States Of America
VC	–	Venture Capital
VIF	–	Variance Inflation Factor
VSM	–	Vietnam Stock Market
WC	–	Working Capital
WCD	–	Working Capital Deficit
WCM	–	Working Capital Management
WCP	–	Working Capital Policies
WCREQ	–	Working Capital Requirement

CHAPTER ONE

OBJECTIVES AND OVERVIEW OF THE RESEARCH

1.1 INTRODUCTION

There is increasing research interest in the relationship between working capital management (WCM) and profitability (e.g. Wang 2002; Deloof 2003; Garcia-Teruel and Martinez-Solano 2007 and Raheman and Nasr 2007). In a way this is a reflection of the importance of WCM to all businesses, particularly the Small and Medium Enterprises (SMEs) (Grablowsky 1984; Peel and Wilson 1996; Howorth and Westhead 2003). For example, Van Horne and Wachowicz (2001) estimates that for a typical manufacturing firm, current assets account for over half of its total assets. Further, a study by Garcia-Teruel and Martinez-Solano (2007) found that current assets of Spanish SMEs represent 69 per cent of their assets, whilst their current liabilities represent more than 52 per cent of their liabilities. The high proportion of both current assets and current liabilities in relation to total assets and total liabilities respectively means that the financial manager and staff should devote a considerable proportion of their time to Working Capital (WC) matters (see, Van Horne and Wachowicz 2001).

The interest in WCM also stems from its effect on companies risk and return (Smith 1980) because WCM decisions essentially involves a trade-off between profitability and

risk. A company should have enough cash available to meet its immediate and routine obligations including paying creditors etc. At the same time, in order to entice customers and therefore increase sales, a company should be able to sell some of its products on credit to customers. Also, the availability of inventory will mean that a company is able to meet urgent demands from customers, thereby avoiding interruption of production and maintaining customer loyalty. However, there should be a balance between how much money is locked in debtors and inventory and amount the company is able to obtain from its creditors because the difference between amount owed to creditors and amount owned by debtors and invested in inventory will determine the WC available to the company to meet its immediate and short-term obligations.

Previous research studies suggest that there is a negative association between aggressive WCM and profitability (e.g. Shin and Soenen 1998; Wang 2002; Deloof 2003; Garcia-Teruel and Martinez-Solano 2007). However, the previous studies have focused on large companies with the exception of few researches including (Garcia-Teruel and Martinez-Solano 2007; Afeef 2011; Stephen and Elvis 2011). It has been suggested that WCM is more acute for SMEs than larger ones (Kargar and Blumenthal 1994; Peel et al. 2000) because SMEs are more financially constrained due to their unique characteristics (Samiloglu and Demirgunes 2008). The difficulties SMEs face in obtaining credit from other sources make them rely more on short-term investment in WC. To alleviate their short-term financial problems, Peel and Wilson (1996) suggest that SMEs should adopt more formal WCM practices in order to reduce the probability

of business closure, as well as enhance business profitability. SME companies are viewed to be very essential element of a healthy and vibrant economy. They promote the enterprise culture, which leads to the creation of jobs within the economy. As a result, the importance of SME companies is gaining widespread recognition. As argued by Storey (1994), SME companies constitute the bulk of enterprises in all the economies in the world. However, the large numbers of business failures, especially SMEs have been attributed to the inability of financial managers to plan and control properly the current assets and current liabilities of their companies (Smith 1973). A research by Atrill (2006) found that SMEs often lack the resources to manage their WCM effectively. Given their limited access to external finance and over reliance on short-term finance, it is therefore argued that the efficient management of WC is crucial for the survival, growth and profitability of SME companies (Pass and Pike 1987; Padachi 2006).

In the context of the difficulties faced by SMEs in accessing finance and the lack of adequate resources to properly manage WC, the objectives of this research are to investigate the relationship between WCM and profitability and also to examine the WCM practices of SMEs listed on the AIM in the UK, which is part of the London Stock Exchange.

1.2 WHAT IS A SMALL AND MEDIUM ENTERPRISE

In undertaking any research in SMEs, the major problem is the definition of what constitutes a SME (Abor and Quartey 2010; Storey 1994; Kufour 2008; Berisha-Naman 2009). Many researchers have used different definitions when undertaking a research in SMEs, both within a country and across countries. There is clearly no universally accepted definition of SME. The most common measures used in defining SMEs include firm size, number of employees, annual turnover, ownership of business and value of fixed assets (Abor and Adjasi 2007). However, each of these measures has been fiercely criticised, one-way or the other (Chittithaworn et al. 2011). In his work entitled "a critique of SME-led approaches to economic development", Castel-Branco (2003) argued that the economic contributions of SMEs are not clear owing to the ambiguity in defining SME. Beaver and Prince (2004) also argue that there are considerable difficulties in establishing the number of SME firms in the UK due to the problem in defining what constitutes a SME. This thesis uses the definition of the United Kingdom (UK) Companies Act 2006, section 382 and 465.

1.3 THE PROBLEM, MOTIVATION AND THE NEED FOR THE STUDY

The main research problem of this thesis is to find out the WCM practices and effect on the profitability of SMEs listed on the AIM. There are many studies (see for example chapter two), which indicate that WCM is very important to companies profitability, but more especially, SMEs. First, WCM is very important to SMEs because of their lack of access to credit from the financial markets. As argued by Padachi et al (2011) traditional banks and other investors have been reluctant to offer credit to SMEs for number of

reasons: (1) SMEs are regarded by creditors and investors as high-risk borrowers due to insufficient assets to provide as collateral and low capitalisation, vulnerability to market fluctuations and high mortality rates; (2) information asymmetry arising from SMEs lack of accounting records, inadequate financial statements or business plans makes it difficult for creditors and investors to assess creditworthiness of potential SME proposals and (3) high administrative/transaction costs of lending or investing small amounts do not make SME financing a profitable business. Due to their lack of access to the financial markets, SMEs rely on suppliers' credit as their main source of credit. SMEs reliance on short-term funds makes the efficient management of WC crucial for their survival and growth (Grablowsky 1984; Pass and Pike 1987; Padachi 2006).

Second, SMEs maintain high liquidity which makes WCM very important in relation to profitability because WCM is concerned with the current assets and current liabilities of a company (Gill et al. 2010; Garcia-Teruel and Martinez-Solano 2007; Raheman and Nasr 2007). The high investment in current assets means that proper management should be undertaken in order to maximise their use and therefore improve profitability. As argued by Garcia-Teruel and Martinez-Solano (2007) the management of current assets and liabilities is particularly important in the case of SMEs because these companies' assets are in the form of current assets. Current liabilities also constitute the majority of the liabilities of a typical SME.

Third, SMEs lack the necessary managerial skills to implement and manage financial resources in general and WCM in particular. The inability of financial managers to plan and control properly the current assets and current liabilities is the cause of many business failures in SMEs (Smith 1973, Padachi 2006). Studies in both the UK and the US have shown that poor WCM is a primary cause of failure among SMEs (Dunn and Cheatham 1993). One reason for the lack of managerial competencies in SMEs is the lack of resources. Also, competent personnel are reluctant to be employed by SMEs. Aldrich and Langton (1997) argue that recruiting competent personnel is one of the biggest challenges facing SMEs. The lack of competent financial managers in SMEs means that ample time should be devoted to the management of financial resources of the company in general and WC in particular. As argued by Valipour et al (2012) the concept of the management of WC refers to the managers' skills in handling short-term investment. According to Nguyen (2001) financial management is one of the challenges of SMEs because if the financial decisions are wrong, profitability of the company will be adversely affected.

Fourth, there is no evidence as to how being listed on a stock exchange will affect the relationship between WCM and profitability of SMEs. Being listed on a stock exchange may alleviate the financial constraints faced by unlisted SMEs. This is because the stock exchange offers listed SMEs the platform to solicit funds in the financial markets via the issue of shares. However, even though this window of opportunity is opened to listed SMEs it is not very clear if those listed SMEs can acquire the needed and

necessary finance for profitability, survival and growth. This is because the inherent characteristics of SMEs may still hamper their chances of securing credit. For example, the high rate of failure among listed SMEs makes financial institutions and investors very sceptical in their dealings with them. The high rate of failure among SMEs listed on the AIM is illustrated by a commissioner at the US American Exchange Commission who likened the AIM to a gambling 'den' because he was concerned that 30 per cent of issuers that list on AIM would go into liquidation within one year (Treanor 2007).

In light of the problems stated above, this research is motivated by three major reasons. First, research into the WCM practices of SMEs is scant. Most of the existing research focuses on large companies to the neglect of SMEs (Garcia-Teruel and Martinez-Solano 2007). The reason for this pattern of research is because of the public availability of information about larger companies. Larger companies are mostly listed on a stock exchange and as such are obliged to publish information in the public. Even for larger companies that are not listed on a stock exchange, their size permits them to formalise their internal systems. This allows information to be adequately recorded and kept which could be made available to researchers.

Another reason that has motivated this research is the conflicting results of the existing literature. In regards to both the few and the extant research on SMEs and larger companies respectively, there is no congruence as to the effect of WCM components on profitability. Whilst some advocate for positive association between the WCM

variables, others too insist on a negative effect (see, Afeef 2011; Abuzayed 2012; Kaddumi and Ramadan 2012; Usama 2012). Also, different researchers give varying explanation for the direction of the association between WCM and profitability. In the light of this confusion, I hope this research will contribute knowledge to the association between WCM and profitability.

The third reason for this research is the fact that there is no research that has investigated the association between WCM and profitability of listed SME firms. SMEs are known to be severely constrained in terms of their access to finance. This constraint stems from the fact that SMEs are mostly private and therefore not bound by other disclosure obligations, which increases their adverse selection and moral hazards. But what about SMEs that are listed on the stock exchange? Research shows that companies that are listed on a stock exchange are treated differently from those which are not from stakeholders and the public at large. As a result, the relationship between WCM and profitability of listed SMEs may be different from unlisted ones. The unlimited access to finance and the increase in reputation may allow listed SMEs to influence their relationship between customers and suppliers. Therefore, the status of listed SMEs may cause a change in the relationship between WCM and profitability in comparison with unlisted SMEs. It will therefore be fascinating to ascertain how the newfound status of SMEs that are listed on the AIM affects their WCM and its effect on profitability.

1.4 AIM AND OBJECTIVES OF THE RESEARCH

The aim of the research is to determine whether WCM affect the profitability of AIM listed SME companies. This is done so as to ascertain the degree of efficiency of the management of WC by AIM listed SMEs. The aim will be met with the following objectives:

1. To determine if WCM components including inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle affect profitability of AIM listed SMEs.

2. To investigate through a questionnaire survey, the WCM practices and their importance to profitability of SME companies listed on the AIM from the perspective of financial directors.

1.5 SUMMARY OF RESEARCH METHODOLOGY

The research objectives are investigated through positivist approach where quantitative methods are used to measure dependent and independent variables in establishing the WCM practices and its association with profitability of AIM listed SMEs.

1.5.1 Mixed Research Methodology

Two sets of data involving quantitative and qualitative data are collected for the quantitative data analysis and questionnaire survey analysis. For the quantitative data analysis, the sample comprises of 160 companies from a possible sample of 273

companies. Three conditions were set for the sampling frame. First, all the companies are supposed to meet the definition of SME as defined by the UK Companies Act 2006, section 382 and 465. Second, all companies belonging to the financial services section were excluded because they have certain regulations that are different from those required by non-financial companies, their WC characteristics are largely different and finally to allow for easy comparability with prior studies (e.g. Deloof 2003; Falope and Ajilore 2009). Third, to be included a company should have its financial statements for the entire period that is considered, which is from 1st of January 2005 to 31st of December 2010 inclusive. Therefore, the quantitative data results are based on the financial statements of 160 companies that met these criteria for the years from 2005 to 2010, which lead to 960 company years.

The main dependent variable investigated is the Return On Assets (ROA) of a sample of AIM listed SMEs. The explanatory variables are WCM components including: (1) inventory holding period, (2) accounts receivable period, (3) accounts payable period and (4) cash conversion cycle. The control variables employed in this thesis are divided into two involving corporate governance variables and company characteristics variables. The corporate governance variables include: (1) company board size, (2) Chief Executive Officer (CEO) age, (3) CEO tenure, (4) proportion of non-executive directors and (5) directors remuneration. The company specific characteristics variables include: (1) company age, (2) company size, (3) asset tangibility, (4) financial leverage, (5) liquidity ratio, (6) short-term financing, (7) gross working capital efficiency, (8)

working capital requirement and (9) industry classification. Parametric tests were used in chapter six to determine the relationship between the WCM and profitability of AIM listed SMEs. The parametric procedures applied are the Pearson's correlation matrix and panel data regression.

The questionnaire results are based on 248 companies sample size with a return rate of 29.03 per cent. Three statistical tests were employed in analysing the questionnaire survey including: (1) T-test, (2) one-way Analysis Of Variance (ANOVA) and (3) post hoc test. The t-test was used to analyse the educational and work experience effect on the priority given to each component of WCM. The one-way ANOVA and post hoc test were also used to determine the statistically significant differences in means between: (1) the educational levels and work experience of managers and WCM priority, (2) WCM components and ranking order, (3) WCM and importance to profitability, (4) WCM components and target level, (5) WCM components and frequency of alteration and (6) WCM components and strategy pursued.

1.6 MAIN FINDINGS

The results suggest that inventory holding period is a significant negative explanator of the variation in the profitability of companies in the sample. This result supports the Just-In-Time theory, which advocates that companies should avoid hoarding inventory and only order for materials when they are necessary to manufacture the products. The negative association between inventory holding period and ROA indicates that high

level of inventory may result in a reduction in company profitability. Accounts receivable period was also found to be negative and significantly related to AIM listed SME profitability. The result indicates that the granting of credit period to customers represents a cost to a company and therefore reduces profitability. This result is consistent with prior studies that have looked into the relationship between accounts receivable period and company profitability. The regression results indicate that accounts payable period has a negative influence on the profitability of AIM listed non-financial SME companies. The result shows that less profitable companies wait longer to pay their bills (Deloof 2003). The negative association between accounts payable period and profitability of AIM listed SME non-financial companies is consistent with similar previous studies (Gill et al. 2010; Dong and Su 2010; Mathuva 2010). On cash conversion cycle, the results indicate insignificant relationship with profitability of AIM listed SME companies.

The results suggest that company board size is a significant explanator of the variation in profitability of AIM listed non-financial SME companies. The negative and significant association between board size and profitability supports the argument that smaller board size will help prevent the free riding behaviour of some directors (Kyereboah-Coleman 2007a; Shakir 2008), thereby improving profitability. The results also suggest a positive association between CEO age and profitability. The positive relationship between CEO age and profitability supports the market learning theory, which suggests that younger CEOs are more risk averse than their older counterpart and

that they are less likely to be aggressive. CEO tenure is aso found to have a positive and significant relationship with profitability of AIM listed non-financial SME companies. The result that CEO tenure is positively associated with profitability supports the argument that longer tenured CEO will know the “inside out” of the company and also command respect from all members of the company, which may lead to improved profitability.

The proportion of non-executive directors is not a significant explanator in the profitability of AIM listed non-financial SME companies, according to the pane data regression results. The finding is nonetheless consistent with a study by Chaghadari (2011) who also examined the association between proportion of non-executive directors and profitability. The results from panel data regression indicate that directors remuneration is a negative and significant influence on the profitability of AIM listed non-financial SME companies. The negative association between directors’ remuneration and profitability support the argument that directors who are well compensated may not want to “rock the boat” (Brick et al. 2006), which may lead to sub-optimisation of profitability.

The results indicate that company age has a positive and significant influence on the profitability of AIM listed non-financial SME companies. This result supports the argument that older companies may benefit from greater business experience, established contacts with customers and easier access to resources, which may improve

profitability (Coad et al. 2010). The results also indicate that company size has a positive and significant influence on the profitability of AIM listed non-financial companies. This finding supports the economies of scale theory which suggests that larger companies can improve profitability because of their reduced operating costs and costs of innovation (Serrasqueiro and Nunes 2008; Hardwick 1997). The results of the relationship between asset tangibility and profitability show a negative and significant association. The negative association between asset tangibility and profitability indicates that a company that has more tangible assets may not be able to put them into productive use in order to generate higher profitability.

The results show a negative but insignificant association between financial leverage and profitability. The results show that liquidity ratio is not a significant explanator of the variation in profitability of AIM listed non-financial SME companies. The results indicate that short-term financing is not a significant explanator of the variation in profitability of AIM listed SME companies. The results show that gross working capital efficiency is a positively significant explanator of the variation in profitability of AIM listed non-financial SME companies. Working capital requirement is negatively associated with profitability of AIM listed non-financial SME companies, according to the panel data regression results. Industry classification is also found to have an effect on the profitability of AIM listed SME companies.

The results of the one-way ANOVA and post hoc tests on the priority given to each component of WCM by education level show that managers possessing master's degree are statistically different from managers holding professional qualification. Also, the one-way ANOVA and post hoc test on the priority given to each component of WCM by work experience show that there is a significant differences between managers of whether priority is given to WCM components. The one-way ANOVA and post hoc tests results on WCM components and their ranking order in cases of limited resources show significant differences. The one-way ANOVA and post hoc tests indicate differences in the importance of each component of WCM to profitability. The results of the one-way ANOVA test on the frequency at which the target level set for each component of WCM is altered show that there are no differences in the frequency of target level alteration between WCM components. Lastly, the one-way ANOVA results of whether an increase of each component of WCM leads to higher profitability show differences.

1.7 POTENTIAL CONTRIBUTION OF THE RESEARCH

This research makes several new contributions, as well as extension to the extant literature on the relationship between WCM and companies profitability. First, using a sample of 160 AIM listed SMEs from 2005 to 2010 (a total of 960 firm-year observations) this study aims to offer evidence on the relationship between WCM and SMEs profitability. The evidence of the relationship between WCM and profitability in SMEs is limited in the existing literature. So far only Garcia-Teruel and Martinez-

Solano (2007), in Spain, Afeef (2011) in Pakistan and Stephen and Elvis (2011) in Kenya have investigated the issue. The reason for the lack of literature on this subject stems from the fact that data on SMEs is difficult to find. This is because the majority of SMEs are private and that they are not obliged by law to publish their full financial data. Another factor is the time and cost involved in trying to gather information on SMEs. Due to their smallness, SMEs lack the proper and formal internal controls, which allow for the free and accurate flow of information. This makes it very difficult to accumulate adequate and accurate information for research purposes. Also, the secrecy of owner-managers of SMEs makes acquiring information a hard task. SMEs are very reluctant to give away information for the fear that it will be disclosed to and used by their competitors.

Third, the study seeks to offer the first time direct evidence on the relationship between WCM and profitability of SMEs located in the United Kingdom (UK). The intriguing factor is that no such research has been undertaken in the UK context. The previous empirical researches on the relationship between WCM and profitability of SMEs were all based outside of the UK, which means that there is no evidence as to the relationship between WCM and SMEs based in the UK.

Fourth, this study aims to fill the gap in the existing literature by offering for the first time direct evidence on the relationship between WCM and profitability of SMEs listed on a stock exchange. Unlike previous studies that have investigated unlisted SMEs, this

research examines SMEs that are listed on a stock exchange. A listing on a stock exchange means that their financial information is available to the public. Listed SMEs information can also be trusted because of the scrutiny of the market and the fact that the market requires them to have a proper internal control system. These factors should result in a more efficient and effective way of WCM as compared to unlisted firms. Therefore, the relationship between WCM and profitability of listed SMEs is expected to be different from that of unlisted SMEs.

Fifth, the administration of a questionnaire will bring to light the WCM practices of SMEs. As quantitative data analysis can only establish the association between WCM and profitability, a questionnaire administration will help unearth the detailed mechanisms employed by SMEs in the management of their WC. These internal practices are not available from their published financial information. This research will therefore provide answers to important but inherent questions such as the general knowledge about WCM and the importance of each component of WCM to profitability.

1.8 OUTLINE OF THE RESEARCH

The rest of the thesis is divided into eight chapters and organised as follows. Chapter two reviews the existing literature on the association between WCM components and profitability of companies. A summary of previous research is provided. Finally, limitations of existing research and need for further research is outlined. The chapter

concludes that the results of previous empirical work on the relationship between WCM and company profitability are mixed. The conflicting results may be due to the fact that the studies are done in different countries with varying accounting reporting standards, different cultures, the use of different statistical methodology and research design, and perhaps different periods of study.

Chapter three describes the AIM. The chapter looks at the purpose and operation of the AIM in relation to SMEs listed on it. It also looks at the requirement of SMEs listing on the AIM. This chapter talks about the AIM listing effect on the relationship between WCM and profitability. The obligation of SMEs listed on the AIM is also examined, which includes corporate governance, nominated advisor and on-going requirement.

Chapter four discusses the trends and development of SMEs. This chapter starts by reviewing the reasons for the variation in SME definitions. It was found that there is clearly no universally accepted definition of SMEs and that different researcher's adopt different definitions to suit their own research agenda. This chapter also examines the peculiar characteristics of SMEs. The SME development in the UK is also investigated. The economic contribution of SMEs is also looked at which establishes that SMEs are the backbone of every country, both developed and developing. Also, the challenges facing SMEs and the various sources of finance available to SMEs are described.

Chapter five deals with the theoretical framework that link WCM to company profitability. This chapter looks at the theories on inventory holding period (transaction motive theory, precautionary motive theory, speculative motive theory and just-in-time theory), theories on accounts receivable period (financing theory, quality guarantee theory, transaction cost theory, price discrimination theory, product differentiation theory and market power theory) and theories on accounts payable Period (financing theory, liquidity theory and financing distress theory).

Chapter six describes the hypotheses development, research methodology and empirical results of the quantitative data. The hypotheses are based on the discussion of the extant theories discussed in chapter five. The hypotheses concern the likely effect on company profitability of WCM components factors (inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle), corporate governance factors (board size, CEO age, CEO tenure, proportion of non-executive directors, directors remuneration), and company characteristics factors (company age, company size, asset tangibility, financial leverage, liquidity ratio, short-term financing, gross working capital, working capital requirement and industry classification).

The methodological issues in relation to the quantitative data analysis are also examined. The first part talks about the sampling selection procedure for the quantitative data, including the required criteria are also discussed. It also prescribes the various sources of data and justifies their reliability. A descriptive specification of the

statistical methods that were applied to test the relationship between WCM components and AIM listed SMEs profitability is provided. Finally, the various robustness test used in this thesis are examined.

The final part of the chapter deals with data analysis results. The results indicate that the three components of WCM including: inventory holding period, accounts receivable period and accounts payable period all explain the variation in the profitability of AIM listed SMEs at the 1 per cent level of significance. However, there is no statistically significant association between the cash conversion cycle and profitability of AIM listed SMEs. In terms of the control variables, there is a significant association between profitability and corporate governance variables of board size, CEO age, CEO tenure and directors remuneration. The company characteristics that are found to be significantly associated with profitability includes: company age, company size, asset tangibility, gross working capital efficiency, working capital requirement and industry classification.

Chapter seven relates to the results of the robustness test. It starts by testing the effect of WCM on alternative measures of company profitability. The Return On Equity (ROE) is employed as the alternative measure of companies profitability to examine the influence of WCM. The results indicate that ROE is influenced by three of the four WCM components including: inventory holding period, accounts receivable period and accounts payable period. The second part involves the introduction of a dummy variable

to distinguish between small and medium companies. SME is a dummy variable coded "0" if the company is small and "1" if the company is medium. The results show that WCM affect separately the profitability of small and medium companies listed on the AIM.

Chapter eight relates to the methodological issues and results of the questionnaire survey. For the first part, it starts by discussing the sampling framework and survey procedure. The description of respondents and the various measures employed in a bid to increase the response rates are also provided. A detailed description of the questionnaire design, variables development and measurement is also provided. Finally, the methods of research statistical analysis are discussed. The second part starts by explaining the survey distribution and response rates, the background of respondents and the internal validity of the construct used in this thesis. The influence of educational and work experience level of managers on WCM is also discussed. The results indicate that the educational level of managers has an influence on whether companies give priority to some WCM components. Also, the ranking order of the importance of each component of WCM and target level, WCM components and frequency of alteration and WCM components and strategy pursued are discussed.

Finally, chapter nine provides the summary of the entire thesis. Specifically, it starts by establishing the research methodology and methods used. It then goes on to examine the implications of the results. It also discusses the policy implications, recommendation,

contribution, limitations as well as potential avenues for future research and improvements.

CHAPTER TWO

REVIEW OF EMPIRICAL LITERATURE

2.1 INTRODUCTION

This chapter reviews the association between the components of Working Capital Management (WCM) and profitability and also the WCM practices of companies. This chapter is organised as follows. Section 2.2 evaluates the effect of WCM components (inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle) on profitability in both developing and developed economies. Section 2.3 investigates the WCM practices of SMEs. Section 2.4 looks at the control variables. Section 2.5 summarises previous empirical results on WCM and profitability. Section 2.6 discusses the limitation of existing research and need for further research. And finally section 2.7 summarise and concludes the chapter.

2.2 RELATIONSHIP BETWEEN WCM AND PROFITABILITY

The relationship between WCM and profitability is achieved by decomposing WCM into four components including inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle. Many empirical researches have been undertaken in both the developing and developed economies. Given the differences in the economic climate between these two types of economies, it is therefore necessary to review the extant literature in the context of these two

classifications. The relationship between WCM components and company profitability are investigated below.

2.2.1 Empirical Results from Developing Economies

Falope and Ajilore (2009) investigated the relationship between WCM components and profitability of quoted companies in Nigeria. They employed panel data regression on a sample of 50 companies from 1996 to 2005. They found an inverse relationship between Return On Assets (ROA) and inventory holding period, accounts receivable period and cash conversion cycle. They translated the negative coefficient of the inventory holding period to mean that the longer inventory is tied in, the less WC is available, which results in lower profitability. On the association between accounts receivable period and profitability, they contended that a more restrictive credit policy potentially improves company profitability. They also concluded that the negative coefficient of cash conversion cycle shows that more profitable companies minimise their cash conversion cycle. However, their results indicated a positive relationship between accounts payable period and profitability. Arguing that this positive association does make economic sense since the longer a company delays its payments, the higher the level of WC levels it reserves and uses in order to increase profitability.

Raheman and Nasr (2007) used a different measure of profitability namely Net Operating Profit (NOP) to study the relationship between componens of WCM and profitability. Employing 94 Pakistani companies listed on the Karachi Stock Exchange

(KSE), they found a significantly negative association between profitability and inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle. They therefore interpreted the results to mean that as inventory takes more time to sell, it will adversely affect profitability. On the relationship between accounts receivable period and profitability, they concluded that the collection policy of a company has a significant effect on profitability. They came to the conclusion with regards to the association between accounts payable period and profitabilty that less profitable companies wait longer to pay their bills. They also argued that the decrease in cash conversion cycle significantly increases the profitability of companies.

Dong and Su (2010) also measured the relationship between WCM components and profitability employing secondary data collected from the listed companies in Vietnam Stock Market (VSM) for the period from 2006 to 2008. They reported a significantly negative association between three components of WCM including: inventory holding period, accounts receivable period and cash conversion cycle. It was therefore argued that as inventory takes more time to sell, it will adversely affect profitability. Also, the results imply that the increase or decrease in accounts receivable will significantly affect profitability of companies. The cash conversion cycle coefficient indicates that when the cash conversion cycle is longer, profitability is smaller and that managers can create value for their shareholders by reducing the cash conversion cycle to a reasonable range. Contrary to explanation given by Raheman and Nasr (2007), they concluded that the

positive relationship between the average payment period and profitability indicates that profitable companies wait longer to pay their bills.

Raheman et al (2010) examined the relationship between WCM components and corporate profitability of manufacturing sector in Pakistan for the period between 1998 and 2007, covering 204 companies listed on the KSE. They found a statistically significant relationship between inventory holding period and profitability of the companies. They therefore argued that the negative coefficient of the inventory holding period implies that companies can improve their profitability by reducing the inventory holding period. Accounts receivable period was also found to be negative and insignificantly related to profitability. It was also concluded that the positive coefficient of accounts payable implies that lengthening the payment period increases profitability. Cash conversion cycle and profitability was found to be negatively related at the 1 per cent level of significance, concluding that decreasing the cash conversion cycle will generate more profits for a company.

Mathuva (2010) examined the influence of WCM components on corporate profitability. Employing a sample of 30 companies listed on the Nairobi Stock Exchange (NSE) for the period 1993 to 2008, and excising both pooled OLS and FE regression models, found that there exists a highly significant positive relationship between the time taken to convert inventory into sales and profitability. It was concluded that maintaining high inventory levels reduces the costs of possible

interruptions in the production process and the loss of business due to scarcity of resources. The negative relationship between the cash conversion cycle and profitability was explained to mean that minimising the investment in current assets can help in boosting profitability, by ensuring that liquid cash is not maintained in the business for too long and that it is used to generate profit for the company.

Ganesan (2007) analysed the WCM components efficiency on telecommunication equipment industry in India. Unlike other researchers, he did not include cash conversion cycle as a component of WCM. Applying ROA as a measure of company profitability for a sample of 349 publicly listed companies, he found a negative relationship between WCM components and ROA of the companies. However, the association between accounts payable period and profitability was found to be insignificant.

Vishnani and Shah (2007) utilised Return On Capital Employed (ROCE) as a measure of company profitability and examined the relation with WCM by employing 14 listed companies of the Indian consumer electronics industry between 1994/5 and 2004/5. They concluded that the companies under study showed a positive effect of raw material inventory holding period and accounts payable period on companies ROCE. On the other hand accounts receivable period and cash conversion cycle was found to be negatively related to ROCE. This led to the conclusion that creditors' management policy plays an important role in companies' profitability.

Ramachandran and Janakiraman (2009) employed the measures of profitability index, utilisation index and efficiency index to measure the WCM efficiency and company profitability of paper industry in India during the period from 1997/8 to 2005/6. By employing a sample of 30 companies listed on the Bombay Stock Exchange, inventory holding period and cash conversion cycle were found to be negative and significantly related with profitability. It was therefore suggested that less profitable companies will pursue a decrease of their accounts receivable period in an attempt to reduce their cash gap in the cash conversion cycle. Accounts receivable period and accounts payable period on the other hand were found to be positively related to profitability, which led to the conclusion that a more profitable company delays its payment to its suppliers.

2.2.2 Empirical Results from Developed Economies

Deloof (2003) found a significantly negative relationship between profitability and all four components of WCM with a sample of 1009 non-financial Belgium companies during the period 1992 to 1996. By employing both Fixed Effect (FE) and Ordinary Least Square (OLS) models, he came to the same conclusion that managers can increase corporate profitability by reducing number of inventory holding period. The negative coefficient of accounts receivable peirod was interpreted to mean that customers want more time to access the quality of products they buy from companies with declining profitability. The negative relationship between accounts payable period and profitability was interpreted to indicate that less profitable companies waited longer to pay their bills.

Lazaridis and Tryfonidis (2006) employed a sample of 131 companies listed on the Athens Stock Exchange (ASE) for the period from 2001 to 2004 to postulate the relationship between WCM commponents and profitability. Applying Gross Operating Profit (GOP) as a measure of company profitability, they found a negative but insignificant relationship between inventory holding period and profitability. The coefficient of accounts receivable period was found to be negative, which was interpreted to indicate that managers could improve profitability by reducing the credit period granted to their customers. In agreement with Deloof (2003), the negative association between accounts payable period and profitability was taken to suggest that less profitable companies will take advantage of credit period granted by their suppliers by waiting longer to pay their bills. They also concluded that a decrease in the cash conversion cycle would generate more profits for a company, because of the negative coefficient of the cash conversion cycle.

Garcia-Teruel and Martinez-Solano (2007) collected a panel of 8872 SMEs covering the period from 1996 to 2002 in order to deduce the effect of WCM components on SME profitability. Utilising ROA as a measure of company profitability, they found a significantly negative relationship between inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle and SME profitability. It was therefore argued that company profitability could be improved by reducing the number of inventory holding period. It was also suggested that a more

restrictive credit policy giving customers less time to make their payment improves profitability.

Gill et al (2010) made use of a sample of 88 American manufacturing companies listed on the New York Stock Exchange (NYSE) for the period of 3 years from 2005 to 2007 to accentuate the relationship between WCM components and profitability. Whilst inventory holding period and cash conversion cycle were found to be positively related to profitability, on the other hand accounts receivable period and accounts payable period were found to be negative and significantly related to profitability. They therefore concluded that managers can create value for their shareholders by reducing the number of accounts receivable period. Also, it was argued that the higher the cash conversion cycle, the higher the profitability of the company.

Nobanee and Alhajjar (2009a) used a panel data of 2123 Japanese non-financial companies listed on the Tokyo Stock Exchange for the period 1990 to 2004 to investigate the link between WCM and corporate profitability. Using Return On Investment (ROI) as a measure of profitability, a negative relationship was recorded between profitability and all WCM components except for accounts payable period, which was found to be positively related to profitability. They concluded that managers can increase profitability by shortening the inventory holding period. The positive relationship between accounts payable and ROI was interpreted to indicate companies that wait longer to pay for their bills will have a better cash flow position and a high

profitability. The relationship between profitability and cash conversion cycle brought the conclusion that managers could increase profitability by shortening the cash conversion cycle.

Samiloglu and Demirgunes (2008) analysed the effect of WCM on company profitability of a sample of companies consisting of Istanbul Stock Exchange (ISE) listed manufacturing companies for the period of 1998 to 2007. Making use of ROA as a measure of company profitability, they found a significantly negative effect of inventory holding period and accounts receivable period on company profitability. Their conclusion was that the negative relationship between accounts receivable period and profitability may be due to the fact that customers want more time to assess the quality of products they buy from companies with declining profitability. However, there was no statistically significant relationship between ROA and cash conversion cycle.

Sen and Oruc (2009) investigated the relationship between efficiency level of WCM and ROA of companies trading on the ISE. Exploiting a total of 49 production companies for the period between 1993 and 2007, they concluded that there exists a negative relationship between inventory holding period, accounts receivable period, cash conversion cycle and ROA. However, the association between accounts payable period and ROA was found to be significantly positive.

Nobanee and Alitajjar (2009b) examined the relationship between WCM and corporate profitability using a panel data of 5802 USA non-financial companies for the period from 1990 to 2004. With the exception of the inventory holding period, they found a negative relationship between profitability and all the other components of WCM. This led them to explain that shortening the inventory holding period could increase the stock out cost of inventory, which results in losing sales opportunities and eventually poor company profitability. It was also concluded that shortening the accounts receivable period by speeding up collections results in high operating income to sales and operating cash flow to sales. The negative sign of accounts payable was interpreted to imply that slowing down payment to suppliers cause damages to the company's credit reputation and result in a poor profitability. The negative coefficient of cash conversion cycle, led to the suggestion that shortening cash conversion cycle by reducing the time that cash is tied up in WC results in high company profitability.

2.3 WORKING CAPITAL MANAGEMENT PRACTICES AMONG SMES

WCM practices have an effect on companies' profitability (Wilson 1996; Agyei-Mensah 2010). Wilson (1996) found in a research conducted in the U.K that good credit management practices have connection with company profitability. Berryman (1993) also concluded that poor or careless WCM is a major cause of SME failure. The WCM practices of SMEs are different from their larger counterparts because of their unequal access to finance. However, the advocates in finance literature seem to be focused on larger companies. Jarvis et al (1996) interviewed 20 SMEs and indicated that 'best

practice' models advocated by finance literature are not necessarily appropriate to SMEs and that alternative approaches may be viable. SMEs due to their smallness may be in a weaker position in terms of their dealings with suppliers and customers. As argued by Solanki (2009), SMEs cannot command suppliers' credit in the way large firms do and also if they remain slow payees the supplier may refuse credit or they may quote higher prices. Research shows that WCM practices in SMEs are inadequate (Poutziouris et al. 2005). Very few researches have looked into the WCM practices of companies, more especially SMEs. In the U.K, only few notable exceptions of researches have looked at the WCM practices of SMEs (Bolton 1971; Peel and Wilson 1996; Wilson 1996; Jarvis et al. 1996; Singleton and Wilson 1998; Poutziouris et al. 2005).

The first research that comprehensively surveyed the WC practices of companies was conducted in 1978 by Smith and Sell (1980) in the U.S. In their research they used a survey instrument consisting of 35 questions. Out of a sample of 653 industrial firms, 210 usable responses were received representing a 32.2 per cent response rate. They concluded that WCM in practice is far more than just a series of independent technologies. Belt and Smith (1992) also conducted a research into the WC practices in U.S. with a sample of 448 largest industrial companies. With a questionnaire of 38 questions, they received 105 usable responses representing a 23.4 per cent response rate. Using longitudinal data of a ten-year period, they suggested a pattern of more formality and sophistication in how current assets and liabilities are managed in practice. A

research into the WCM practices of SMEs in Canada, U.S. and Australia was also conducted by Koury et al (1998). They used a sample of 350 firms randomly chosen from ten industries within the BOSS database and received a 57 usable responses representing a 15.8 per cent response rate. The findings found that only 7 per cent of Canadian SMEs have formal WC policies.

Recently, Nyamao et al (2012) conducted a study to elucidate the WCM practices of SMEs in Kenya using a sample of 113 SMEs. They concluded that WCM practices were low amongst SMEs as majority had not adopted formal WCM routines. Agyei-Mensah (2010) also conducted a research into the WCM practices of SMEs in the Ashanti region of Ghana. Using a sample of 800 randomly selected firms the study revealed weak WCM skills within the sector. Despite the importance of WCM to SMEs, a research by Burns and Walker (1991) and Peels and Wilson (1994) show that only 24 per cent and 20 per cent respectively of the financial managers time is spent on WC. Harif et al (2010) did a research on the financial management practices of SMEs in Malaysia, with the results indicating that lack of WC which accounted for 93.6 per cent is the most common weakness in the area of financial management.

According to Peel and Wilson (1994), there are factors that differentiate the WCM practices between SMEs and larger firms including: (1) SMEs have the tendency of great reliance on trade credit and bank overdrafts for short-term financing, (2) a willingness on the part of SMEs to grant over-generous credit terms to obtain business,

particularly from larger companies, (3) relatively weak control procedures in SMEs and (4) lack of clear policy on WCM by SMEs. Likewise, Atrill (2006) also identified factors that distinguish the WCM practices of SMEs and larger companies including: (1) SMEs lack of appropriate resources to manage WCM components and (2) lack of market power by SMEs.

2.3.1Educational and Work Experience Levels Effect on Working Capital Management

There is evidence that SMEs are not very good at managing their WC despite their high investments in current assets in proportion to their total assets (Atril 2006). Research has found that educational and work experience levels have a correlation to the way WCM is practiced (Agyei-Mensah 2010; Nyamao et al. 2012; Kwame 2007). In order to achieve higher profitability through effective WCM practices, it is imperative that managers are well equipped in dealing with WCM matters. One way of ensuring an effective WCM practices, which leads to higher profitability is higher formal education of managers. According to Agyei-Mensah (2010), one of the causes of poor WCM practices within SMEs is lack of limited formal education of managers. Another attribute of an effective WCM practices is the level of work experience. The importance of work experience to effective WCM practices is reiterated in a research by Kwame (2007) which indicated that up to 90 per cent of SMEs relied on managers' experience in the management of WC.

2.3.2 Working Capital Management Target Level Practices Of SMEs

The target level of each component of WCM is important because it defines the extent of relationship between the company and both its customers and suppliers. The objective of WCM is to maintain levels that maximise profitability and therefore the onus is on companies to ensure that the target levels of WCM set is adequate and feasible in order to attain the maximum profitability. As a norm, suppliers may always find means to reduce the amount of credit given to customers; whilst customers may always find means to demand greater credit from their suppliers. This means that the lack of proper management of the target level set for each component of WCM will ultimately lead to reduced profitability due to the external pressure from both suppliers and customers. The target level of WCM components will also have influence on the profitability of companies because whilst suppliers' credit can be used as a vital source of finance to fund operations, credit extended to customers also represent money locked up in WC which could have been invested to earn profit.

A research by Solanki (2009) found that more than 50% of the sample companies estimate the size of WCM components on the basis of either production or sales, whilst 14% did not adopt any formal method for estimating the size of WCM components. Grasblowsky and Rowell (1980) found evidence from their research that approximately 95 per cent of SMEs sold on credit to anyone who wished to buy. This findings show that most SMEs do not set a specific WCM components target level but rather depend on the demand and supply forces in the market.

2.3.3 Working Capital Management Alteration Frequency Practices of SMEs

In order to maximise profitability, companies, especially SMEs must frequently review and if necessary alter the level set for each component of WCM. The need to alter the target level of WCM components stem from the fact that the circumstances of suppliers and customers may change, which may necessitate a change in relationship. For example, a customer in financial distress may give the company a reason to alter the target level of credit giving to that customer as a matter of urgency. The frequency at which companies alter their WCM components has two major benefits. First, it has a positive influence on companies' profitability. This is because the frequency of alteration of WCM components will help reduce the level of bad debts occurring. The frequent alteration will help detect early signs of problems with customers and suppliers. Second, the frequency of alteration shows the level of management commitment to WCM.

A research by Peel and Wilson (1994) reveals that 91.4 per cent of SMEs review their debtors' credit period with 23.5 per cent frequently reviewing it. In terms of suppliers' credit, their research shows that only 12.2 per cent of respondents stated that they never reviewed their payment period to suppliers. The same research also found that about 65.4 per cent of sample SMEs says they review the stock level of their companies. Solanki (2009) also did a research on a sample of SMEs in India and found that 13.75 per cent review WCM components daily, 36.25 per cent review weekly, 27 per cent review monthly, 10 per cent did so in other period, whilst 13 per cent never did any

review. These results indicate that SMEs frequently review both their suppliers and customers' credit.

2.3.4 Working Capital Management Strategy Practices of SMEs

Generally, the WCM strategy practices of companies can broadly be divided into three namely: conservative, moderate and aggressive WCM. A conservative strategy implies the holding of more current assets relative to current liabilities. A company that practices conservative strategy is termed as "risk averse" because it tries to make provision to cover any unforeseen circumstances. A moderate WCM strategy, which is termed "middle-of-the-road", is a hybrid of both aggressive and conservative strategies. An aggressive WCM strategy, which is termed as "risk taker" ensures that a company keeps small proportion of current assets in relation to fixed assets. The particular strategy chosen will ultimately determine the levels of current assets and current liabilities kept by a company. The levels of current assets and current liabilities kept will in turn have an effect on the profitability level. A research by Koury et al (1998) found that 28.5 per cent of Canadian companies follow the conservative strategy, whilst only 10.2 per cent pursue an aggressive strategy. Afza and Nazir (2007) also found in their sample companies that as the degree of aggressiveness of WCM strategy increases, the returns are likely to decrease. The higher percentage of conservative practices as against aggressive strategy contradicts the extant empirical evidence on the relationship between WCM and profitability (see, Nobanee et al. 2010; Uyar 2009; Wang 2002;

Zariyawati et al. 2009; Lazaridis and Tryfonidis 2006; Garcia-Teruel and Martinez-Solano 2007).

2.4 CONTROL VARIABLES

The control variables employed in this thesis are broadly divided into two namely: corporate governance and company characteristics variables. The company characteristics variables are based on the evidence from previous research on the effect of WCM on profitability. These variables include: company age, company size, asset tangibility, financial leverage, liquidity ratio, short-term financing, gross working capital efficiency, working capital requirement and industry classification (see, Hansen and Wernerfelt 1989; Chittenden et al. 1996; Mujumdar 1997; Michaeles et al 1999; Kakani and Kaul 2002; Cassar and Homes 2003; Inmyxai and Takahashi 2010).

For example, Mathuva (2010) employed financial leverage, company age, company size as control variables in establishing the influence of WCM components on corporate profitability. The results showed a negative association between financial leverage and profitability. However, a positive relationship was postulated between company size, company age and profitability. Samiloglu and Demirgunes (2008) introduced company size and financial leverage as control variables when they investigated the effect of WCM on firm profitability in Turkey. The results indicated a positive and negative association between company size and financial leverage with profitability respectively. Christopher and Kamalavalli (2009) examined the sensitivity of profitability to WCM in

Indian corporate hospitals and employed working capital requirement and financial leverage as control variables. According to the results, working capital requirement is positively associated with profitability whilst financial leverage had a negative effect on profitability. Padachi (2006) included company size, gross working capital efficiency, working capital requirement, short-term financing and financial leverage as control variables in analysing the trends in WCM and its impact on firms' performance of Mauritian SMEs. Company size, working capital requirement and gross working capital efficiency were found to be positively associated with performance. However, leverage and short-term financing had a negative association with performance.

Stephen and Elvis (2011) examined the influence of WCM on firms' profitability in Kenya and added company size, leverage, short-term financing and working capital requirement as control variables. They found company size and working capital requirement to be positively associated with profitability. Leverage and short-term financing on the other hand showed negative relationships with profitability. Mohamad and Saad (2010) introduced working capital requirement, short-term financing and leverage in establishing the association between WCM and profitability in Malaysia. They found positive links between working capital requirement and leverage with profitability and a negative association between short-term financing and profitability. Lingesiya and Nalini (2011) investigated the association between WCM and performance of manufacturing campanies in Sri Lanka and included company size, leverage, working capital requirement, short-term financing, gross working capital

requirement and liquidity ratio as control variables. All the control variables were found to be positively associated with performance with the exception of leverage which had a negative relationship.

In addition to the above company characteristics control variables other corporate governance control variables were introduced including: board size, CEO age, CEO tenure, proportion of non-executive directors and directors' remuneration. Previous researchers have postulated a relationship between WCM and corporate governance factors. For example, Gill and Biger (2013), used a sample of 180 American manufacturing firms on the NYSE for a period of three years from 2009 to 2011. They employed the following corporate governance factors including: CEO tenure, CEO duality, board size and audit committee as explanatory variables to establish an association with WCM efficiency. They found significant effect of corporate governance factors on WCM efficiency and therefore argued that corporate governance plays an important role in controlling the management of Working Capital (WC) by formulating sound policies.

The effect of corporate governance practices on WCM efficiency was also examined by Achchuthan and Kajananthan (2013) by employing a sample of twenty-five listed manufacturing firms on Colombo Stock Exchange for the period form 2007 to 2011. Board leadership structure, proportion of non-executive directors, board committee and board meeting were used as independent variables to measure the influence of corporate

governance on WCM efficiency. They found a significant link between corporate governance practices and efficiency in WCM and therefore suggested that the effective policies in WCM must be formulated through the corporate governance practices of companies to achieve goals as survival, solvency and profitability. According to Moussawi et al (2006), a firm's Working Capital Policies (WCP) is influenced by the proportion of outside directors on its board, the current compensation of its Chief Executive Officer (CEO), and its CEO's share ownership.

The decision to include these variables stems from the fact that the sample companies under investigation are all listed on the Alternative Investment Market (AIM). Corporate governance is very vital to the success or failure of listed companies. Past research has shown that corporate governance has influence on profitability (see Main et al. 1996; Yermack 1996; Conyon and Peck 1998; Firth et al. 1999; Liang and Li 1999; Vafeas 1999; Dehaene et al. 2001; Hassan et al.2003; Abdullah 2006; Krivogorsky 2006; Ozkan 2007a; Ozkan 2007b; Dahya et al. 2008, Abiden et al. 2009).

2.5 SUMMARY OF PREVIOUS RESEARCH

Table 1 below summarises previous studies on the relationship between WCM and company profitability. The table has been divided into six columns, with column one detailing the author(s) name and date, column two shows the country from which the study was undertaken, column three indicates the sample size used, column four lists the analytical methods used, column five reports on the variables employed and finally,

column six records the outcome of each study. Three signs have been used to indicate the direction of effect of the variables used. The sign (+) indicates a positive relationship, (-) indicates a negative relationship and finally (0) indicates a no relationship. Where two signs have been used for a variable indicates that two methods were employed, which resulted in different outcomes.

Table 1: Summary of Studies on the relationship between WCM and Profitability

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Raheman et al. (2007)	Pakistan	94	Correlation Regression	Net operating profit Cash conversion cycle Inventory conversion period Debtors collection period Payment collection period Debt ratio Size Financial asset to total asset Current ratio	 − − − − − + − +
Raheman et al. (2010)	Pakistan	204	Correlation, Regression analysis	Net operating profitability Average collection period Inventory turnover in days Average payment period Cash conversion cycle Net trade cycle Current ratio Log of sales Sales growth Financial debt ratio Gross working capital turnover ratio Current asset to total asset ratio Current liabilities to total asset ratio	 + − + − − + + + − + + −

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Eljelly (2004)	Saudi Arabia		Correlation Regression	Net operating income Cash gaps in days Current ratio Logarithm of net sales	 − − +
Uyar (2009)	Turkey	166	ANOVA Pearson correlation	Cash conversion cycle Sales revenue Total assets ROA ROE	 − − − +
Gill et al. (2010)	USA	88	Pearson correlation analysis WLS regression	GOP Cash conversion cycle Inventory control period Debtors control period Payment control period Log of sales Financial debt ratio Fixed financial asset ratio	 + + − + + − −
Ramachandran and Janakiraman (2009)	India	30	Profitability index Utilisation index Efficiency index	EBIT Cash conversion cycle Accounts receivable days Accounts payable days Inventory days Fixed financial asset ratio Financial debt ratio Size	 − + + − − 0 +

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Mathuva (2010)	Kenya	30	Pooled OLS/ Fixed effect regression	NOP Accounts receivable Inventory control period Accounts payable Cash conversion cycle Leverage Age Size Fixed financial assets ratio	 − + + − − + + +
Zariyawati et al (2009)	Malaysia	148	Pooled OLS regression/ Fixed effect	Operating income to total asset Cash conversion cycle Growth Leverage Current ratio	 − + − −
Nobanee and ALHajjar (2009a)	USA	5802	GMM	Operating income to sales Cash flow Cash conversion cycle Inventory conversion period Debtors collection period Payment collection period	 − + − −
Nobanee; and ALHajjar (2009b)	Japan	2123	Regression analysis	ROI Receivable collection period Inventory conversion period Payable deferral period Cash conversion cycle	 − − + −

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Moss and Stine (1993)	USA	1717	Regression analysis	Cash conversion cycle Current ratio Quick ratio Cash flow	− + + −
Lyroudi and Lazaridis (2000)	Greece	683	Regression	Cash conversion cycle Inventory conversion period Receivable conversion cycle Payment deferral period ROI ROE Net Profit Margin Debt to asset ratio Current ratio Quick ratio Debt ratio	 + + − + + + + + + −
Padachi (2006)	Mauritania	59	Correlation Fixed Effect Model/Pooled OLS	ROA Gearing Current liabilities to total assets Current asset to total assets Current asset turnover Inventories days Accounts receivable days Accounts payables days Cash conversion cycle Log of sales	 − − + + +/− − − +/− +

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Samiloglu and Demirgunes (2008)	Turkey	5843	Multiple regression	ROA Cash conversion cycle Inventory conversion cycle Debtors conversion cycle Size Growth Leverage Financial assets	 0 − − 0 + − 0
Deloof (2003)	Belgium	1009	Correlation analysis Regression analysis	Gross operating income Accounts receivable Inventories Accounts payable Cash conversion cycle Log of sales Sales growth Financial debt Fixed financial assets	 − − − − + + − +
Sen and Oruc (2009)	Turkey	49	Fixed Effect Model	ROA Accounts receivable period Accounts payable period Accounts inventory period Current ratio Net working capital level + Cash conversion cycle - Daily working capital	 − + − − + − −

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Falope and Ajilore (2009)	Nigeria	50	Correlation Pooled regression	ROA Cash conversion cycle - Inventory control period - Debtors control period - Payment control period + Size Sales growth Debt Economic cycle	 − − − + +/− +/− + +/−
Garcia-Teruel and Martinez-Solano (2007)	Spain	8872	Panel data Analysis	ROA Accounts receivable Inventory control period Accounts payable Cash conversion cycle Firm size Sales growth Leverage	 − − − − + + −
Christopher and Kamalavalli (2009)	India	14	Panel data analysis	ROI Current ratio Cash turnover ratio Current assets to operating income Leverage Quick ratio Current asset to total asset Debtors turnover ratio Growth	 − − − − + + + +

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Nobanee et al. (2009)	USA	5802	Generalized Method of Moments (GMM)	Operating income to sales Receivable collection period Inventory conversion period Payable deferral period Cash conversion cycle Quick ratio Total Debt to Equity ratio Operating cycle Net trade cycle	 − + − − + − − +
Dong and Su (2010)	Vietnam	130	Correlation matrix, Multiple regression analysis	Gross operating profitability Accounts receivable Accounts payable Inventory Cash conversion cycle Log of sales Fixed financial assets to total assets Debt ratio	 − + − − + + +
Lazaridis and Tryfonidis (2006)	Greece	131	Regression analysis	GOP Cash conversion cycle Inventory control period Debtors control period Payment control period Fixed financial assets Financial debt	 − − − − + −

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Vishnani and Shah (2007)	India	23	Multiple regression analysis	ROCE Current ratio Finished good inventory period Debtors control period Payment control period Net working capital cycle	 + − − + −
Ganesan (2007)	India	349	Correlation, regression, ANOVA	Cash conversion efficiency Days sales outstanding Days inventory outstanding Days payable outstanding Days working capital	 − − − −
Wang (2002)	Japan/Taiwan	1555/379	Correlation/Cross-sectional regression	Tobin's Q ratio Cash conversion cycle Logarithm of sales	 − +
Nobanee (2009)	USA	5802	GMM	Operating income to sales Cash conversion cycle Inventory Accounts receivable Accounts payable	 + + + −
Sial and Chaudhry 2012	Pakistan	100	Fixed Effects	ROA Inventory holding period Accounts receivable period Accounts payable period Cash conversion cycle Size Debt ratio	 − − − − + −

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Enqvist et al. (2012)	Finland	1136	OLS Regression	ROA	
				Inventory holding period	−
				Accounts receivable period	−
				Accounts payable period	−
				Cash conversion cycle	−
				Current ratio	+
				Debt ratio	−
				Sales	−
				Operating income	+
				Growth	+
Ahmadi et al. (2012)	Iran	333	OLS Regression	NOP	
				Inventory holding period	−
				Accounts receivable period	−
				Accounts payable period	−
				Cash conversion cycle	−
Napompech (2012)	Thailand	255	OLS Regression	GOP	
				Inventory holding period	−
				Accounts receivable period	−
				Accounts payable period	−
				Cash conversion cycle	−
				Fixed Financial Assets Ratio	−
				Debt ratio	+
				Size	−

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Mohamad and Saad (2010	Malaysia	172	Linear Multiple Regression	ROA Cash Conversion Cycle Current Asset to Current Liability Ratio Current Asset to total asset ratio Current liability to total asset ratio Total debt to total asset ratio	 − − + − +
Abuzayed (2012)	Jordan	93	FE Regression	GOI Inventory holding period Accounts receivable period Accounts payable period Cash conversion cycle Size Gearing Leverage Financial fixed assets Variation in NOI GDP	 + + + − + + + + − +

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Kaddumi and Ramadan (2012)	Jordan	49	FE Regression	ROA	
				Inventory holding period	−
				Accounts receivable period	−
				Accounts payable period	+
				Cash conversion cycle	−
				Net trade cycle	−
				Gross working capital turnover	+
				Investing policy of working capital	+
				Financing policy of working capital	−
				Size	−
				Investment growth opportunities	+
				Liquidity	+
Afeef (2011)	Pakistan	40	OLS Regression	ROA	
				Inventory holding period	−
				Accounts receivable period	−
				Accounts payable period	−
				Cash conversion cycle	+
				Current ratio	+
				Natural log of sales	−
				Sales growth	+
				Financial leverage	+

ARTHOR (S)/DATES	COUNTRY	SAMPLE	METHOD	VARIABLES	OUTCOME
Karaduman et al (2011)	Turkey	127	RE regression	ROA Inventory holding period Accounts receivable period Accounts payable period Cash conversion cycle Size Debt ratio Sales growth	 − − − − + − +
Charitou et al (2010)	Cyprus	43	Multiple regression analysis	ROA Cash conversion cycle Size Sales growth Debt ratio Current Ratio	 + + + − −
Usama (2012)	Pakistan	18	Pooled Least Square	NOP Inventory holding period Accounts receivable period Accounts payable period Cash conversion cycle Ratio of financial assets Debt ratio Size	 − − − − + + +

2.6 LIMITATION OF EXISTING RESEARCH AND NEED FOR FURTHER RESEARCH

One of the major limitations of existing research, which warrant the need for further research is the conflicting results. The literature survey shows that even though there are a lot of studies about the effect of WCM on company profitability, the results do not show any cohesiveness regarding the association between WCM practices and company profitability. These conflicting results may be due to a number of reasons. Firstly, it can be seen from the summary of the past studies that the studies are done in over fifteen different countries. Different countries have varying accounting reporting standards, which may affect the variables found in the financial statements. For example, US GAAP, which is used by US companies, UK GAAP in UK and Canada GAAP by Canadian companies. Another possibility for the difference in results of existing studies stems from the fact that different authors used different techniques in analysing the variables included in their research. There are about twelve different techniques used by previous researchers to examine the association between WCM and company profitability. Some methods are more robust than others, which results in varying outcomes. For example, a panel data regression may give a different and more robust outcome than an OLS regression.

The third reason may be due to the differences in years in which the different researches were undertaken. This is because the economic climate prevailing at a particular year could affect the results of any research undertaken. For example, a year of economic

boom may cause the increase in WCM components, which may alter the relationship between WCM and profitability and vice versa. The fifth possible reason may be the differences in the sample size used. It can be deduced from the summary of existing research that the sample found in the past research ranges from a size of 14 to a size of 8872. Research has shown that an increase in the sample size leads to improvement in the regression results. Six, out of the over thirty studies on the relationship between WCM and profitability, only Garcia-Teruel and Martinez-Solano (2007), Afeef (2011) and Stephen and Elvis (2011) have investigated the association between WCM and profitability of SME companies. However, these studies were not based in the UK which indicates that a gap still exist as far as the UK is concerned. The last possible reason for the variations in the results of past research may stem from the inclusion of different control variables. Evidence from past literature shows that about 13 different control variables were employed by different researches in assessing the relationship between WCM and profitability.

The differences in results of previous studies and the fact that no research has been done in the UK context therefore warrant further research into the relationship between WCM and company profitability, particularly using a sample from the UK in order to establish a cohesive pattern of results. There is clearly a gap in the literature, which this current study will identify and try to fill. As evident from the summary of existing studies above, the first gap in the literature is the fact that there is no previous study that has specifically investigated the relationship between the WCM of SMEs listed on any

stock exchange. The second gap identified in the existing literature is the lack of use of primary data in establishing the WCM practices of companies in general and SMEs in particular. A thorough search through the existing literature indicates that only Belt and Smith (1991), Peel and Wilson (1996), Nyamao et al (2012), Koury et al (1998) and Agyei-Mensah (2010) have used a questionnaire to investigate the WCM practices of companies. This research will use a questionnaire to examine the WCM practices of SMEs listed on the AIM. This research is also the first of its kind to use both primary and secondary data simultaneously in establishing the relationship between WCM and profitability of SMEs and their WCM practices.

2.7 SUMMARY AND CONCLUSION

This chapter has examined the existing literature on the empirical relationship between WCM and company profitability and the WCM practices of companies. Section 2.2 analysed the effect of WCM and is components on profitability and concluded that there are conflicting results in the existing literature. It also showed a lack of literature on the relationship between WCM and profitability of SMEs, particularly in the UK. Section 2.3 examined the WCM practices of companies including: educational and work levels effect on WCM, WCM target level practices, WCM alteration frequency practices and WCM strategy practices. Section 2.4 evaluated some of the important control variables that may influence the relationship between WCM and companies profitability. These control variables were grouped under two headings including corporate governance (board of directors, CEO age, CEO tenure, proportion of non-executive directors,

remuneration of directors) and firm characteristics (company age, company size, asset tangibility, financial leverage, liquidity ratio, short-term financing, gross working capital efficiency, working capital requirement and industry classification). Section 2.5 summarised the existing literature relating to WCM and company profitability in a tabulated form. Section 2.6 reviewed some of the limitations of existing research and found evidence of a gap in the literature, which therefore needs further research. Section 2.7 relates to the summary and conclusion of this chapter.

CHAPTER THREE

THE ALTERNATIVE INVESTMENT MARKET

3.1 INTRODUCTION

This chapter focuses on the Alternative Investment Market (AIM) of the London stock Exchange (LSE) in relation to SMEs listed on it. This will help to identify the purposes of its establishment, its importance as far as SMEs are concerned, characteristics of SMEs listed on it and how it affects the WCM and profitability of listed companies. AIM listed SMEs have been specifically chosen to be investigated due to their peculiar characteristics. Even though the general consensus is that SMEs as compared to larger firms are financially constrained, a SME listed on a stock exchange will have access to public finance which will help to alleviate the financial distress often associated with SMEs.

Listed SMEs accessibility to finance stems from the fact that by going public, they increase their reputation and credibility. Creditors and financial institutions are happy to lend to listed SMEs due to the fact that such SMEs have to abide by the stringent rules and regulations. However, on the other hand AIM listed SMEs have a higher investment risk than is associated with established companies. The lax accounting rules and the fact that companies are not required to have a trading history before admission to the AIM exacerbates the risk associated with investing or lending to such companies.

Consequently, traditional forms of finance are limited and WCM is critical for the survival of AIM listed SMEs. These arguments therefore make the investigation into the relationship between WCM and profitability of AIM listed SMEs an interesting theme.

The chapter is structured as follows. Section 3.2 discusses the importance of the establishment of the AIM. Section 3.3 looks at the requirement of listing on the AIM. Section 3.4 highlights AIM listing effect on the relationship between WCM and profitability. Section 3.5 looks at the obligations of AIM listed SMEs. Section 3.6 finally concludes the chapter.

3.2 THE PURPOSE OF THE ALTERNATIVE INVESTMENT MARKET

The AIM was set up by the LSE in June 1995. The motive behind its establishment was to provide a platform for SMEs, growing companies the opportunity of becoming a quoted company. It also serves as an avenue for rather large companies to make preparation in anticipation to be listed on the main market (Mendoza 2007). These companies may not readily have the expertise and knowledge of the main market. Or they may not have the time and money to fully comply with full listing on the main market. As at 8th of March 2010, the number of companies listed on the AIM stood at 1,316. The establishment of the AIM serves two important purposes as far as SMEs are concerned. The first factor is the fact that AIM has enabled companies that would not be admitted on the main stock exchange – LSE the afforded opportunity to become listed. Mendoza (2007) stated in his report that "*it will be contended here that AIM covered a*

funding gap for companies whose specific characteristics preclude them from listing in senior markets such as NASDAQ, NYSE or the LSE". Also, the second point is that it has allowed SMEs the ability to solicit for funds that would not be available from financial markets without listing status. A research by Pagano et al (1996) shows that going public allows companies to have bargaining power against banks and other financial institutions. They also found that being listed offers companies a significantly large number of lenders to count on, which makes them access finance at a cheaper price.

The AIM has not disappointed, judging from its track records. In comparison with other second tier markets around Europe, the AIM is by far the most successful second tier market (Colombelli 2010). A study by KPMG in 1996 found that none of the companies listed on the AIM was disappointed with their decision to join the AIM. In terms of performance, the AIM has thrived, even beating the main market – LSE. A study by Clatworthy and Peel (1998) showed that 82.4 per cent of AIM companies experienced sales growth, compared to 78.0 per cent of companies on the main market. The same report also found that the AIM even outperformed both unquoted companies and private companies. Its success has caught the attention of many foreign companies that would have sought a listing in other places. For example, Mendoza (2007) claims that a number of US companies have opted for AIM listing at the expense of NASDAQ. Also, its success has prompted some companies to move from the main market to join AIM.

Banerjee (2006) found that in 2005, 40 companies moved directly from the main market to AIM with only 2 companies moving from the AIM to the main market.

One reason for the success of the AIM is the achievement of the city of London as the main financial centre of the World. Many factors including a movement for reform spanning for over 20 years transformed the city of London into a competitive venue beating its main rival, the New York (see, Mendoza 2007). This transformation led to a very conducive environment for doing business including an efficient regulator, a comparatively cheaper regulatory costs and a relaxed but effective corporate governance system. These changes enticed companies both home and abroad to choose London as a destination for doing business, which had an analogous effect on the stock markets, including the AIM.

Another success factor of the AIM is its promise of rapid and low-cost access to public equity. The process of listing and the requirement of listing on the AIM are comparatively easy. It also cost less to be listed on the AIM. The AIM has tailored its listing requirement and cost to suit SMEs, which has enabled it to avoid unnecessary bureaucracy and at the same time to reduce the cost of listing. Since the cost of listing is unrelated to company size, it makes listing on the main market very expensive for SMEs. A research by Clarke (1996 in Mendoza 2011) found that 42 per cent of the firms listed on the AIM did so because of the costs involved in being listed on the main market.

Another crucial factor in AIM's success has been its diverse base of companies. Whilst most markets across Europe and the USA specialise in segments of the market, Aim embrace companies from different sectors of the economy. This has helped to lessen the impact of a collapse of one segment of the market on the overall performance of the market. For instance, Mendoza (2007) claims that authors allocate some responsibility in the market's failure to their narrow focus on high-tech companies, whose massive downturn during the dot com bubble burst had an overall negative impact.

Despite its success, the AIM has had its drawbacks. The first drawback is the fact that companies listed on the AIM are considered more risky than those listed on the main market. One reason for the riskiness is their size. AIM listed firms are very small in size as compared to those listed on the main market. Research shows that companies of small size are more likely to fail than their larger counterparts. The risk of failure attached to AIM companies was illustrated by a commissioner at the US American Exchange Commission who likened the AIM to a gambling 'den' because he was concerned that 30% of issuers that list on AIM would go into liquidation within one year (Treanor 2007).

Another problem with AIM listed companies is their listing requirement. For example, companies are allowed to be listed on the AIM without any particular financial track record or trading history. Also there is no minimum requirement in terms of size or number of shareholders. According to Colombelli (2010), companies listed on the AIM

involve entrepreneurs who are willing to deal with the risk of creating new firms. The LSE therefore cautions investors that investment in the AIM may be more risky. Most critics argue that due to the lax corporate governance, investors in AIM can be easily manipulated and even defrauded. For example, Langbar International was allowed to list on the AIM with market capitalisation of £375 million but then discovered that the company had none of the assets it declared at listing which further illustrate the risk attached to AIM companies (Taylor 2007).

3.3 REQUIREMENT OF LISTING ON THE AIM

This section looks at the criteria to be met before a company can be admitted onto the AIM. Unlike many other stock exchanges, the AIM does not impose stringent admission requirement on companies seeking admittance, nevertheless there are certain requirements that needs to be met. As described by Mendoza (2007) and Clatworthy and Peel (1998), the admittance to the AIM is simple. A company seeking entry to the AIM must prepare and submit three documents including admission document, prospectus and pre-admission document and also to pay the admission fee. Clatworthy and Peel (1998) argue that the reason for this lighter regulation is to make the market more accessible to SMEs.

The AIM requires every company seeking admission to adequately prepare an admission document, which must meet the suitability test designed by the AIM. The suitability test is the detail of standard to which the document must meet. The AIM

requires companies to appoint a nominated advisor who is charged with the preparation of the admission document. The admission document must contain all the necessary information about the company to enable investors to form a full understanding of the assets, liabilities, financial position, profits and losses and also the prospects of the company. There is also an additional requirement for companies that deal in specialised fields such as mining or technology. In these circumstances the AIM demand that such a company seek an expert's report. Also, for investment companies directors must attest to at least three years of profitability data experience. The directors of the applicant company must also provide a statement where all of them assume responsibility for all the information contained in the document and also certify to the adequacy of the company's capital. After completion of the admission document, a company must submit it to the regulation department of the AIM. Applicant companies must also make the admission document available to the public one month before admittance.

A company already listed on one of the stock exchanges recognised by the AIM are exempt from submitting an admission document. This fast track admission feature was launched in June 2003. These companies, which are already listed, are termed as quoted applicants. The reason for their expedited admission to the AIM is because they have undergone the listing requirement of a recognised stock exchange. However, it must be said that a quoted company must still issue a pre-admission document which is more detailed than that submitted by a company undergoing the standard route. Some of the additional information to be included is the confirmation that the company has adhered

to AIM's legal and regulatory requirement, details of business, directors' statement of capital adequacy for a period of 12 months and the right attaching to the shares of the company. The listing venues recognised by the AIM include the NYSE, NASDAQ, Euronext, the Deutshe Borse, Australian Securities Exchange, Johannesburg Stock Exchange, Swiss Exchange, TMX Group and the United Kingdom Listing Authority (UKLA) official list (London Stock Exchange April 2011).

A prospectus is required of an applicant company at the time of seeking listing if it plans to make a public share offering simultaneously with the admission. In this circumstance, the prospectus will instead replace the admission document. The prospectus is subject to regulation review by the Financial Services Authority (FSA). Mendoza (2007) argues that since majority of AIM share issuance involve private placement, most AIM applications do not involve the issuance of a prospectus.

The listing process also requires companies to issue a pre-admission document. This document must be provided at least ten business days before gaining admission and it should contain the basic information about the company. The information contained in this document will enable the AIM to publish an announcement on its website and also include the company in the list of AIM listed companies.

Finally, a company is required to pay an admission fee, which is based on the market capitalisation on the day of admission. The AIM charges an initial listing fee ranging

from £6720 to £75810. Overall, the listing process onto the AIM in most cases is expected to last between three and six months (Bauer and Boritz 2006). The AIM will issue a dealing notice granting entry to the market, after satisfying itself that the company has met the suitability criteria.

3.4 AIM Listing Effect On The Relationship Between WCM And Profitability

SMEs listed on the AIM enjoy benefits and obligations not available to private companies and these may cause the relationship between WCM and profitability to somehow differ from that of unlisted SMEs. Therefore, this section looks at the various factors that may cause the relationship between WCM and profitability of AIM listed SMEs to change.

3.4.1 Finance Raising

Being listed on the AIM helps improve the opportunity of more finance for a company. This can be achieved at the time of the flotation or by subsequent share issuance (Killick 2008). Private companies are by law not permitted to solicit for finance through the public. This hinders their ability to obtain finance for the smooth running of the company. This restriction leaves a SME that is looking to expand with no choice but to list on a stock exchange in order to secure the needed finance. Pagano and Roell (1998) argue that firms that do not generate sufficient internal cash flow will have to be listed on a stock exchange to be able to raise funds to finance growth.

SMEs listed on the AIM also have the advantage of obtaining funds at a low cost. Zara (2003) asserts that after a listing on a stock exchange, SMEs increase the average duration of loans and reduce the size of guarantees. The status as a listed company increases the credibility of a firm which improves the number of institutions wanting to do business with it. This does not only give a SME the many options to choose from, but also the bargaining power to negotiate at low interest rate (Pagano et al. 1996). The reason for the increase in lenders is because of the greater transparency demanded by the AIM. Gill and Pope (2004) analysed the reasons why SMEs go public in the UK and found raising of external finance to be one of the main reasons.

The opportunities of more finance present two causes that may change the relationship between WCM and profitability. First, such companies are able to reduce their over-reliance on trade credit. Reduction in over-reliance of suppliers' credit may result in companies buying supplies with immediate cash. Buying with immediate cash has the advantage of savings in terms of cash discount usually offered by suppliers, which can be substantial (Ng et al. 1999; Wilson and Summers 2002). Second, listed SMEs because of their access to other sources of finance are able to offer generous credit to customers (Peel et al. 2000). Generous credit to customers helps increase sales, which could lead to higher profitability. Therefore, the changes to the various components of WCM due to the finance raising opportunities available to listed SMEs may cause a change in the relationship between WCM and profitability.

3.4.2 Reputation and Status

Admittance to the AIM enhances the reputation and status of a company. This is because the stock market membership signals to outsiders the quality of a company. Stoughton et al (2001) argue that customers learn more about a company's product quality from the stock exchange. A research by Pagano et al (1998) also found that banks view a listed company to be less risky. A listed company is subject to a tighter set of controls both from regulators and also from institutional investors. A listed company is also obliged to be more transparent and give timely financial information. Being listed on a stock market advertises and promotes a company both nationally and internationally, which should have a positive effect on results. Marchisio and Ravasi (2001) argue that going public tend to increases a company's visibility, especially SMEs. Their results found that issues related to visibility, image, status and reputation are just as important as financial matters.

For SMEs, going public eliminates the moral hazard problem which enhances the credibility and reputation of the company. This, as a result increases the number of lenders willing to offer financial resources to the company at favourable conditions. Beatty and Ritter (1986) assert that once a company has improved its corporate value, it makes it easier to access capital markets. A good reputation through a listing on a stock exchange also helps in the long term survival and growth (Sirgy 2002). Good reputation attracts both top class managers and valued stakeholders to a company, which ensures the continuous operation of the company. A research by Marchisio and Ravasi (2001) in

Italy found that the status of a listed company made a management position in the company more attractive, because it offered managers a higher visibility within the industry.

The attraction of top class managers as a result of being listed on the AIM may lead to a more efficient and effective WCM and therefore increase profitability (Wilson 1996). Research has shown that the WCM in SMEs are inadequate (Poutziouris et al. 2005), and the one major cause of such inefficiencies stem from lack of high calibre managers (Nyamao et al. 2012). Therefore, the employment of competent managers by listed SMEs should result in a change of relationship between WCM and profitability. Also, the high reputation and status of listed SMEs may them to have influence on their relationship between both suppliers and customers in terms of the amount of credit available to customers and from suppliers. These factors may cause a change in their WCM structure and therefore altering the relationship with profitability.

3.4.3 Management Time

One drawback of going public is the extensive demand on management time. For SMEs, listing status will mean new responsibilities in terms of reporting requirement. However, this demand of management time is a particular problem, especially for SMEs. This is because, due to their size SMEs lack the financial resources to employ the required number of managers and with the required calibre to adequately meet the reporting standards demanded by the AIM. According to Killick (2008), the flotation

process is very time consuming exercise which put a strain on management time. He further argues that once listed, the continuing obligation is an onerous task, particularly for financial directors. Mendoza (2007) says that being listed may divert management attention from maximising shareholder value. Garcia-Perez-de-Lema et al (2010) argue that the inability of management to adapt and overcome the changes brought about as a result of going public deters a lot of SMEs from being listed. In Germany, Burghof and Hunger (2003) did a research on the Neuer Market and found that after listing, management time is spent in preparing quarterly reports, financial statement and management reports according to the International Accounting Standard (IAS) or USA Generally Accepted Accounting Principles (GAAP) which have to be published in both German and English. Such diversion of resources and management time may result in inefficiencies in WCM and therefore cause a reduction in profitability.

3.5 OBLIGATIONS OF LISTED FIRMS ON AIM

Like any other association, the AIM demands that a company abides by the rules and regulations in order to continue to remain a member. These obligations include the corporate governance rules, nominated advisors and on-going obligations.

3.5.1 Corporate Governance

AIM companies are not obliged to comply with the UK's combined code on corporate governance, but rather they are encouraged to follow (Jeffrey 2007). They are also not required to maintain committees normally found in companies listed on other stock

exchanges including audit committees, remuneration committee, appointment committee or even to appoint independent directors. The encouragement to follow the combined code comes from the corporate governance guidelines for AIM companies which suggest the importance of having two independent directors and the roles of the Board and CEO been filled by different persons. However, as indicated by Jeffrey (2007), all the companies listed on the AIM have audit committees, with some having nominations and remuneration committees as well. This shows that on their own, AIM listed companies voluntarily follow the provisions of the UK combined code on corporate governance. Mendoza (2007) contends that any sub-optimal corporate governance regime will threaten the continuity of a company as an AIM listed company. The decision of AIM listed companies to voluntarily comply with the combined code underscores the importance of corporate governance as far as listed firms are concerned. Research has confirmed that good governance can lead to supreme profitability. The lack of corporate governance may affect the ability of any company to raise equity. This is because investors are prepared to only invest in companies that guarantee the security of their investment. According to Mendoza (2007), institutional investors would hardly take interest in a company lacking the necessary mechanisms to ensure its corporate affairs are handles adequately.

The flexibility in the compliance of the UK combined code has benefited AIM listed companies in that it has actually given them the opportunity to hand pick those provisions that are importantly related to a particular company. This is termed the

"comply or explain" approach. The "comply or complain approach allows companies to report on those corporate governance aspects that are necessary but only explain with reasons why they choose to not report on the other aspect of the combined code. As argued by Mendoza (2007), the tailoring procedure allows companies to decrease compliance costs whilst at the same time signalling to the market that they follow the combined code on corporate governance. It has been suggested that the tailoring procedure is preferable to statutory measures because it does reduces the risk of complying with the letter, rather than the spirit of the code (Cadbury 1992).

3.5.2 Nominated Advisor

The AIM regulation requires all companies listed to have a nominated advisor throughout the duration of their membership as an AIM listed company. The AIM regards nominated advisors as important players in the market. As argued by Mendoza (2007), "*the comprehensive role of the nominated advisor is without doubt the main pillar of AIM's regulatory model*". They are required from the listing preparation through to the termination as an AIM listed company. However, to achieve the status of a nominated advisor, a company must meet very stringent requirements by going through a rigorous screening process. The criteria to be met as a nominated advisor includes: (1) be a firm or company; (2) have practised corporate finance for at least the last two years; (3) have acted on at least three relevant transactions during that two-year period and (4) employ at least four qualified executives. To be admitted as a Nominated Advisor, a company must pay an admission fee of £ 20,000. There is also an annual fee

based on the number of companies represented on the last business day of February each year.

At the listing preparation stage, the AIM charges nominated advisors with the duty to certify the fitness of companies that request admission. As a result, nominated advisors are supposed to have a good knowledge of an applicant's business including its management structure, financial position, legal status etc. Nominated advisors are regarded as the AIM's gatekeepers by making sure that an applicant company meets the suitability test and also whether the admission of a company to the AIM will enhance the value of its shareholders. As gatekeepers, they must also ensure that any company admitted onto the AIM will not bring the image of the venue into disrepute. They also help client companies to select the corporate governance mechanisms that are best suited for their particular dimensions.

One of the fierce criticisms of the AIM has been the laxness of its regulatory system. However, the existence of nominated advisors helps to strengthen the adherence to regulation of the AIM. This is because nominated advisors themselves have a duty to perform well in order to maintain their reputation in the market. Nominated advisors build their reputational capital through the success of their clients in terms of the accuracy of their disclosure to the market. Therefore an adverse effect of a client will have a negative corresponding effect on a nominated advisor. Mendoza (2007) contends that nominated advisors would suffer disproportionally if they allow or overlook any

transgression from a client. Some of the highly reputed nominated advisors on the AIM include the likes of Morgan Stanley, Citygroup, PriceWaterhouseCoopers etc. These companies are very big and internationally recognised, which means that any under-performance would greatly affect them. The AIM conducts regular review of nominated advisors activities in order to deduce if they still qualify to represent clients on the market. A nominated advisor that fails to perform may be subjected to a number of disciplinary sanctions including: fines, censure motion, removal of qualified executive status and/or expulsion from AIM.

3.5.3 On-going Requirement

After admission, a company has the continuous obligation to abide by the rules and regulations prevailing at any time. An AIM listed company has the obligation to disclose any price sensitive information which is not already in the public knowledge. Price sensitive information is any new development which, if made public would be likely to lead to a substantial movement in the price of a company's AIM securities. These include information about the financial condition, sphere of activity, business performance or expectations as to business performance. AIM listed companies must retain the services of a nominated advisor at all times. Any company that ceases to have a nominated advisor will have its securities suspended by the AIM. However, if within one month a suspended company has failed to appoint a replacement nominated advisor, then its admission to the AIM will be cancelled. AIM listed companies also have the responsibility to disclose certain transactions to the marketplace including: substantial

transactions, related party transactions, reverse takeovers and disposal resulting in a fundamental change of business. Miscellaneous information must also be revealed promptly to the market including: deals with directors, relevant changes to significant shareholdings, changes in the composition of the board, resignation, dismissal and admission to trading in any other exchange.

An AIM company must prepare and publish a half-yearly report in respect of the six month period from the end of the last financial period. They must also prepare and publish annual audited accounts and must be sent to the shareholders without delay not later than six months after the end of the financial year to which they relate. An AIM listed company must prepare its accounts in accordance with certain accounting principles depending on whether it was incorporated in a European Economic Area (EEA) country or a non-EEA country. For an EEA incorporated company, the accounts must be prepared in accordance with the International Accounting Standards. All other non-EEA incorporated companies must prepare accounts in accordance with either of the following accounting principles: USA Generally Accepted Accounting Principles (GAAP), Canadian Generally Accepted Accounting Principles, Australian International Financial Reporting Standards or Japanese Generally Accepted Accounting Principles.

3.6 CONCLUSION

This chapter has reviewed the AIM as a market for SMEs. The rationale was to help identify the purposes of its establishment, its importance as far as SMEs are concerned,

characteristics of SMEs listed on it, the obligations of SMEs listed on it and how it affects the WCM and profitability of listed companies. The chapter also justified the reason why AIM listed SMEs have been specifically chosen to be investigated. Section 3.2 discussed the purpose of AIM, which revealed that the LSE set up this market with the sole purpose of enhancing the development of SMEs in the UK and beyond by providing them with the opportunity to increase their financial access options. Section 3.3 examined the requirement of listing on the AIM, which showed the processes that SMEs should go through before they can be admitted onto the AIM including admission application form, pre-admission document, admission fee and annual fees. Section 3.4 looked at the AIM listing effect on the relationship between WCM and profitability including: finance raising, reputation and status and management time. Section 3.5 examined the on-going requirement of AIM listed firms. These requirements includes: corporate governance, nominated advisor and on-going requirement. Finally, section 3.6 concludes this chapter. The next chapter will look at the SME trends and development.

CHAPTER FOUR

SMALL AND MEDIUM ENTERPRISES TRENDS AND DEVELOPMENT

4.1 INTRODUCTION

This chapter discusses the trend and development of SMEs. The chapter has two main objectives. The first objective is to provide a comprehensive overview of SMEs in both developed and developing countries. The second objective is to evaluate the differences between small and medium companies; and therefore justify the need for their separation. The rest of this chapter is divided into nine sections. Section 4.2 provides and discusses extensive review of what is a SME. Section 4.3 reviews the characteristics of SMEs. Section 4.4 recounts the development of SMEs both in the UK and around the world. Section 4.5 examines the economic contribution of SMEs. Section 4.6 discusses the challenges facing SMEs. Section 4.7 presents the capital structure of SMEs. Section 4.8 talks about the various sources of finance for SMEs. Section 4.9 looks at the determinants of being listed. Finally, section 4.10 summaries the chapter.

4.2 REASONS FOR THE VARIATION IN SME DEFINITION

The reasons for the variations in the definition of SMEs across countries stem from the differences in economic development that exist between countries. Different countries use different measures in defining SMEs (Storey 1994). The economic conditions

prevailing in a country will greatly affect the definition of what constitute a SME. This clearly means that a firm that will be classed as a SME in one country may not be classed as a SME in another country. This variation in SME definition between countries has made comparison between countries difficult. The definitional differences of SME between developed and developing countries are striking. According to Abor and Quartey (2010), a medium firm in developed countries refers to a firm with 100-499 workers, whilst a firm with 20-99 workers is classed as medium in developing countries. A small firm in developed countries represent a firm with 99 or less workers, whilst a firm with 5-19 is classed as small in developing countries.

There are also definitional differences within a country (Abor and Quartey 2010). It has been argued that researchers use different definitions within a country to suit their research agenda. Lukacs (2005) argues that in practice, schemes that are normally targeted at SMEs adopt particular objectives. The reason for the definitional variation within a country is due to the differences in the capitalisation, sales and employment requirement of different industries or sectors. As argued by Storey (1994), by applying the same measure across industries within the same country will mean that in some sectors all firms may be regarded as SME, whilst in other sectors there may be no firms that are SMEs.

The European Commission (EC) has tried to stabilise the definition of SME across the European Community Area by applying the following definitions to be binding on all

member state, as detailed in table 2 below. This definition followed on from the 1996 definition, which was revised to take into consideration the economic developments that have taken place since 1996. The European Union (EU) definition excludes agriculture, hunting, forestry and fishing companies.

Table 2: Enterprise Categories in EU

Enterprise Category	Headcount	Turnover	Or	Balance Sheet Total
Medium-Sized	< 250	≤ € 50 million		≤ € 43 million
Small	< 50	≤ € 10 million		≤ € 10 million
Micro	< 10	≤ € 2 million		≤ € 2 million

Thus, the EU does not vary its definition according to the sector of the enterprise. However, applying the same definition across all member state is problematic because of the varying economic development of member states.

In the UK, attempt to overcome the definitional problem led to the setting up of the Bolton Committee in 1971. The Committee formulated an economic and statistical definition of a small firm. The economic definition classed a firm as being small if they satisfy the following three criteria:

- It has a relatively small share of their market place.
- It is managed by owners or part owners in a personalised way.
- It is independent, in the sense of not forming part of a large enterprise.

The statistical definition proposed the following criteria for a small firm.

- The size of the small firm sector and its contribution to GDP, employment, exports, etc.
- The extent to which the small firm sector's economic contribution has changed over time.
- Applying the statistical definition in a cross-country comparison of the small firms' economic contribution.

Based on both the economic and statistical definitions, they proposed the following sectorial definitions as detailed in table 3.

Table 3: Bolton Committee Definitions Of Small Firm

Sector	Definition
Manufacturing	200 employees or less
Construction and quarrying	25 employees or less
Retailing, miscellaneous services	Turnover of £50,000 or less
Motor trades	Turnover of £100,000 or less
Wholesale trades	Turnover of £200,000 or less
Road transport	Five vehicles or less
Catering	All excluding multiples and brewery-managed houses

Lukacs (2005) contends that the Bolton Committee definition remains the best description of a small firm. However, a major criticism of the Bolton Committee relates to the use of inconsistent defining characteristics based on either the number of

employees, turnover or managerial approach. Another defect in the Bolton Committee definition is the treatment of the small firm sector as being homogeneous.

The definition given by the UK Companies Act of 2006 overcomes the shortcomings of the Bolton Committee definition by acknowledging that the SME sector is heterogeneous. It therefore classifies the SME sector into medium and small. Another good thing about the UK Companies Act of 2006 definition is that it set three different criteria, but a firm has to satisfy at least two to qualify as a small or medium firm. The use of the same three different criteria across all industries has two major advantages. First, it allows for a comparison across industries and secondly it allows for alternative measures for defining firms across all industries.

Table 4: The UK Companies Act 2006 Section 382 Definition Of A Medium And Small Firm.

Medium	Small
A turnover of not more than £25.9 million	A turnover of not more than £6.5 million
A balance sheet total of not more than £12.9 million	A balance sheet total of not more £3.26 million
Not more than 250 employees	Not more than 50 employees

4.3 SMES DEVELOPMENT

The development of the SME sector is very crucial to the economic success in both developing and developed countries (Abor and Quartey 2010). The importance of SMEs

is evident in the fact that they comprise the majority of businesses in every country. In the UK, the number of SMEs stood at 4.45 million as at the year 2011 (Department for Business Innovation and Skills 2011). Erixon (2009) also suggests that the total number of SMEs in the EU as at 2007 was 20,409,000, representing 99.8% of all EU firms. As argued by Castel-Branco (2003), SMEs have received privileged treatment from both researchers and governments over the last two decades. Feeney and Riding (1997) contend that governments at all levels have undertaken some initiatives to promote the growth of SMEs. According to Lukacs (2005), almost every company began as a SME. Examples include Microsoft which began in a small garage in North-America by a couple of guys and Hewlett-Packard started in a little wood shack.

However, for the successful development of SMEs, governments' role in ensuring a level-playing field that will allow SMEs to compete with their larger counterparts on an equal basis is very important. In the UK, over the past two decades, successful governments have noticed the importance of SMEs, by establishing policies to help in the development of the SME sector. Barbera Rache, the then shadow Minister for small business in 1997, stated that: *"Labour is dedicated to providing the right conditions in government for small firms to grow and thrive…… We want strong small business because they are crucial to this country's success"* (Labour Party 1997, p4). Storey (1994) also suggests that during the period between 1979 and 1983, more than 100 measures were introduced by the Conservative administration to assist SME firms. Like many other countries around the world, Story (1994) says that there has been no UK

white paper about the objectives and targets of public policy towards SMEs, arguing that policies have been introduced on a piece meal basis often in response to pressure from SME firm lobby organisations.

Given that SMEs are private companies that generate profit for the owners of the business, any government intervention or assistance must be justified. Many types of market failure factors have been specified as the main reasons for government assistance in the SME sector. These market failures include: monopoly, imperfect information, risk and uncertainty, financial support and externalities. These market failure reasons have led to the establishment of many SME support organisation including business links, training and enterprise councils, development companies and universities. These support organisations make sure that SMEs receive the necessary assistance in order to compete successfully with the larger companies.

Despite the many policies to assist SMEs, they have many at times found to be ineffective. This has led to many criticisms to government intervention to promote the SME sector. As argued by Mason et al (2000), the market failure case has not been proven; also the impact of many interventions has been questionable. Bannock (2005) also argues that no matter the intervention by government, the results are not impressive, because the SME sector is so large.

4.4 THE ECONOMIC CONTRIBUTION OF SMES

SMEs are described as the backbone of every country (Lukacs 2005, Abor and Quartey 2010). SMEs provide a number of economic benefits to countries around the world (Advani 1997; Levine 2005; Newberry 2006). Throughout the world, SMEs have been recognised as the engine through which the growth objectives can be achieved. Despite the evidential contribution of SMEs to economic development, it is often stated that the true benefits of SMEs are unknown, which is basically due to the nature of SMEs. Most SMEs are found to be unregistered and are therefore operating in shadow economy.

4.4.1 Job Creation

One of the noticeable contributions of SMEs to the economic development is their ability to create employment (Abor and Quartey 2010). As argued by Caner (2010), both registered and unregistered SMEs have become significant sources in providing employment. Swierczek and Ha (2003) say that SMEs are increasingly seen as creator of new jobs. Lukacs (2005) specifies that SMEs provide employment to around 65 million people in the EU. According to SMIDEC (2002 cited Salah and Ndubisi 2006), SMEs employ 38.9 per cent of the Malaysian workforce. SMEs are also believed to provide about 85 per cent of manufacturing employment in Ghana (Abor and Quartey 2010). According to Department for Business Innovation and Skills (2011), SMEs share of employment in the UK amounts to 58.8 per cent. It is also estimated that SMEs in Thailand employ some 868,000 workers or 38.9 per cent of the total workforce (Chittithaworn et al. 2011).

Whilst larger enterprises are losing jobs, employment in the SMEs sector is increasing. For example, Lukacs (2005) asserts that between 1998 and 2001, large enterprises lost jobs, whilst at the same time job creation in SMEs increased in the EU. The reason for the ability of SMEs to create more jobs than their larger counterparts is because they are more labour intensive (Schmitz 1995). Larger companies, due to their resource base are able to adopt more state-of-the-art technologies in their operations. However, SMEs are known to be financially constraint and therefore are not able to employ such technologies (Saleh and Ndubisi 2006; Kufour 2008). They are therefore forced to rely more on human resources in their operations, therefore creating employment. Even though investment in technologies has a long-term benefit to every company, the initial costs involve in its establishment and also the cost of maintaining it can be very high. SMEs are very important in providing employment, particularly for low-skilled workers. This is because the operational activities within SMEs are mostly manual, which enables them to employ the services of low-skilled workers. Major (2008) suggests that SMEs are more labour driven because it is less expensive. They also argue that the more use of labour in SMEs is a substitute for the lack of equipment and high-level technology machines.

Despite the perceived employment contribution of SMEs, there are nevertheless some arguments against this perception (Little et al. 1987). An empirical evidence by Beck et al (2004) shows that larger firms offer more stable employment, higher wages and more non-wage benefits than SME firms in developed and developing countries. The unstable

employment offered by SMEs stems from the fact that SMEs themselves are unstable. Islam et al (1994) contend that changes in the environment cause more uncertainty in SMEs than in larger companies. More empirical evidence has consistently shown that SMEs have higher failure rates than larger firms (Storey 1994). A report by (DTI 1997) indicates that in the UK, 30 per cent of new firms cease trading by the third year and 50 per cent by the fifth year. It is therefore claimed that whilst SMEs create many jobs, they also destroy a lot of jobs (Caner 2010). Beaver and Prince (2004) also contend that the magnitude of job creation in SME sector is frequently exaggerated, often for political purposes.

4.4.2 Innovative Capacity

Another economic contribution of SMEs is their innovative capacity (Newberry 2006; Beaver and Prince 2004). SMEs are more easier to adapt to changing economic conditions than their larger counterparts. This is because SMEs normally operate an informal organisational structure and therefore their ability to respond quickly to customer demands. As argued by Beaver and Prince (2004), SMEs have more advantage over larger firms in terms of innovation because larger firms have inherent structural complexity and bureaucracy that may limit their ability to act quickly. In SMEs, the locusts of decision, unlike larger firms are in the hands of very closely linked individuals, which help to accelerate decision making, in terms of changes to production procedures. SMEs also invest less in infrastructure, which makes making the necessary changes to suite the prevailing economic conditions very less costly. Due to the

informal nature of SMEs, it is often argued that decision process is emergent and instinctive rather than fixed and regulated (Beaver and Prince 2004). As argued by Erixon (2009), innovation and new product tend to emerge from SME companies. SMEs are more risk-seekers as compared to larger firms and are often referred to as agents of change (Raynard and Forstater 2002).

However, according to Beck et al (2004), the microeconomic evidence of the innovative nature of SMEs is at best inconclusive. There is the argument that innovation is mostly associated with larger firm size (Pagano and Schivardi 2001). This is because larger firms will have the necessary resources to invest in Research and Development (R&D). This proposition tends to cast doubt on the innovative abilities of SMEs.

4.4.3 Poverty Alleviation

Poverty alleviation of SMEs has also been found to be a major economic contributing factor in many countries, especially in developing countries (Indarti and Langenberg 2004; Pansiri and Temtime 2008; Chittithaworn et al. 2011). SMEs are easy to setup as it can involve only the owner in the case of micro enterprise. For micro enterprises, the capital outlay can be very insignificant and also it does not require any specialised knowledge. According to Lukacs (2005), SMEs are the major realistic employment opportunity for millions of poor people throughout the world. In the UK, 2.3 million businesses are class as size zero, meaning there are no employees and that the owners work alone.

4.4.4 Overall Economic Development

The overall economic development of a country is influenced by the SME contribution. As argued by Chittithaworn et al (2011), the performance of the SME sector is closely associated with the performance of a country. This is because the majority of enterprises around the world are classified as SMEs. For example, 99.8 per cent of enterprises in the EU are defined as SMEs. Out of the 4.5 million businesses in the UK, 99.9 per cent are SMEs, accounting for 48 per cent of turnover.

4.5 CHALLENGES FACING SMES

4.5.1 Financial Resources

Financial resources have been identified as the most significant challenge facing SMEs (Abor and Quartey 2010; Lader 1996; Cook and Nixson 2000; Parker et al. 1995). The lack of finance has limited the growth potential of many SMEs. A report in the UK by Irwin and Scott (2006) found that 16 per cent of SMEs had experienced difficulties in raising finance. Also, a report by the EU (2000/2) found that 19 per cent of SMEs in the UK faced difficulties in accessing finance. There is evidence to suggest that SMEs face more difficulties in raising finance than larger once (Hutchinson and Xavier 2006). As argued by Abor and Quartey (2010), formal finance institutions have tailored their products to best serve the needs of larger corporations. This is because the cost involved in processing a loan facility is fixed and therefore the cost per loan is higher in case of SMEs than larger firms, because on average larger firms borrow larger amounts than SMEs.

4.5.2 Lack of Adequate Collateral

SMEs also lack the adequate collateral to pledge for finance. Due to their riskiness, lenders always demand a security before granting a loan request. However, because of their size SMEs are unable to provide the needed assets as collateral. Another problem for the difficulty in accessing finance by SMEs is their risk of failure. Many lenders are reluctant to provide finance to SMEs due to their high probability of failure. The last reason for the lack of SMEs access to finance is the attitude of the SME owners themselves. For fear of intrusion, SME owners restrict themselves to the use of their own limited financial resources rather than seek the assistance of a third party. According to Kotey (1999), even though financing constraints can lead to business failure, many SME owners do not wish to use long-term debt finance. SMEs are generally known to follow the Pecking Order Hypothesis (POH) whereby they prefer to use personal finance (Irwin and Scott 2006).

4.5.3 Lack of Equipment and Technology

Another constraint to SME development and profitability is the lack of equipment and technology (Abor and Quartey 2010; Saleh and Ndubisi 2006; Berisha-Namani 2009). In this modern age of business, a company may require the most up-to-date equipment and technology in order to be competitive and successful. Berisha-Namani (2009) contends that modern businesses are not possible without the help of technology. He argues that the ability of SME to survive in an increasingly competitive and global environment is largely influenced upon their usage of technologies. Despite the

advantages of a modern equipment and technology to firm profitability, SMEs are known to be lagging behind. According to Swierczek and Ha (2003), lack of equipment and outdated technology are among hindrances to SME development. This underscores the reason why SMEs are forced to rely more on manpower (Major 2008).

Modern equipment and technology are very important to SMEs because they enhance flexibility, improve interconnections with business partners and customers, as well as aiding cheap business transactions. A research by Reinvest (2008 cited Berisha-Namani 2009) found that the average export in 2007 is higher in SMEs that adopted information technology than those that did not use these technologies. One reason for the lack of modern equipment and technology in SMEs is their inability to afford the cost of such equipment and technology. Another reason is lack of economies of scale. In order to realise the full potential of a modern equipment and technology, there should be economies of scale. However, SMEs are known to be operating in niche markets, whereby they serve a specific market. In such case, a modern equipment and technology will be under-utilised, which will not be cost effective.

4.5.4 Regulatory Issues

Regulatory issues have also been identified as a constraint to SME development (Abor and Quartey 2010). Companies all over the world face some level of regulatory issues, however, the problem is more acute in SMEs than larger ones. Even though regulatory issues affect all sizes of companies, SMEs due to their lack of resources find it difficult

to cope with them. Regulatory issues include the cost of start-up, licensing and registration requirement, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. According to Abor and Quartey 2010), the high cost of regulation can impose excessive and unnecessary burden on SMEs. In The World Bank Doing Business Report (2010), the UK ranked fourth in the world in terms of ease of doing business. This clearly indicates that regulatory issues are of concern to SMEs in the UK. It takes on average 13 days and 6 procedures to start a business in the UK. In 2000, the UK government set itself a number of targets including developing a better regulation and policy to make the UK the best place in the world to start and grow a business by 2005. However, despite the efforts of government the Annual Small Business Survey 2004/05 shows that still 40 per cent of SME employers cite regulations as a constraint to profitability and success.

4.6 SMES SOURCES OF FINANCE

There are a lot of avenues upon which SMEs can seek financing. But the problems of financing gap in the financial market mean that not all of the financing needs of SMEs can be met. The access to other sources of finance by SMEs will affect WCM because it will alleviate the over reliance on suppliers credit. Also, such access can allow SMEs to extend more credit to customers, which may increase sales and profitability. Therefore, this section looks at the financing channels available to SMEs, their access to those channels and their attitude towards those channels. As argued by Ruis at al (2009), there is a variety of internal and external sources of finance for SMEs. Williams and Cowling

(2009) contend that the main reason why SMEs in the UK sought finance is for working capital. They also found that the magnitude of the amount of finance sought after by SMEs varies.

4.6.1 Banks

The main channel of SME finance is bank finance including loan and overdraft (Williams and Cowling 2009; Ruis et al. 2009; Park et al. 2008; Fraser 2005; Cosh and Hughes 2003). A research by Williams and Cowling (2009) in the UK found that in 2007, 44 per cent of SMEs sought bank debt. The ESRC (1996) research in the UK indicates that over 50 per cent of SMEs are financed by banks. The over dependence of SMEs on banks for finance is rational since banks are the largest financial institution. Despite the magnitude of bank financing by SMEs, research still shows that SMEs are constrained to bank financing as compared to larger companies (Peterson and Schulman 1987; Orser et al. 1994). This is because SMEs lack adequate track record, have inadequate collateral to pledge as security and a poor credit rating. Banks are also reluctant to offer long-term loans to SMEs due to their high risk nature. Banks prefer to offer SMEs short-term loans and overdraft facilities. However, given that majority of SMEs seek finance to cater for working capital; reliance on long term bank financing is not desirable for SMEs (Park et al. 2008). Also among the many external sources of SMEs finance, bank financing offers the least intrusion of privacy and loss of control by owners of SMEs. SMEs can boost their chances of obtaining a bank financing by establishing a close firm-bank relationship. A close relationship with a bank will

establish a trust, which can help SMEs to obtain more finance from banks including long-term loans.

4.6.2 Leasing and Hire Purchase

The second most sough type of finance by SMEs is leasing and hire purchase (Ruis et al. 2009). Williams and Cowling (2009) found in their annual small business survey that 11 per cent of SMEs sought after this form of financing. Leasing or hire purchase is a form of renting whereby the ownership of the asset rests with the lessor (asset provider) who allows the lessee (SME) to use the asset. This form of finance is very popular with SMEs because it introduces no intrusion of privacy or loss of control of ownership. A survey by Berry et al (1990) found that 70 per cent of SMEs in the UK have had some assets financed by leasing or hire purchase. SMEs prefer this form of financing because it avoids the outlay of large capital, which helps in the cash flow. As compared to other forms of external financing, leasing and hire purchase is cheap and also easy to arrange. Whilst banks and other financial institutions require two or three years of financial records before granting a loan, leasing or hire purchase on the other hand usually require only six months to a year of credit history (Ruis et al. 2009).

4.6.3 Internal Equity

Internal equity refers to contributions from the owner, family members and friends. The owner's capital is very crucial in the initial stages of a SME. There are extant research to support the fact that majority of SMEs financing at star-up is internal equity (Islam et

al. 1994; Storey 1994). Aryeetey et al (1994) assert that 67 per cent of start-up capital is internal equity. Also, a research in the UK by Keasey and Watson (1992) found that about 30 per cent of SME financing is from internal equity. The reason for the high percentage of the use of equity at start-up is because at this stage the company is new and unknown and therefore access to other external finance is constrained. Other results show the aversion of intrusion as the main reason for the high use of internal equity (Binks et al. 1992; Berger and Udell 1998). However, the amount of owner's capital is expected to decline with the passage of time. This is because companies that survive in their initial stages will require additional capital, as the owner' initial capital will be inadequate for the needed growth. Such a company will also become more acceptable to lenders and investors because of the existence of their track record.

Family and friends are individuals who are closely related to business owners. Given the trust, they can be an important source of finance at the start-up stage where the company lacks track record. Funds from these individuals are relatively easy to get but the amount involved are normally inadequate. This form of finance involves less intrusion, and sometimes the money invested is not repaid (Mason et al. 2000).

4.6.4 External Equity

External equity refers to funds raised from a stock market. Researchers and policy makers have advocated that the financing gap of SMEs can only be bridged through the stock market. However, a company can only solicit for finance through the stock market

if it is listed on that stock market. A stock market listing improves the profile of SMEs by exposing them to potential investors. Listing on a stock market means that a SME can access endless finance from the public, which can help improve the capital base of the company. However, external equity introduces intrusion of ownership which is acutely resisted by SME owners. This accounts for the reason why very few SMEs are listed on a stock market. In the UK, the AIM was set-up in 1995 in order to allow SMEs to access finance through the stock market, but so far very few have done so. Out of the over 4 million SMEs in the UK only about 1,300 are listed on the AIM, representing less than 1 per cent. Apart from the problem of intrusion of ownership, many factors also discourage SMEs from securing a stock market listing including management time, initial and on-going costs.

4.6.5 Venture Capital

Venture capital (VC) relates to capital provided by specialist financial institutions. Apart from the injection of cash, venture capitalists can raise the profile of SMEs by the supply of management expertise, support and access to contacts (Ruis et al. 2009). Unlike banks, venture capitalists do not seek regular repayment in the form of interest but rather look forward to realising their investment in between 5 to 7 years' time (Mason et al. 2000). Ruis et al (2009) argue that VC can be an important source of external finance for SMEs. This is because SMEs will have the benefit of not having any commitment of regular interest payment, which can help boost the amount of cash invested. According to Mason et al (2000), VC investments are typically in the range of

£2m to £10m. Despite the advantages of VC, it accounts for only a relatively small proportion of external finance for SMEs (Ruis et al. 2009; Mason et al. 2000). The ESRC (1996) survey shows that between 1 and 2 per cent of SMEs use VC in the UK. Majority of SMEs are not interested in VC due to its level of intrusion. Venture Capitalist seek for a minority stake in a company and also likely to seek board membership. Also, they usually demand very high returns on investment, which according to Ruis et al (2009) is at least 20 per cent. Moreover, Venture Capitalists are highly selective in terms of the companies in which to invest. In comparison, research shows that majority of companies that receive funds from VC are relatively large companies (Mason et al. 2000).

4.6.6 Factoring

Factoring relates to a financial transaction whereby a company sells its accounts receivable at a discount to a financial institution such as bank, usually for immediate cash. Factoring can provide a continuous financing for SMEs, in that the financial institution will always advance cash before chasing the customer for payment. Factoring is particularly important to SMEs because research has shown that they suffer from late payment and also tend to possess weak credit management (Collis and Jarvis 2000). Larger companies have the tendency of "bullying" SMEs by over-delaying payment. However, factors employ specialist credit controllers and also use state-of-the-art techniques, which assist them in properly managing debtors. Regardless of the appealing nature of factoring, SMEs do not patronise this facility (Ruis et al. 2009;

Collis and Jarvis 2000). According to Grant Thornton (1998), only 8 per cent of SMEs in the UK use factoring. Berry and Simpson (1993) argue that the reason for its slow pace among SMEs are due to the high cost, reduced customer relations and the issue of confidentiality.

4.6.7 Informal Venture Capital (Business Angels)

Business angles are wealthy individuals of no prior acquaintances with business owners, but who invest in such businesses with the hope of some sort of financial gain. These individuals are more patient as compared with Venture Capitalists in terms of the return on their investment and also seeking quick exit routes (Collis and Jarvis 2000). These individuals are normally business inclined and therefore can give valuable advice to SMEs. Mason et al (2000) estimate that the average amount invested by business angles range from £10,000 to over 250,000. Notwithstanding the importance of business angles to SME financing, the biggest problem is matching investors with SMEs seeking finance. SMEs and business angles are able to come together through friends, family and business connections. This has led to the establishment of many networks across different countries in an effort to suitably match SMEs needing finance with individuals (Business Angles) wanting a company to invest in. The European Business Angle Network (EBAN) (2008) identified a total of 297 networks of business angels in Europe in 2008. Business angels prefer to stay anonymous, which has made the estimation of their number and amount invested very difficult to calculate. SMEs are not enthused about this form of finance because of the hand-on approach of business angels, which

has led to only 4 per cent of SMEs finance been derived from business angels in the UK (ESRC 1996).

4.6.8 Trade Creditors

Trade creditors represent an important source of short-term funds for SMEs (Mian and Smith 1994; Ng et al. 1999; Wilner 2000; Garcia-Teruel and Martinez-Solano 2010b). Trade credit allows SMEs to postpone payment, thereby improving their working capital. Trade credit can be a substitute for short-term bank loans, however for SMEs, it may be particularly important given their greater difficulty in accessing capital markets. Petersen and Rajan (1997) stress that trade credit is the single most important source of short-term external finance for companies in the USA. According to Cunat (2007), trade credit represents about 41 per cent of the total debt of SMEs in the UK. SMEs prefer trade credit as a form of finance because it offers less intrusion and also is less formal than bank loans. But trade credit can be more costly than bank loans, considering the loss of discount for early payment.

4.7 CONCLUSION

This chapter has reviewed the SME trend and development in the UK and across the world. It was observed that there is no universally acceptable definition of what constitute a SME and that it is often a problem for researchers and policy makers in undertaken a research in SMEs. Because of this definitional problem a company may be classified as SME in one industry but not in the other. In terms of the development of

SMEs, it was found that governments all across the world view SMEs as vital for economic success. SMEs were found to contribute enormously in terms of job creation, innovative capacity, equitable distribution of income and poverty alleviation. Despite the benefits of SMEs it was discovered that there are a number of challenges that constrain their profitability and growth including lack of financial resources, lack of adequate collateral, lack of managerial skills, lack of equipment and technology and regulatory issues. It was also discerned that there are certain characteristics that distinguishes SMEs from larger companies involving management style, resources, ownership and legal status. The capital structure of SMEs was also reviewed, which determined that perking order hypothesis, agency theory and life cycle theory all influence their capital structure. Finally, the various sources of finance for SMEs were discovered and discussed with the outcome that SMEs prefer to source finance from avenues that introduce the least intrusion of control and ownership.

CHAPTER FIVE

THEORETICAL FRAMEWORK

5.1 INTRODUCTION

This chapter attempts to review the various existing theoretical underpinnings that try to link Working Capital Management (WCM) and company profitability. Theoretical framework is important, as it will attempt to offer a review of the existing theoretical literature that tries to link WCM to company profitability. It will help in determining the factors that are deemed to be necessary to measure and also the statistical relationship to look for. The rest of the chapter proceeds as follows. Section 5.2 takes a look at the various theories on inventory holding period. Section 5.3 examines the various theories expounded to explain the relationship between accounts receivable period and profitability. Section 5.4 explores the extant theories that account for the relationship between accounts payable period and profitability in companies. The last section, 5.5 concludes the chapter.

5.2 THEORIES ON THE RELATIONSHIP BETWEEN INVENTORY HOLDING PERIOD AND PROFITABILITY

The theories on inventory holding period and profitability try to explain the reason why firms keep inventory at all and its relationship with profitability. Under perfect conditions, firms will not have to keep inventory as they will be required to produce in

exact quantities to satisfy sales demand. However, due to imperfections companies are forced to keep inventory in order to safeguard any eventualities. As argued by Zappone (2006), keeping inventory for future sale or use is common in business. The keeping of inventory incurs a cost to companies and therefore the various theories try to produce ways to minimise the costs related with maintaining inventory. According to Hill and Sartoris (1992), the concepts and approaches used in dealing with cash management problems can also be applied to more effectively manage inventory. Some of the theories put forward to explain why firms keep inventory include transaction motive theory, precautionary motive theory, speculative motive theory and JIT theory. Each of the aforementioned theories is discussed below.

5.2.1 Transaction Motive Theory

This theory suggests two factors that influence the association between inventory holding period and profitability. The first factor assumes that companies can increase profitability through a reduction of inventory holding period by keeping the minimum required inventory in order to satisfy the expected demand of production. This factor assumes that management envisage the future sales demand and therefore make provision for it by keeping the required inventory to meet the said demand. Companies must also keep minimum inventory for display or demonstration purposes (Bhattacharya 2008), as customers would always like to examine a sample of a particular product before committing to place an order. The keeping of the minimum inventory will reduces the inventory holding period. A reduction in inventory holding

period will lead to a reduction in the various cost associated with the holding of inventory, therefore leading to higher profitability.

The second factor proposes a positive linkage between inventory holding period and profitability by buying in bulk. Buying in bulk will increase the inventory kept in stock, thereby increasing the holding period of inventory. But buying in bulk may reduce the procurement cost of production. The bulk purchase cost savings will also result in a decrease in the cost of sales of the product, which will reduce the overall price of the product leading to more profitability. This cost savings of bulk purchase may arise for many reasons. A company that buys in bulk will enjoy quantity discount from the supplier. Buying in bulk will also save companies money in terms of transportation, because instead of going two or three trips a company will make only one trip. Bulk purchase will also save a company the fixed cost of ordering including placing and processing orders or setting up costs. An increase in the inventory holding period will incur additional cost to the company in the form of holding of inventory costs. These costs include interest, spoilage, obsolescence, cost of storage etc. Modigliani (1957) argues that beyond a certain point the reduced cost per unit is more than offset by the increasing cost of storage. It is therefore necessary for companies to employ some mathematical formulas such as economic order quantity (EOQ) to be able to purchase quantities that achieves the dual purposes of reducing both ordering cost and holding cost.

5.2.2 Precautionary Motive Theory

The precautionary motive theory suggests a positive association between inventory holding period and profitability. The first version of this theory is that higher inventory holding period will avoid the prospect of a stock out situation (Christiano and Fitzgerald 1989; Wen 2003), which could result in the decline of profitability. A stock out is a situation whereby a company runs out of inventory. A stock out situation will have a catastrophic effect on a company's profitability because a company without stock may lose its goodwill (Bhattacharya 2008). Lack of inventory will drive both current and potential customers away to competitors. This will not only affect the current profitability of the company but also the future profitability as well, as it will leave a bad name on the company. Wen (2003) argues that the stock out avoidance theory hold more truth than any other theories explaining the association between inventory holding period and profitability.

Another version of the precautionary motive theory suggests a higher profitability as a result of an increase in the inventory holding period because of the uncertainty in the lead-time of delivery (Modigliani 1957). Even though companies may have a contractual agreement with suppliers in terms of delivery of inventory, unforeseen circumstances can cause a delay in the delivery. A delay in the delivery can result in loss of opportunity for prospective sales, which will reduce the profitability of a company. Also, the normal lead-time period means that companies must hoard inventory in-between the time of placing a new order and the time inventory is received

in store. Due to the uncertainty in lead-time and also the time gap between placing an order and receiving inventory, companies are required to keep a safety or buffer stock. This is the minimum amount of inventory kept to prevent stock-out whiles awaiting delivery of inventory, in order to avoid the undesirable consequences of the inability to satisfy demand. Blinder and Maccini (1991) argue that the production-smoothing/buffer-stock model has played the leading role in both the theoretical and empirical literature linking inventory holding period to profitability.

5.2.3 Speculative Motive Theory

According to the speculative motive theory, higher inventory holding period may lead to higher profitability because of the prospect of realising abnormal profit in the future (Christiano and Fistzgerald 1989). According to the theory, one reason for higher inventory period is the expected higher changes in prices of products, which leads to higher profitability. Companies may be encouraged to hoard inventory thereby increasing the inventory holding period if future prices are expected to rise, therefore reaping abnormal profit. However, the expected rise in future prices should be sufficient enough to compensate for the various costs associated with higher inventory holding period. The expected higher price changes reason for increasing inventory holding period works best under inflationary conditions (Hill and Sartoris 1992). For example, Morgan (1991) says that the rapid inflation in the late 1970's and early 1980's motivated companies to increase inventory holding period – before prices rose.

Another speculative motive theory for higher inventory holding period involves an expected change to the product. A change in the product will result in the withdrawal of the old version from the market. Scarcity of the old product will increase its demand over supply, thereby increasing the price. The increase in prices will cause a company to enjoy higher profitability. It is therefore common for sellers to increase inventory holding period if products are about to be removed from the market because of the expected future higher price for them. A classic example is given by Hill and Sartoris (1992), whereby the announcement of Coca-Cola Company to stop producing the "Old Coke" in the mid 1980's sent sellers accumulating the "Old Coke" in an anticipation of higher future prices. Despite the future benefits of a speculative motive for holding inventory, a research by Christiano and Fitzgerald (1989) found that the magnitude of the speculative motive for increasing the inventory holding period is quantitatively negligible.

The speculative motive of higher inventory holding period may increase profitability of companies if the expected future price increases manifest. On the other hand, speculative motive theory of higher inventory holding period may result in profitability minimisation if the expected future price increases do not manifest or it is not able to offset the cost of holding the inventory.

5.2.4 Just-In-Time Theory

Just-In-Time theory of inventory was developed in the 1970's by Toyota in Japan (Adeyemi 2010). As narrated by Chen and Podolsky (1996), JIT technique emerged out of the need to develop a defect free process, which increases profitability. According to Bhattacharya (2008), the JIT is synonymous with Toyota system. The JIT theory revolutionised the system of inventory management with the objective of reducing inventory holding period to zero. Therefore, the theory suggests a negative relationship between inventory holding period and profitability. JIT theory regards the holding of inventory in any form as a waste because it does not add value to the product (Morgan 1991; Bhattacharya 2008). Blinder and Maccini (1991) found that the various costs of holding inventory average close to 10 per cent of the value of inventory stock per year. According to this theory, the various motives for holding inventory are not beneficial enough and therefore having a zero inventory holding period will rather increase the profitability of the company.

The JIT system ensures zero inventory holding period and only orders for materials when they are necessary to manufacture the products. This avoids the cost of holding inventory, which allows companies to enjoy higher profitability. Therefore, in contrast to the traditional ways of managing inventory, JIT system calls for frequent orders of small lots. One noticeable difference between the traditional inventory management and JIT system is the evidence of a buffer stock. A buffer stock is completely avoided in JIT system as it sees inventory as the root of all evil (Hsieh and Kleiner 1992). Because of the over reliance on suppliers to deliver on time when ever materials are needed, it is

therefore argued that to successfully implement JIT system a company must forge a close relationship with its suppliers (Younies et al. 2007). Companies that have successfully implemented JIT system have reported substantial cost savings. According to Johnson (1986), Hewlett-Packard reduced inventories by more than 50 per cent after implementing JIT system. And also, General Motors employed JIT techniques and reduced inventory cost from $8 billion to just $2 billion. However, some studies have showed that JIT may not always lead to improvement of a company's financial profitability (Giffi et al. 1990; Schaffer and Themson 1992; Sohal et al. 1993; Balakrishnan et al. 1996; Ahmad and Pletcher 2004). Despite the benefits of JIT system, it has fiercely been criticised by many researchers and financial commentators as a bullying plot by big firms to push their inventory on the supplier (Morgan 1991; Raia 1987, 1990). This claim is evidence in a research by Sheridan (1989), which found that JIT was more prevalent among large companies than among the SME companies that supply them.

5.3 THEORIES ON THE ASSOCATION BETWEEN ACCOUNTS RECEIVABLE PERIOD AND PROFITABILITY

The main business of a non-financial profit seeking company is to buy from suppliers and subsequently sell to its customers. Burkart and Ellingsen (2004) argue that suppliers not only sell goods and services, but extend large amounts of credit as well. According to Long et al (1993), the explanation of trade credit offered is yet not very clear. Many theories have been advanced by researchers to explain why companies offer trade credit

to its customers (Lee and Stowe 1993; Long et al. 1993; Petersen and Rajan 1994; Norrbin and Reffett 1995). However, as argued by Maksimovic and Frank (2005), the many theories have been unable to completely explain the widespread use of trade credit.

5.3.1 Financing Theory

This theory predicts a positive association between accounts receivable period and profitability because suppliers assume the position of financial institutions and therefore extend finance to customers in the form of higher credit sales. The financing theory sees the granting of credit purely on financial grounds, therefore viewing trade credit as a substitute for institutional financing (Bhattacharya 2008). Many reasons account for why companies divert from their core business to give credit to their customers. The first argument is that suppliers have several advantages over financial institutions (Freixas 1993; Jain 2001). Suppliers are able to reduce the information asymmetry between the customer and themselves, thereby reducing the rate of default. Because of the constant and continuous trading relationship, suppliers are in the best position to better evaluate the credit worthiness of their customers (Jain 2001; Van Der Wijst and Hol 2002). They are also in the better position to monitor their customers than financial institutions because of the frequent trade transactions. The second argument is that suppliers have more effective and quicker ways to collect and sell assets of defaulting customers, especially, in the case of durable goods it is easier to repossess and be sold. Another argument of the financing theory is that the increase in accounts receivable

period leads to greater control over customers. This is because a supplier can threaten to cut-off supplies should the customer default in paying. According to Garcia-Teruel and Martinez-Solano (2010b), the control over customer becomes even more important when there are few suppliers in the market. Because in this instance customers will be weary of a default due to lack of supplies from another source. Kandori (1992) and McMillan and Woodruff (1999) contend that the control even becomes more stronger if the supplier is a member of a network and that sanctions can be made by the group as a whole.

The financial theory of accounts receivable may improve companies' profitability because it will forge a good supplier-customer relationship. A good supplier-customer relationship may enhance profitability because it guarantees future sales. Also, it will lead to increase in profitability because it will entice customers to purchase more.

5.3.2 Quality Guarantee Theory

This theory tries to reduce the information asymmetry between the seller and the buyer (Ng et al. 1999; Pike and Chang 2001; Pike et al. 2005). According to this theory, companies offer trade credit to allow customers the necessary time to be able to verify the extent of the quality of the product (Smith 1987; Long et al. 1993; Danielson and Scott 2000). This is because buyers, especially newer ones do not have knowledge about the product quality. Product guarantee is particularly important to sellers as it will help facilitate future purchases (Bastos and Pindado 2007). It helps to reduce the

confusion over the product by allowing the customer to be satisfied with the product before payment is made, which helps to avoid future contentions. In this case a customer who is not happy with the quality of the product can avoid payment for the products and then return the goods to the supplier. The non-payment in case of the return of the products will save both the seller and buyer time and resources in that it will avoid the situation whereby the customer will have to demand the refund of cash, which could be a lengthy and costly process (Garcia-Teruel and Martinez-Solano 2010a). In a worst case scenario, a supplier may be out of business or file for bankruptcy before the defects in the products are ascertained. Following this line of reasoning, it is therefore argued that SMEs and new entrants tend to offer more credit than larger and existing firms because they still have to establish their reputation about the quality of their products (Long et al. 1993; Bastos and Pindado 2007). Similarly, customers of product that are difficult to verify or require longer time to verify the quality will also demand more trade credit.

There are certain arguments against the justification of the quality guarantee theory for granting trade credit. In the first place, if SMEs and new entrants give trade credit to justify the quality of their products, then what happens if they become firmly established in the market? On the account of this theory, there should be a reduction in the amount of trade credit offered. However, research has found that in reality this phenomenon does not happen but rather the credit terms continues which eventually becomes a norm. Another opposing argument is that in the spirit of this theory no trade

credit should be given in case of perishable products because they last for few days and that there are no time required to determine the quality of the products. But it has been found that in reality payment periods for perishable products are as lengthy as non-perishable products (Bhattacharya 2008). Also, a research by Wei and Zee (1997) did not find any empirically uniform support for the quality guarantee theory from their data. The quality guarantee theory of accounts receivable may influence profitability of companies. This is because given customers the opportunity to assess the products before final payment may help boost their confidence in the company. Having confidence in the company may enhance profitability because of repetitive purchase. Also, companies profitability may be boosted because given customers time to attest to the products quality will build a good reputation.

5.3.3 Transaction Costs Theory

This theory was developed by Ferris in 1981 to explain the fact that the purpose of trade credit is to enhance operational efficiencies. As argued by Emery (1987), the transaction cost motive for extending trade credit is motivated purely by the desire to enhance operating flexibility, which may encourage higher profitability. According to the transaction cost theory, companies indulge in trade credit in order to reduce the cost of transactions between them, which may lead to increase in profitability (Petersen and Rajan 1997; Nelson 2002; Banerjee et al. 2007; Bhattacharya 2008). Without trade credit, companies would be required to make payment on the delivery of goods and services. By agreeing on the terms of payment a company is able to separate its

purchases cycle from the payment cycle. This helps to avoid the situation whereby companies may have to always make arrangement to pay immediately for the purchases of goods and services. Even though immediate payment upon purchases will be wise in case of periodical transactions, in situations whereby the transactions between a seller and a buyer are frequent, the cost involved can be substantial. By separating purchases from payment and also agreeing to a fixed payment period, a company can plan and manage its financial resources with certainty (Schwartz 1974). In the absence of trade credit companies may be forced to keep large sums of money as a precaution to settle payments against an unexpected or sudden demand for products. Stowe and Gehr (1985) argue that the separation of payment from delivery reduces monetary theft risk and therefore leads to improvements in profitability.

Also, a company with severe demand fluctuations can smooth production by adjusting production schedule, effecting price reductions or employing trade credit. However, as argued by Bhattacharya (2008) the least cost solution is by utilising trade credit. By using trade credit, a seller is able to influence sales in times of slackening demand, which may lead to profitability maximisation. A company can relax trade credit when sales are fallen and also tighten it when sales are on the rise. In this instance, trade credit is used as a reward mechanism for customers who patronise the goods and services in times of low demand. This argument is empirically supported by a study from Long et al (1993) who found that companies with variable demand give a longer trade credit period than those with stable demand. A company can also reduce its warehouse cost of

keeping inventory with the aid of a trade credit. If the cost of keeping inventory is high, a seller may push inventory unto customers by offering generous credit terms. In this case, the reduction in warehousing costs may improve profitability. However, care must be taken to ensure that the marginal cost of holding receivables is lower than cost of holding inventory. One criticism of the transaction cost theory for the utilisation of trade credit is the fact that it reduces transaction cost by employing periodic payments. Whilst this argument was sound in the 1980s, because of the various traditional procedures for settling payment, however, with the advent of technology, which has led to more improved ways of making payment, one would wonder if the reduction of transaction cost is still a valid proposition for the use of trade credit. In the end, the linkage between accounts receivable and profitability from the view point of transaction cost theory stems from the reduction in transaction costs between supplier and customer.

5.3.4 Price discrimination Theory

This theory is based on the assumption that a seller can sell to two different buyers at entirely different prices without altering the original price of the product or services (Meltzer 1960; Schwartz and Whitcomb 1979; Brick and Fung 1984; Brennan et al. 1988; Mian and Smith 1992; Petersen and Rajan 1997; Ng et al. 1999). By offering different levels of trade credit, a company is ultimately selling at different prices. A customer that is given a longer credit period is in effect paying at a lower price as compared to other customers (Garcia-Teruel and Martinez-Solano 2010a). This assumption is very important because customers are heterogeneous and that it is more

convenient to sell at different prices based on different characteristics between customers. There are two reasons why companies resort to trade credit as a form of price discrimination rather than a direct cut in prices. The first reason is that due to market and regulatory restrictions on the practices of price discrimination, companies can only discriminate through the indirect use of trade credit. As argued by Emery (1987), extension of trade credit enables a seller to inherently violate price restrictions. A second reason is that, in a highly competitive market a direct price reduction will be retaliated by fellow competitors, which will result in a price war. For this reason a company that wishes to increase sales within a competitive market can do so by the use of trade credit. As argued by Bhattacharya (2008) and Petersen and Rajan (1997), companies that enjoy higher price-cost margins benefit from the price discrimination theory of trade credit. Due to their higher profit margin in comparison with the companies in the market, such a company can effectively reduce its price through trade credit in order to further command more sales, which leads to higher profitability.

Another explanation of the price discrimination theory is the use of trade credit as a way to subsidize the price paid for products and services by high-risk customers (Petersen and Rajan 1994, Bhattacharya 2008). Due to the implicit interest rate involved in trade credit, it is naturally attractive to high-risk customers who are denied credit from the financial institutions or allowed to borrow at a prohibitive cost. For this reason, such companies will be willing to accept trade credit from suppliers. Evidence from a research by Banerjee et al (2007) assert that trade credit effectively price discriminate in

favour of high risk customers by alleviating their short-term cash problems. However, practising trade credit for the purpose of assisting high-risk customers can be dangerous for the supplier in relation to profitability. This is because high-risk customers have the highest propensity to default on their account, therefore increasing the incidence of bad debts and causing a reduction in profitability. Another problem with this theory is that it does not in any way benefit low risk and loyal customers. Because of the fact that they can conveniently acquire cheaper credit from financial institutions, there is every possibility of them rejecting any trade credit. Hence it is prudent for companies to apply trade credit in a selective and for a limited purpose only. In conclusion, it is argued that a company that practices price discrimination of accounts receivable may improve profitability by offering greater credit period based on the profitability margin per each customer.

5.3.5 Product Differentiation Theory

According to the product differentiation theory, trade credit can be used like any other sales promotional tool to increase sales and therefore profitability (Nadiri 1969). It is used to differentiate a company's product from that of competitors. By offering trade credit, a company is able to convince customers that its products offer more value for money and that more benefits can be derived from patronising the products or services. This theory suggests that companies can increase their profitability by offering more trade credit. Prior research has found a positive relationship between the level of trade credit and profit margin (Petersen and Rajan 1997). Another explanation of the product

differentiation theory as far as the supplier is concerned is its ability to maintain their long-term relationship with customers, which may improve profitability. By offering trade credit, companies are able to keep a bunch of loyal customers. The maintenance of loyal customers has future benefit to a company in the form of improve profitability as it will help generate more future sales in terms of both current customers and prospective customers. Here, trade credit is seen as an investment in customers that are not expected to generate immediate returns but rather like other sales promotional tools to generate future profitability over time.

However, despite the similarities between trade credit and other forms of sales promotion there are differences in their application and motive behind them (Bhattacharya 2008). Whilst traditional forms of sales promotion are directed towards the whole market or segment of the market, trade credit is applied to individual customers.

5.3.6 Market Power Theory

The market power theory of accounts receivable is whereby the customer has more power in relation to suppliers. A customer that has more power will demand more credit from its suppliers, which may help improve profitability. Customer power over supplier arises whereby the customer is relatively large as compared to the supplier such that the business of the customer forms a major part of supplier's revenue (Banerjee et al. 2007). Another source of customer power is where there are numerous suppliers but very few

customers so that the customer has many alternatives to choose from. In such a case, the competitiveness of suppliers market will help to push trade credit upwards. A research by Wilson and summers (2002) found a positive relation between customer power and trade credit. The market power relationship between a company and its supplier may affect profitability. A company with more power over the supplier can demand favourable credit terms, which will help improve profitability. On the other hand, a company with weak power relationship with suppliers may see a decline in profitability because the supplier may propose unfavourable terms of credit or even demand upfront payment. An unfavourable credit term may reduce profitability because it will force a company to forgo other profit enhancement commitments or embark on expensive borrowings.

There is also the argument for the negative relationship of market power and trade credit. It is suggested that a customer with more market power will be in a good financial position and therefore will demand less trade credit from suppliers. This is because such a company can access credit from the more traditional financial institutions.

5.4 THEORIES ON THE ASSOCATION BETWEEN ACCOUNTS PAYABLE AND PROFITABILITY

In seeking financial assistance it is customary for companies to turn to financial institutions, because of their expertise in providing such services. However, there is

evidence of widespread use of suppliers' credit by customers. A research by the National Bank of Belgium in (1995 cited Deloof 2003) found that accounts payable constitute about 12 per cent of total liabilities of companies. According to Deloof and Jegers (1999), accounts payable is an important alternative not only for short-term bank debt but also long-term financial debt.

5.4.1 Financing Theory

The financial theory helps explain why companies ignore financial institutions and accept credit from their suppliers rather than financial institutions. According to the financial theory, companies accept credit from their suppliers due to inefficiencies in the financial market (Kohler et al. 2000). Because of these market inefficiencies, not all companies have equal access to credit from financial institutions. Some companies, especially SMEs are viewed by financial institutions as more risky and therefore deny them credit. Therefore, such companies are compelled to embrace any credit offer from their suppliers. In this vein, it is argued that companies with more access to financial markets will act as intermediaries by borrowing from financial institutions and then give it to customers in the form of trade credit (Schwartz 1974; Emery 1984; Garcia-Teruel and Martinez-Solano 2010a). Therefore according to the financial theory, the granting of trade credit will greatly depend on the financial market accessibility of both the supplier and the customer.

The financial theory influence on accounts payable has an effect on companies' profitability. This is because companies without access to capital markets may have to rely on suppliers' credit to fund their business, which may affect profitability. Also, the ability to make purchases without immediate cash means that companies can invest the cash in other profitable ventures. However, the financial theory of accounts payable may lead to a reduction in companies' profitability because of the loss of discounts offered by suppliers. Suppliers normally offer cash discounts for prompt payment and therefore asking for credit means that such savings in cash discount may be lost.

5.4.2 Liquidity Theory

The liquidity theory explains why some companies are ever willing to accept the maximum credit being granted to them. This theory argues that more liquid companies are willing to offer trade credit. According to this theory, SMEs demand more credit from their larger counterparts (Nelson 2002). This is because on average larger companies are more liquid than smaller ones due to the fact that the former have more access to financial institutions. Larger companies due to their collateral base are more likely to be offered credit than SMEs. Another variation of the liquidity theory is that companies with negative cash flow or fallen sales are more likely to request for trade credit (Petersen and Rajan 1997). A negative cash flow means that the outgoings are more than the incomings. Companies in this situation will be unable to purchase on cash basis due to lack of cash. They may therefore not have any choice but to resort to trade credit as the only alternative. Also, a company with fallen sales will have less money

coming in and therefore will find it difficult to meet its short to medium term obligations when they fall due. Such a company will avoid paying any expenditure with immediate cash. Following the aforementioned argument therefore, in times of restricted monetary policy, trade credit will make up for the reduction in credit from financial institutions. A research by Nilsen (2002) found that SMEs react to monetary contraction by borrowing more from suppliers. Due to the negative correlation between financial institution lending and trade credit, it is argued that a good relationship with banks will curb the use of trade credit (Bastos and Pindado 2007). Petersen and Rajan (1994) found that companies with longer banking relationships rely less on trade credit.

The liquidity theory explains the relationship between accounts payable and company profitability. This is because a company with liquidity problems may delay payment to suppliers in order to use that money to pay other bills as and when they fall due, which may improve profitability.

5.4.3 Financial Distress Theory

The financial distress theory of accounts payable stems from 'buyer opportunism'. This trade credit theory suggests that a supplier in financial distress is compelled to offer more trade credit to its customers (Petersen and Rajan 1997; Wilner 2000; Bhattacharya 2008). A company in financial distress will have a weaker bargaining position to effectively follow its trade credit policy. Such a company will be desperate for sales because it would not be able to even afford the various cost associated with holding

inventories. As a result of this weak position, customers will exert their wishes on the supplier. As it can be recalled, the financial theory above suggests that suppliers have control over their customers by threatening to cut off suppliers. However, a supplier in a financial distress will be in a weaker position to implement such a harsh policy. Financially distressed company may also not have the financial resources to sue a customer for overdue trade credit. Due to these weaknesses, customers of a financially distressed company will take an undue advantage to ask for more credit. Not only that, but also extract several other concessions including larger discounts (Bhattacharya 2008). As argued by Bhattacharya (2008), the opportunistic behaviour of the customer becomes more pronounced when the customer is one of the principal customers. Wilner (2000) also found that such companies do not dare to even charge for late payment. A research by Petersen and Rajan (1997) found empirical proof that companies in financial distress offer more trade credit. The financial distress of supplier has an effect on company profitability. A company of a distressed supplier may improve its profitability by taken advantage of the state of the supplier finances and demand huge credit terms, thereby using suppliers' credit as a source of finance.

5.5 CONCLUSION

Given that the objective of this study is to investigate the effect of WCM on profitability, this chapter explored the various theoretical frameworks that have been expounded to explain the association between components of WCM and profitability. First, under inventory holding, four theories were identified to explain the importance of

inventory in relation to companies' profitability. These four theories included transaction motive, precautionary motive, speculative motive and finally JIT theory. The transaction motive of holding inventory justified the need to keep inventory as a means to satisfy the expected demand of a company including keeping inventory for display or demonstration purposes. The precautionary motive of holding inventory explained why companies may choose to keep inventory over and above what is needed to serve customers. It clarified that companies keep inventory as a precaution against the prospect of unwanted circumstances. According to the speculative motive of holding inventory, companies keep inventory with the sole purpose of realising abnormal profit in the future. Lastly, the JIT theory regarded the holding of inventory in any form as a waste and therefore suggested for a zero inventory. It argued that zero inventory will increase the profitability of a company.

The next section looked at the various theories which explain why companies grant and accept trade credit, knowing that the main business of a non-financial profit seeking company is not to extend financial assistance to customers. In all eight theories were examined including financial theory, liquidity theory, financial distress theory, quality guarantee theory, transaction cost theory, price discrimination theory, product differentiation theory and market power theory. The financial theory of trade credit explained that suppliers assume the position of financial institutions and therefore extend finance to customer because of their information advantage over financial institutions. The liquidity theory on the other hand highlighted that more liquid

companies are willing and do offer more trade credit. The financial distress theory described that the customers of a financially distressed supplier will demand undue trade credit, whilst a supplier will also take advantage of a customer in financial distress by luring it in offering competitively relaxed credit terms but squeeze it in later periods. The quality guarantee theory elucidated that trade credit is granted and offered in a bid to reduce the information asymmetry between the seller and the buyer. The transaction cost theory described the granting of trade credit as a means to enhance operational efficiencies in terms of reducing the cost of transactions between a company and its customers. The price discrimination theory justified the use of trade credit as an inherent means to sell to two different buyers at entirely different prices without altering the original price of products and services. The product differentiation theory liken trade credit to any sales promotional tool by arguing that trade credit helps companies to differentiate their products from that of competitors. Finally, the market power theory suggested that the amount of trade credit granted and received will depend on the power relationship between the supplier and the customer.

CHAPTER SIX

QUANTITATIVE DATA AND RESULTS

6.1 INTRODUCTION

In chapter five, various theoretical frameworks for determining the effect of Working Capital Management (WCM) on profitability were discussed. Therefore, this chapter builds on the preceding chapter by developing eighteen hypotheses to test the effect of WCM and its components and control variables on profitability. These hypotheses are motivated by one or more of the theories discussed in chapter five. The research methodology and results are also presented and discussed. The rest of the chapter is arranged as follows. Section 6.2 discusses the hypotheses for eighteen variables, section 6.3 looks at the quantitative data sample selection procedure and the data, section 6.4 reports the panel data regression results. Finally, section 6.5 draws a conclusion for the chapter.

6.2 HYPOTHESES DEVELOPMENT

6.2.1 Working Capital Management Variables

6.2.1.1 Inventory Holding Period

The level of inventory kept by a company will influence its profitability (Gill et al. 2010; Ching et al. 2011). A higher inventory means that inventory is held in stock for longer time period whilst a lower inventory indicates that inventory is sold more quickly. There are arguments for and against the keeping of inventory by companies in

relation to profitability. According to Chowdhury and Amin (2007), both excessive and inadequate inventory is harmful for a company. One of the arguments in favour of a positive effect of high-level inventory on profitability is the increase in sales (Deloof 2003). A company that keeps high level of inventory may be able to increase its sales, which may improve profitability. High level of inventory means that customers will always have access to the items they want. Also, the availability of inventory will help prevent loss of client business. This is because customers will be rest assured of getting what they want whenever they come to make purchases. The availability of inventory will also improve company profitability because it will prevent the company rushing into making emergency buying. Emergency buying normally cost higher than normal purchase because it is usually unarranged. At the same time it may also cause defections in the production line, which may negatively affect profitability because the company may be unable to get the required standard of quality due to the urgency of the purchase.

Another profitability maximisation factor of having a high level of inventory is the ability to avert trading interruptions (Gill et al. 2010). A stock out situation can have a major downward impact on profitability because of its associated cost. For example, having no stock will damage the reputation of the company, which may cause both current and future customers to take their businesses elsewhere. It will also increase the cost of production without a corresponding increase in revenue because of idle time situation. This will eventually increase the cost of the goods of the company and decrease the profit margin, thereby reducing profitability. As argued by Chowdhury and

Amin (2007), inadequate inventory usually interrupts the normal operations of a business and impairs profitability. Having a high level of inventory may also rescue a company from price fluctuations (Blinder and Maccini 1991). Due to the ever-increasing prices because of inflation, hoarding inventory can save a company a lot of money, which may improve profitability. A positive relationship between inventory holding period and profitability was found by previous researches including: Mathuva (2010), Padachi (2006), Nobanee (2009), Christopher and Kamalavalli (2009) and Nobanee and Alitajjar (2009b).

On the other hand, having a high level of inventory may also result in a reduction in company profitability. This is because the high level of inventory represents amount of money locked up. Capital locked up in inventory may cause a sub-optimisation of financial resources because such an amount could have been invested in a profitable project in order to improve profitability. Also, the lock up of capital in inventory may require the company to sort after short-term financing, which may increase the financing cost to the company and thereby reduce profitability. High inventory may also minimise profitability in the sense that it will increase the associated costs of holding inventory. Such holding costs include: security cost, rent, heating, obsolesce, theft etc. According to Koumanakos (2008), excessive inventory frequently compensates for sloppy and inefficient management, poor forecasting and inadequate attention to process and procedures. However, Nobanee and AlHajjar (2009a) suggest that care must be taking with actions to reduce the inventory level in order to avoid inventory shortages

that could cause customers to buy from competitors. Empirical examination by prior studies found a negative association between inventory holding period and profitability (see, Deloof 2003; Nobanee and Alhajjar 2009b; Falope and Ajilore 2009, Raheman and Nasr 2007). The above arguments indicate that even though too low or too high level of inventory may have positive effect on performance, the results of a reduced level of inventory may have more positive influence on company performance than that of high level. Subsequently, the following is hypothesised:

H1 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN INVENTORY HOLDING PERIOD AND PROFITABILITY.

6.2.1.2 Accounts Receivable Period

The level of accounts receivable is expected to have an impact on a company's profitability (Emery 1987; Mian and Smith 1992; Deloof and Jegers 1999; Peel et al. 2000; Garcia-Teruel and Martinez-Solano 2010a). A higher accounts receivable show that the company takes longer time to collect amounts owed by customers whilst a shorter accounts receivable means that the company is able to collect amount owed by customers at a faster time period. An increase in the level of accounts receivable may help stimulate the sales of a company (Garcia-Teruel and Martinez-Solano 2010a). By offering extended credit to customers, companies may improve their profitability in the sense that it can entice customers to purchase more than is required. Garcia-Teruel and Martinez-Solano (2010b) maintain that companies grant more trade credit to their

customers when they have lower sales growth. High level of accounts receivable may also maximise profitability because it can serve as a quality guarantee to customers (Smith 1987; Pike and Cheng 2001). By delaying payment, customers are able to use the period between purchase and payment to check for the quality of the goods and/or services. This situation gives customers the confidence in purchasing a company's products because they can return the products if the quality is not up to standard without having to pay. Garcia-Teruel and Martinez-Solano (2010b) argue that even though customers can still return the products and a refund demanded, this process is more difficult and costly. Giving customers' time to pay also improves companies' profitability by sustaining the long-term relationship with customers (Ng et al. 1999; Wilner 2000). This long-term relationship means that customers will continue to do business with the company, which can guarantee future profitability maximisation.

Another profitability enhancement benefit of accounts receivable is the reduction of inventory related costs. Since the granting of credit to customers helps increase the sales, it reduces the level of inventory kept. This reduction in inventory leads to a reduction in the various costs associated with keeping inventory and therefore improves profitability. Garcia-Teruel and Martinez-Solano (2010b) content that by relaxing credit period, companies can reduce the storage costs of the excess inventories accumulated. A positive relationship between accounts receivable period and profitability was empirically confirmed by previous researches (Nobanee 2009; Ramachandran and Janakiraman 2009).

High level of accounts receivable can however have a negative effect on companies' profitability. In the first instance, the granting of credit represents a cost to the company (Cheng and Pike 2003) and therefore a reduction in profitability. A company may have to seek alternative sources of funds to finance the investment in customers as a result of the credit granted. The use of internally generated funds to finance the credit granted to customers may reduce profitability because it will represent the opportunity cost of investing such an amount in other profitability enhancement ventures. Alternatively, the use of external funds may equally lead to profitability minimisation because the company will have to pay interest on those amounts borrowed. Accounts receivable may also impair company profitability because of the occurrence of bad debt (Pike and Chang 2001). The problem of adverse selection could cause a company to offer credit to a customer with a poor credit history, which may end up as bad debt and therefore dwindle profitability. Also, the problem of morale hazard may affect the profitability of a company because of the intentional decision of a customer with a good credit to decide not to pay for the goods and services after receipt and probably consumption. Cheng and Pike (2003) maintain that accounts receivable means that the company is financing the buyers' inventory and also bearing the credit risk. Majority of prior studies have postulated a negative association between accounts receivable period and profitability (see, Deloof 2003; Garcia-Teruel and Martinez-Solano 2007; Sen and Oruc 2009; Dong and Su 2010; Gill et al. 2010). In conclusion, it can be said that a reduction in the level of accounts receivable may result more in performance maximisation than the increase in accounts receivable period. It is therefore hypothesised that:

H2 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN ACCOUNTS RECEIVABLE PERIOD AND PROFITABILITY.

6.2.1.3 Accounts Payable Period

There are many reasons for expecting a significant relationship between accounts payable period and company profitability. A higher value of the specifies that the company wait longer before settling suppliers and a lower value of the accounts payable period denotes the short time frame that it takes a company to pay its debts to suppliers. For a negative relationship, it has been argued that the loss of discount for early payment may affect company profitability (Ng et al. 1999). Asking time to pay means that a company must forgo the cash discount usually offered by suppliers for early payment. And, as maintained by (Ng et al. 1999) the amount of cash discount can be substantial. Also, the decision to accept or request for credit period results in an inherent cost to a company, which diminishes profitability. A research by Ng et al (1999) indicated that the combination of the 2 per cent discount for payment within 10 days of supplies and a net period ending on 30 defines an implicit interest rate of 43.9 per cent. Therefore, the high inherent cost involved in credit period will cause a reduction in profitability. Researchers such as Padachi (2006), Deloof (2003), Garcia-Teruel and Martinez-Solano (2010b), Lazaridis and Tryfonidis (2006) and Nobanee (2009) all found a negative association between accounts payable period and profitability.

For a positive relationship, it is found that credit period results in a reduction in transaction cost (Ferris 1981; Emery 1987; Petersen and Rajan 1997), thereby increasing profitability. This is because in the absence of credit period, companies may have to pay for merchandise as and when purchases are made. This would have resulted in an increase in the number of times a company has to make payment and therefore increasing the transaction cost. However, credit period allows companies to accumulate amounts owing and pay them at a period interval according to the credit period agreement, such as monthly or quarterly. Another benefit of credit period to companies as far as profitability maximisation is concerned is the ability to overcome financial constraint (Schwartz 1974; Pike and Cheng 2001).

One major contributing factor to company poor profitability and failure, especially SMEs is financial constraint; however, credit period serves as a financial facility to SMEs. SMEs due to their inherent characteristics do not get access to capital market and therefore rely on suppliers as a source of financing. This has made accounts payable an important source of short-term funds for most firms (Berger and Udell 1998; Deloof and Jegers 1999; Wilner 2000; Garcia-Teruel and Martinez-Solano 2010a). Garcia-Teruel and Martinez-Solano (2010a) maintain that accounts payable represents a source of short-term financing used by companies to finance a significant portion of firms' current assets. But, Nobanee and AlHajjar (2009a) say that a company should be careful not to harm its own credit reputation by asking too much credit from suppliers. Mathuva (2010) found a positive and highly significant association between accounts payable

period and profitability, therefore maintaining that companies' profitability are enhanced when they take advantage and use suppliers' credit for working capital needs. A positive relationship was also found by the following researchers: Falope and Ajilore (2009), Vishnani and Shah (2007), Raheman et al (2010), Sen and Oruc (2009) and Dong and Su (2010). Judging from the two spectrum of stance, it can be deduced that the benefit to companies of having a shorter accounts payable period is more than the benefit of having a lengthy accounts payable period. In this vein, it is hypothesised that:

H3 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN ACCOUNTS PAYABLE PERIOD AND PROFITABILITY.

6.2.1.4 Cash Conversion Cycle

The variation in a company's profitability can be explained by its cash conversion cycle. A positive cash conversion cycle denote that it takes more time for a company to pay its suppliers than it takes to collectively sell inventory and collect amounts owed by customers and vice versa. A shorter cash conversion cycle may improve companies profitability because it will reduce or avoid the over reliance on external finance. In this case the company may be financing part of its current assets with suppliers' credit, thereby avoiding the need for short-term loan, which can be very expensive, particularly SMEs. Another profitability enhancement benefit of a shorter cash conversion cycle is the fewer financial resources of SMEs (Nobanee 2009). Due to the lack of access to the capital markets, SMEs may improve profitability by relying on suppliers' credit. A

shorter cash conversion cycle may also maximise profitability because it indicates the efficiency of using WC. An efficient use of WC means that the company is able to quickly convert inventory into sales and at the same time fast in collecting receivables, but slow in paying suppliers. For example, Nobanee (2009) maintains that efficiency of WCM is based on the principle of speeding up cash collections as quickly as possible and slowing down cash disbursements as slowly as possible. Mathuva (2010) postulated a negative association between cash conversion cycle and profitability, and therefore argued that minimising the investment in current assets can help in boosting profitability. However, pursuing such an aggressive strategy may result in lower company profitability. This is because trying to sell to customers on immediate cash payment basis or collecting amount owned as quickly as possible may deter customers from patronising the company's products. Also, delaying payments to suppliers may impair profitability of companies because of the lost saving on cash discount available. Negative association has been postulated between cash conversion cycle and profitability of companies (see, Nobanee et al. 2010; Uyar 2009; Wang 2002; Zariyawati et al. 2009; Lazaridis and Tryfonidis 2006; Garcia-Teruel and Martinez-Solano 2007).

On the other hand, a lengthy cash conversion cycle may improve company profitability by increasing sales (Deloof 2003). This approach will allow the company to extent more credit to customers, which may entice them to purchase more. In the same vein, having more inventory in stock means that customers will always have what they want, which

may lead to higher sales and improve profitability. Also, a lengthy cash conversion cycle means that the company will pay suppliers upfront. This has the advantage of improving the profitability of the company because of the cash discount to be enjoyed. However, paying suppliers immediately upon purchases and extending more credit period to customers may require the company to seek extra funding. But these extra funds will represent a cost to the company because of the interest payment involved. Researchers including: Padachi (2006), Dong and Su (2010), Sen and Oruc (2009), Raheman et al (2010) all found a positive association between cash conversion cycle and profitability. In conclusion, it is fair to say that shortening the CCC may improve companies' performance than having a lengthy CCC. Thus, it is hypothesised that:

H4 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN CASH CONVERSION CYCLE AND PROFITABILITY.

6.2.2 Control Variables

6.2.2.1 Corporate Governance

6.2.2.1.1 Board Size

The effect that the size of a company's board has on its profitability is a case of contention from different perspectives (Jensen 1993; Yermack 1996; Mak and Yuanto 2003; Anderson et al. 2004). On one hand are those who believe that a larger board size has a positive influence on profitability (Pfeffer 1972; Klein 1998; Dehaene et al. 2001; Coles et al. 2008). This proposition stems from many reasons. Firstly, it is argued that a

larger board can improve the profitability of the company by providing valuable advice to the CEO (Dalton and Dalton 2005). According to Van den Berghe and Levrau (2004), expanding the number of directors provides an increased pool of expertise. Many directors mean that there will be diversity of specialisation, which can enhance the decision-making processes within the company. The diversity of specialisation could help companies to secure critical resources and also reduce environmental uncertainties (Goodstein et al. 1994). Secondly, larger board size enhances the profitability of companies by making it easy to create committees within the company for the effective execution of duties and responsibilities (Bathula 2008). Because of the largeness of the board, the company will be able to sub-divide the duties and responsibilities on the lines of specialisation and expertise so as to ensure effectiveness and efficiency, which may maximise profitability. Thirdly, larger board size will benefit the company in relation to profitability because of the greater monitoring ability on management (Klein 1998; Adam and Mehran 2003; Coles et al. 2008). Primarily, board of directors are put in place to protect shareholders and other stakeholders interest and this can more be achieved with a larger board size. Having a larger board size means that there will be enough directors to oversee different activities of management simultaneously.

Fourthly, a larger company board size will have more bargaining power over the CEO. The presence of more people on the board will make it harder for the CEO to influence the board because influencing more people is harder than influencing a few. This will

help reduce the domination of the CEO, which normally leads to sub-optimisation of profitability because of pursuant of personal interest by CEOs. Finally, more directors on the board will bring about diversity in terms of gender and nationality (Shakir 2008). Having a mixture of male and female on the board can help improve the profitability of the company because of the differences in perception between them. From the position of public policy, mixture of male and female on the board of a company will greatly improve its reputation because of the fact of its recommendation by policy makers. Also, different nationalities will bring on board diversities of cultures and morals and different standpoints of looking at things, which may help improve profitability. A positive association between company board size and profitability was found by previous researchers (see, Uadiale 2010; Mangena et al. 2010; Kajola et al. 2008).

On the other hand, advocates of smaller board size base their argument on many factors. They argue that smaller size pave the way for easy coordination (Lipton and Lorsch 1992; Yermack 1996; Eisenberg et al. 1998). Smaller board size will make getting all directors for meeting easy. It will also enhance the interaction between them and the CEO because the CEO will be dealing with few handfuls of people. Another profitability maximisation benefit of having a smaller board size is that it improves the cohesiveness within the directors on the board. Dealing with a few people at meetings will result in quick decision making being taken which will reduce the time spent at meetings. This will decrease the time cost per each director, therefore limiting cost and improving profitability. Cross communication between the directors and also with the

CEO and other managers will be accelerated. This should improve the quality of communication and therefore explode profitability. Smaller board size will also prevent the free riding behaviour of some directors (Kyereboah-Coleman 2007a; Shakir 2008). Smaller board size may also improve company profitability by avoiding factions and conflict often prevalent on larger boards (Bathula 2008). The presence of factions and conflict will delay decision-making, which may result in unnecessary waste of resources and time. Researchers including: Yermack (1996), Liang and Li (1999), Vafeas (1999) and Dahya et al (2008) also postulated a negative relationship between company board size and profitability. In conclusion, it is suggested that whilst having a bigger board size will accrue some benefits to a company, the benefits of having a smaller board size helps in company performance. Consequently, the following association between board size and performance is hypothesized:

H5 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN COMPANY BOARD SIZE AND PROFITABILITY.

6.2.2.1.2 CEO Age

Research has suggested that CEO age is one of the characteristics that affect company profitability (Bhagat et al. 2010; Serfling 2012). The profitability enhancement differentials between young and old CEOs rest on their risk taking preferences. Younger CEOs are afraid to take risk by investing in higher profitability opportunities because of the greater personal risk associated with risky company strategies. Because they have

just started their career and the fact that they have many years ahead of them, they make sure not to do anything that will lead to truncated career (McClelland and O'Brien 2011). Due to greater damage to future career younger CEOs may therefore prefer lower risk company strategies in order to secure their position, however lower risk may also mean lower profitability. As argued by Avery and Chevalier (1999), relatively young CEOs may be risk averse because of their insecurity in the executorial skill and thereby more afraid to make mistakes. Also, because younger CEOs may have just started their career and that they lack adequate experience, it will mean that mistakes and errors may be imminent. This imminent mistakes and errors may lead to increase cost, which may result in lower profitability. Another issue that can inhibit the profitability of younger CEOs is their lack of previous track record (Holmstrom 1999). Their lack of proven track record negates against their willingness and ability to take highly risky but highly maximised profitability adventures. However, on the contrary to the above arguments it has been suggested that younger CEOs in order to prove their ability will take higher risk that will give higher returns and enhance profitability.

Older CEOs on the other hand are suggested to enhance company profitability because of their accumulated experience over the years. These accumulated experience and skills helps older CEOs to make the right choices. They also avoid most of the mistakes and errors found in the early stages of once career and all these factors help to enhance company profitability. Another profitability improvement factor associated with older CEOs is their shorter career horizon. Older CEOs may have the willingness to take

higher risk that leads to higher profitability because they are nearing retirement and that any adverse consequence may not jeopardise their career. Also, their proven track record may also give them the impetus to try and improve profitability by embarking on high-risk ventures. However, research has shown that older CEOs refrain from taken longer-term investment but rather resort to short-term earnings to their benefit but at the expense of profitability (Davidson et al. 2007). A positive relationship between CEO age and profitability was found by Yim (2010). In short, the vast experience of older CEOs is argued to accrue more benefit to a company by improving performance than the benefits of a younger CEO. This leads to the following hypothesis:

H6 CEO AGE IS A SIGNIFICANTLY POSITIVE EXPLANATORY VARIABLE OF THE VARIATION IN THE PROFITABILITY OF AIM LISTED SME COMPANIES.

6.2.2.1.3 CEO Tenure

The number of years that a CEO has been in the realm of affairs will significantly affect company profitability. On the negative side, it is argued that a CEO that has spent a long time at his or her post will resort to empire building. A CEO with such a lengthy time in a company will become more comfortable and will use his or her power and knowledge gained to seek his or her own interest at the expense of profitability. It may also lead to CEO entrenchment. This entrenchment results from the fact that a long tenured CEO may dominate the board, which will lead him or her to pursue costly

projects that can jeopardise a company's profitability. He or she may also use such power and domination to ask for higher compensation package at the expense of profitability (Hill and Phan 1991; Allgood and Farrell 2003). The domination of CEO over the board due to longer tenure is proved by a model developed by Hermalin and Weisback (1998). This model predicted that board independence actually declines over the course of a CEO's tenure. A long tenured CEO may have the opportunity to influence the selection of directors (Zajac and Westphal 1996). This opportunity will offer him or her the advantage of choosing directors who are sympathetic, which will afford him or her the ability to exert own influence and discretion that may minimise profitability. Another negative effect of longer CEO tenure stems from the fact that it results in the board becoming more relaxed and less vigilant in monitoring the CEO (Lorsch and MacIver 1989; Coles et al. 2001), which may decrease profitability. Once the board has gained the trust of the CEO they reduce their monitoring effectiveness, but this may give a course for CEOs to start pursuing their own interest that impair profitability. Farooque et al (2007) did a study on the link between CEO tenure and profitability and presented a negative association.

On the other hand there are arguments that suggest that a longer tenured CEO leads to higher company profitability. It is argued that since new CEOs may require some time to adopt into their new role through learning, their performance may therefore be improved with time that will enhance profitability. Shen (2003) maintain that CEOs spent a lot of time to achieve the success of their work and that the ability of a CEO will

increase with time. It means that their increased ability will have a positive influence on profitability. As suggest by Gabarro (1987), new CEOs normally require one or two years to acquire the needed task knowledge to be able to take major decisions. Also, as a CEO stays in an office for long, it helps him or her to acquire company specific knowledge that helps to maximise profitability. Shen (2003) argues that CEOs continue to accumulate task knowledge and also sharpen their leadership skills with time. Longer tenured CEOs are motivated to improve profitability because they have the benefit of seeing the results of their decision taken (Kyereboah-Coleman 2007b).

Another profitability enhancement of longer CEO tenure is that it leads to lower monitoring cost, which may show in improved profitability. New CEOs because of their unproven abilities are watched closely. This results in substantial monitoring cost at the expense of profitability. However, on the contrary it is shown that because new CEOs are keenly watched, it actually propels them to achieve higher profitability. This higher profitability stems from the fear of been dismissed, because research has shown that CEO dismissal is acute during the first five years in office (Shen and Cannella 2002). A positive association between CEO tenure and profitability was found by Agrawal and Knoeber (1996). Contrasting the two spectrums of arguments, it is evident that a longer tenured CEO will maximise performance more than a shorter tenured CEO. It is therefore hypothesised as follows:

H7 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN CEO TENURE AND PROFITABILITY.

6.2.2.1.4 Proportion of Non-Executive Directors

Corporate governance rules around the world all advocate for a combination of both executive and non-executive directors to be present on company boards, however, the issue of whether non-executive directors help in maximising profitability is a contentious one (Jackling and Johl 2009). It is argued that executive directors may hold allegiance to the CEO (Shakir 2008) and that their presence decreases profitability. Executive directors work on a daily basis with the CEO and that they find it very difficult to be critical. Because the CEO is the highest-ranking executive in the company, he may have full power in appointing executive directors who will remain loyal to him. For example, Young (2003) maintains that a director with ties to the CEO would find it difficult to turn down an excessive pay packet and challenge any proposals by the CEO. On the good side, executive directors are seen to have the full knowledge about the affairs of the company's business and therefore are in the better position to offer advice to the CEO and management team. Executive directors are those who have direct technical expertise and insight relating to the company and therefore are able to identify the challenges facing the company and also offer insightful solutions, which may improve profitability.

According to Anderson and Reeb (2004), it is even the executive directors who explain the situation of the company to non-executive directors. It is therefore argued that executive directors are in a better position to provide more effective monitoring mechanisms because they can easily identify where the company is going wrong (Boumosleh and Reeb 2005). Non-executive directors are mostly on the board of other companies and therefore may have divided attention, which may render them less effective in their decision making and monitoring responsibilities. Executive directors are seen to be more inclined to work harder to maximise company profitability because of the fact that any eventualities will cost them more dearly than non-executive directors. Because executive directors are full time employees of their companies, they will be more determined to see the success of the company because in the first place they receive the most criticism should something go wrong. Also, in the case of bankruptcy or cessation they stand to suffer more through loss of job. The association between non-executive directors and profitability was found to be significantly negative by researchers including: Yermack (1996), Mangena et al (2010) and De Jong et al (2002).

High proportion of non-executive directors has also been suggested to improve profitability (Fama and Jensen 1983; Dehaene et al. 2001). Mostly, non-executive directors occupy prestigious positions in other companies including governmental organisations and therefore their connections with people of high calibre but outside of the company can help bring tremendous achievement to the company in terms of higher

profitability. Non-executive directors are also said to be more effective than executive directors in resolving agency problems because they act as “professional referees” (Kyereboah-Coleman 2007b). They assist by making sure that insiders do not misappropriate the resources of the company at the expense of shareholders. So in a way they ensure that insiders are meeting the interest of shareholder by maximising company profitability. Rosenstein and Wyatt (1990) contend that the market rewards companies for the appointment of outside directors. Non-executive directors are in the better position to criticise the CEO and management because of their non-involvement with the day-to-day activities. Non-executive directors’ work as “professional referees” is aided by the fact that it is easier to criticise the work or ideas of someone. Non-executive directors may also improve company profitability through decision-making because of their vast knowledge accumulated from relations with other companies and governmental organisations. A positive relationship was postulated by the following researchers (Krivogorsky 2006; Abiden et al. 2009; Dehaene et al. 2001). In short, it looks like though more executive directors’ helps, high proportion of NEDs seems more likely to maximise performance. It can therefore be hypothesized that:

H8 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN THE PROPORTION OF NON-EXECUTIVE DIRECTORS AND PROFITABILITY.

6.2.2.1.5 Remuneration of Directors

Directors' remuneration has been widely used by researchers in their analysis of the factors that influence company profitability (see Main et al. 1996; Ghosh 2003; Brick et al. 2006; Gregg et al. 2005). Firstly, shareholders in order to make directors happy so as to align their interest with those of shareholders try and offer compensation packages that satisfy directors. In this way, directors will seek the interest of shareholders by working hard to maximise the profitability of the company. This means that by raising the compensation package of directors, shareholders are able to motivate directors towards profitability maximisation. As argued by Zhou et al (2011), aligning shareholders' interest with directors' compensation benefits has become one of the main considerations in corporate governance. Another factor to consider in ensuring company profitability maximisation is the attraction of high calibre personnel as directors. The profitability of companies hinge on the technical knowledge of directors and therefore employing experienced personnel should lead to better profitability. According to Ghosh (2003), in setting directors compensation that maximises profitability two things must be borne in mind. The first factor is the "participation constraint". According to this factor, compensation packages should be high enough in order to attract quality directors. In meeting this factor, companies must ensure that their compensation packages are in line or above industry average. The second factor is concerned with the "incentive constraint". In order to curb moral hazard, companies must offer directors compensation packages that deter them from behaving inappropriately. That is, high compensation packages should motivate directors to refrain from pursuing their own interest, which will limit profitability. A positive association between directors

remuneration and profitability has been found by previous researchers (see, Main et al. 1996; Conyon and Peck 1998; Firth et al. 1999; Ozkan 2007a; Hassan et al. 2003).

On the other hand, there are others who bet to differ on the assumption that higher compensation leads to better company profitability. Their argument is based on the fact that directors who are well compensated may not want to "rock the boat" (Brick et al. 2006). Such directors may be happy to enjoy their "fat packages" rather than seek the interest of shareholders. As argued by Brick et al (2006), the sole purpose of the board of directors is to advice and monitor top management, however, high compensation packages offered to them may impair their judgement. This means that such directors may be unable to criticise management, which will give management the advantage of pursuing their own interest at the expense of the shareholders by impeding profitability. Another factor that may negatively affect the profitability of companies is the practice of "mutual back scratching" by the directors (Brick et al. 2006). In this sense, directors may collectively propose higher compensation packages for each other so as to keep all directors happy, but at the expense of company profitability. The effect of higher directors' compensation on company profitability is evidence in a study by Hassan et al (2003). This study found that even though the level of directors' remuneration showed a steady growth between 1997 and 1998, there was a deteriorating of profitability for the same period measured by ROE. The following researchers postulated a negative relationship between directors' remuneration and profitability (Abdullah 2006; Ozkan 2007b). These arguments lead to the following hypothesis:

H9 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN DIRECTORS REMUNERATION AND PROFITABILITY.

6.2.2.2 Company Characteristics

6.2.2.2.1 Company Age

Company age indicates the number of years a firm has been in existence. Research has found age to be a determinant of company profitability (Bertrand and Mullainathan 2003; Loderer and Waelchli 2010). There are many reasons for the significant association between company age and profitability. First, success in new product development will lead to younger companies enjoying increased profitability. Normally, new entrants enter the market with new inventions that catch the attention of the market and thereby increase profitability. On the contrary, older companies may have had all their inventions exhausted and therefore unable to increase profitability. Second, the profitability of older companies may decline due to competitive pressures from new entrants. Increase in the number of new entrants will shrink the market share of existing companies as they fight for their own market share, which will cause a reduction in existing companies' profitability. This may result in higher unit cost of products because of the reduction in the number of units produced.

Another cause for the decline in older companies' profitability is obsolete assets. Older companies may be forced to continue operating with obsolete equipment due to high investment made in those machines. Due to the rapid technological changes in the

business environment equipment easily become outmoded that reduces their productive power, thereby causing a reduction in the overall company profitability. Barron et al (1994) argue that older companies are prone to suffer from a 'liability of obsolescence' due to their inability to fit in well to the changing environment. Research has also shown that investment in R&D declines as companies grow older (Loderer and Waelchli 2010). R&D is the driving force in companies as it helps companies to explore new avenues, which helps increases profitability. Therefore, a reduction in R&D will result in a reduction in older companies' profitability. The reason for the reduction in older companies' R&D as argued by Bertrand and Mullainathan (2003) may be that they are now pursuing quieter life because the desire to succeed may be minimal. Both the lifecycle and competitive market view also hold that the rate of profitability declines over the life of a firm because of imitators. A research by Majumdar (1997) found that even though older firms are more productive, they are less profitable. Boeker (1997) and Szulanski (1996) contend that older companies suffer from non-learning processes, blindness and conservatism, which cause poor profitability.

On the other hand, other researchers have also argued for a reduction in the profitability of younger companies. Firstly, younger companies are mostly inexperienced in their newfound market, which limits their ability to generate higher profitability. A company that has just entered a market may have to undergo the learning curve in order to grasp the practices and procedures within the market. The period of learning curve incurs mistakes, which results in the inefficient use of materials and other resources, thereby

reducing the overall profitability of companies. For example, Sorensen and Stuart (2000) argue that young companies may lack detailed information about their business, other companies and the environments until they become active in the market. Contrary, older companies are more experienced, have enjoyed the benefits of learning and not prone to the effects of newness (Stinchcombe 1965), which results in superior profitability. Older companies may also enjoy superior profitability because of their established contacts with customers, and easier access to resources (Coad et al. 2010). A younger company may also incur higher cost structure in the form of sunk cost, which may affect its profitability. A younger company may have to invest heavily in fixed assets and personnel in order to be able to start operating. A research by Majumdar (1997) and Mathuva (2010) also found a positive relationship between company age and profitability. A younger company may have to invest heavily in fixed assets and personnel in order to be able to start operating. It can, therefore, be hypothesised that:

H10 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN COMPANY AGE AND PROFITABILITY.

6.2.2.2.2 Company Size

There are many reasons that establish the relationship between company size and profitability (Baumol 1959; Punnose 2008). As maintained by Serrasqueiro and Nunes (2008), for researchers in the fields of finance and accounting, industrial economics and strategic management, size is considered to be a fundamental variable in explaining

company profitability. First, the existence of economics of scale has been found to impact positively on profitability (Singh and Whittington 1975; Serrasqueiro and Nunes 2008). Larger companies are able to enjoy the benefits derived from economics of scale concerning operating costs and the costs of innovation (Hardwick 1997), which helps reduces the unit cost of production. This reduction in the unit cost of production will cause an increase in the profitability of companies. Larger companies are able to achieve the benefits of economics of scale than the smaller counterparts because as the number of units produced increases, the price per unit drops. Comparatively, larger companies produce more on average than smaller ones. Another size effect that influences company profitability is bargaining power (Shepherd 1986). The strength of the bargaining power of a company can positively impact on profitability. This is because a company with superior bargaining power over its customers may be able to influence their trading relationship in terms of the amount of credit granted, the terms of payment, quality of the products and even the means of delivery. Also, the bargaining power of a company over its suppliers can also improve profitability by being able to dictate the amount of credit granted, terms of payment and the quality of the suppliers' product. One of the main sources of a company's bargaining power is derived from its size relative to both suppliers and customers. This therefore indicates that larger companies may have more bargaining power than smaller companies, which is indicative of higher profitability over their smaller counterparts.

Larger companies may also be able to improve their profitability more than smaller ones due to their easy access to finance (Cabral and Mata 2003). Both theoretical and empirical evidence support the idea that financial institutions grant more credit to larger companies than smaller ones. The reason for this proposition is because larger companies are less likely to default on the credit agreement and are also less likely to fail. Larger companies are also more often than not have the required assets to use as collateral in order to secure the necessary credit to make very pertinent investments, which maximises profitability. Also in terms of the cost of credit, larger companies have preferential treatment over smaller companies. This allows larger companies to make savings on their interest payment, which improves profitability. Another advantage of larger companies over their smaller counterparts is their ability to assemble a pool of qualified human capital. Human capital has been found to be very influential in both the survival and profitability enhancement of companies but it is mostly the larger companies that have the monetary resources to recruit such personnel. Lastly, larger companies have the capability to expand their business by strategically diversifying into different geographical areas and/or other product lines (Yang and Chen 2009). This diversification will help them to become less prone to failure and also assist them in exploring other profitable ventures which improves profitability. A research by Majumdar (1997) in India found that larger firms are more profitable than smaller companies. Research by Mujumdar (1997), Inmyxai and Takahashi (2010) and Kakani and Kaul (2002) all investigated the relationship between company size and profitability and found a positive association.

On the other hand, as argued by Symeou (2010), small companies also have certain characteristics, which can counterbalance the handicaps attributed to their smallness. Small companies have less agency problems as compared to larger companies (Pi and Timme 1993; Goddard et al. 2005). This is because small companies are mostly managed by owners or close relatives. The close relationship between the owners and the management in small companies means that unlike in larger companies, management may not be pursuing their own interest at the expense of the owners. The oneness of interest between the owners and the management will reflect in higher profitability because of less misappropriation of funds. Also, the less agency problems in small companies will result in the reduction of monitoring cost of management, which will improve profitability. Another profitability enhancement effect of being small is the ability to be more flexible. Small companies because of their non-hierarchical structures are more able to adapt to the ever-changing business environments (Yang and Chen 2009). The ability to quickly adopt new and improved changes in the market environment such as new processes, new marketing channels etc. will help improve profitability because of the efficiency and effectiveness it brings. A negative association between company size and profitability was also postulated by Hansen and Wernerfelt (1989). In short, it can be determined that the various benefits accrued to larger companies will help to improve performance over smaller ones. Consequently, the following hypothesis is proposed:

H11 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN COMPANY SIZE AND PROFITABILITY.

6.2.2.2.3 Asset Tangibility

As argued by Onaolapo and Kajola (2010), asset tangibility is considered to be one of the major determinants of companies' profitability. One main benefit to a company for having large proportion of its assets in the form of tangible assets is the ability to gain easy access to external finance. A company with more tangible assets can improve profitability by being able to undertake any profitable opportunity because of its ability to secure external finance. Research has shown that internally generated funds are often not enough to undertake major additional investments. For this reason, many companies that are not able to secure external finance are forced to abandon profitability-enhancing opportunities. Companies, especially SMEs are hardly granted external finance because of their lack of tangible assets. Tangible assets aid a company in accessing external finance because it can be used as collateral. External financiers seldom want guarantees that their investments are safe and that they can seize an asset of a company in case of non-payment. However, the only assets of companies that can easily be seized are those of tangible assets.

Another cost savings of asset tangibility is the cheap rate of external finance. According to Hart (1995) non-human assets help in holding a relationship together. Braun (2003) maintains that tangible assets are those that would more easily shift to the investor's

control when the relationship breaks down. Because of its ability to hold financing contracts together, external financiers are more willing to accept a reduced cost of finance. This reduction in the cost of finance because of asset tangibility means that such companies will make savings on their interest payments, which can improve profitability. Research by Braun (2003) and Claessens and Laeven (2003) have shown that companies with tangible assets obtain more finance from suppliers and banks.

On the contrary, proponents of negative relationship between tangible assets and company profitability argue that companies need higher proportion of intangible assets such as human capital in order to use the resources with maximum effectiveness (Haris and Robinson 2001). Regardless of the level of tangible assets, there is the need for human capital and R&D to be able to put those assets into productive use. Intangible assets such as human capital, R&D, organisational capital and goodwill can help a company to create new products and processes (Teece and Pisano 1998). Lev (2001) explains that the scope of intangibles has increased considerably in recent years due to a variety of economic factors including globalisation, deregulation and technological innovation. Corrado et al (2009) have argued that products and services are becoming more knowledge intensive, which means that the amount of intangible assets in the form of human capital and R&D will maximise profitability. Onaolapo and Kajola (2010) also found a negative association between asset tangibility and company profitability. Contrasting the two propositions in view of SMEs, it is evident that asset tangibility will

have more positive effect on performance than intangible assets. Accordingly, it is hypothesised that:

H12 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN ASSET TANGIBILITY AND PROFITABILITY.

6.2.2.2.4 Financial Leverage

The financial leverage has a significant effect on companies' profitability (Ruland and Zhou 2005; Onaolapo and Kajola 2010; Akinlo and Asaolu 2012; Ojo 2012). The first argument in favour of financial leverage to company profitability maximisation is that bond holders receive a fixed interest and that investing the debt in a profitable venture that has a return higher than the cost of the debt will increase the profitability of the company (Robb and Robinson 2009). In that case there will be net gains for the company after the amount due debt holders has been paid. However, because of the fixed nature of the interest payable any future adverse changes in the expected rate of return from the investment could cause a reduction in profitability. Another argument in favour of a positive relationship between financial leverage and profitability is that the presence of debt in the capital structure raises the pressure on managers to perform (Weill 2003; Akintoye 2008; Boodhoo 2009).

The presence of debt means that managers must work harder in order to be able to service the debt. The onus to perform will therefore be on the managers as non-

performance may cause debt holders to force the company to liquidate, which will result in managers losing their jobs. It is argued that debt financing provides better incentives for managers to perform because they aim to avoid the personal costs of bankruptcy. Another influencing factor of debt financing on managers is the fact that it eliminates the moral hazard behaviour by reducing the free cash flow at the disposal of managers (Jensen 1986). Tax shield benefit of debt financing also helps to improve company profitability (Modigliani and Miller 1963). In most economies around the world, especially in the UK, the interest payable on debt financing is tax deductible as an expense. This means that the amount of interest is deducted from the current year's profitability before tax is finally applied on it. This reduces the amount of tax payable, which accrues savings to a company and maximises profitability. A positive relationship between financial leverage and profitability was postulated by some previous researchers including: Bothwell et al (1984) and Tirta (2006).

On the other side, there are reasons that suggest that the presence of debt negatively affects company profitability. First, the existence of debt increases the agency cost for companies (Weill 2003). With the introduction of debt, the principal-agency dynamics of a company changes. In addition to the agency problem between managers and shareholders, debt financing also brings about an agency problem between shareholders and debt holders (Jensen and Meckling 1976). This increase in agency cost will cause a corresponding negative effect on profitability. Second, debt financing brings with it commitment for future cash flow involving periodic interest and eventual payment of

the principal amount borrowed (Ebaid 2009). This commitment will increase both the direct and indirect bankruptcy cost of companies, which may militate against profitability. Research by Kortweg (2004) and Dimitrov and Jain (2005) found a negative association between financial leverage and profitability. Judging from the view point of SMEs, because of the high cost of borrowing at which they are able to obtain external financing and also restrictions imposed by external financiers, it is suggested that the presence of debt will have a negative impact of performance. Therefore, the following relationship is hypothesised:

H13 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN FINANCIAL LEVERAGE AND PROFITABILITY.

6.2.2.2.5 Liquidity Ratio

The level of liquidity within a company may greatly influence profitability (Boermans and Wiilbrands 2011). The level of a company's liquidity will determine if profitable opportunities can be taken. Profitable investments will help increase the profitability of companies; however, research has shown that SMEs often fail to invest which hampers profitability, growth and survival. The inability to take up profitable ventures will render a company inefficient and ineffective which will result in lower profitability. One of the major hindrances to companies' profitability, especially SMEs is reported as liquidity constraints. The availability of liquidity may allow a company to pay for goods and services with cash rather than buy on credit. The payment by cash presents many

profitability enhancements for companies. First, it allows companies' to enjoy cash discounts. More often than not suppliers offer cash discount for customers who are willing to pay by cash. Paying by cash can also boost a company's reputation within the market as it is an indication of credit worthiness.

A company that has more liquidity may have the capability of extending more credit to its customers. The offering of credit may increase sales because it can entice customers to buy more, which will maximise profitability (Garcia-Teruel and Martinez-Solano 2010c; Gillet et al. 2010). The level of liquidity within a company can help avoid the use of costly external finance. There is enormous evidence to suggest that internally generated finance is cheaper than external finance because of the problems of information asymmetry, which manifest itself in the form of adverse selection and moral hazard (Myers and Majluf 1984; Brito and Mello 1995). The Perking Order Theory (POT) also suggests that companies prefer to use internally generated finance over external one. By employing internal finance companies are able to avoid incurring cost of capital, which in the case of SMEs can be outrageous. SMEs face high cost of capital than their larger counterparts because of their high risk of failure. Therefore, a SME with sufficient liquidity may enhance its profitability by avoiding the use of external finance and thereby save money on interest payments.

On the negative side, high liquidity may also hinder a company's profitability (Hvide and Moen 2007; Ng and Baek 2007). The availability of liquidity may be an indication

that a company is forgoing the benefits of investing in profitable opportunities. High liquidity may also result in managers misappropriating the funds of the company. According to Jensen (1986), mangers have incentives to increase the free cash flow of their companies because it is probably the only one asset they can freely control. Damodaran (2005) argue that managers have their own agendas to pursue and that cash provides them with the ammunitions to fund their pursuit. In the nutshell, it can be deduced that even though too much of liquidity may decrease profitability, the absence of it can be more dangerous. This leads to the formulation of the following hypothesis:

H14 THERE IS A SIGNIFICANTLY POSITIVE RELATIONSHIP BETWEEN LIQUIDITY RATIO AND PROFITABILITY.

6.2.2.2.6 Short-Term Financing

Basically, working capital is financed by the combination of long-term finance and short-term finance. However, as argued by Padachi et al (2010), the long-term financing element provides a small proportion of working capital requirement. Therefore, it is well argued that the majority of working capital is financed by short-term sources. The amount of short-term finance utilised will affect the profitability of the company because of the level of interest payable. One benefit of short-term financing to companies in terms of profitability is the avoidance of being locked up in a longer contract. For example, a line of credit improves companies' profitability because of the fact that it allows companies to draw against or repay at any time during the loan period.

This helps improves profitability in the sense that companies will not be paying any excess interest. The flexibility of short-term financing has made it very popular for companies, but more specifically for the SMEs (Watson and Wilson 2002).

However, there are some costs associated with such short-term financing. Lenders require a fee based on the maximum amount provided and this fee is payable whether or not the company uses it, which may reduce profitability. Another cost associated with a line of credit is the requirement by lenders to maintain a compensating balance account. This compensating balance is a cost to companies because even though this minimum amount cannot be used fees are paid on it (Firth 1976), which ultimately increases the effective cost of borrowing and thereby decreases profitability. One advantage of short-term financing is the ease at which it can be setup. A positive association between short-term financing and profitability was postulated by Baum et al (2007).

Despite the numerous profitability improvement benefit of short-term financing, it can also impair profitability. The lack of long-term contract means that companies could be denied such facility at its expiry. The withdrawal of such facility may affect profitability because it will force the company to seek immediate alternative, but which could be more expensive. In a worst situation, the company may be unable to secure alternative source of finance. In that case the company may be forced to reduce the investment in current assets, but at the expense of sales and ultimately profitability. Also, since short-term financing is usually for one year or less means that companies may have to go

through the tedious and costly process of renegotiations, which may minimise profitability. A negative relationship between profitability and short-term financing was found by the following researchers (see, Chittenden et al. 1996; Michaelas et al. 1999; Cassar and Holmes 2003; Alam et al. 2011). In line with previous researcher in the field of SME financing, the following is hypothesised:

H15 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN SHORT-TERM FINANCING AND PROFITABILITY.

6.2.2.2.7 Gross Working Capital Efficiency

Since WCM is concerned with the management of current assets, gross working capital efficiency is used to measure the firms' operational efficiency in using gross working capital to generate sales. The more efficient utilisation of current assets in generating sales, the lesser is the need to rely on short-term financing to meet working capital requirements (Padachi et al. 2010). That is, gross working capital efficiency measures the amount of investment made in current assets in order to generate sales. The amount of investment made in current assets affects company profitability in the sense that it represents the opportunity cost of money tied up. The investments made in current asset are in two folds: investment in inventories and investment in customers. Investment in inventories represents situations whereby more items of stock are purchased in an anticipation of meeting sales demand. This high investment in inventories may result in many costs including warehousing cost such as security, rent, lighting and heating theft,

obsolesce etc. (Koumanakos 2008). Such costs may cause a reduction in the profitability of companies. Also, the investment in customers can manifest itself in the form of trade discount, cash discount or credit period granted. These offers given to customer may result in the reduction of the profit margin of companies, thereby reducing the overall profitability. This is because a cash discount offered to customers may mean that the company will sell at a lower price, which leads to a reduction in the profit margin. In the same vain a credit period granted to customers may mean that a company will deprive itself of cash for the period between sales and eventual receipt of payment. All these investments in current assets may require a company to seek short-term financing; however, the utilisation of short-term financing may result in interest payment, which may further reduce profitability.

On the positive side, investment in current assets is seen to improve profitability. Investment in current assets helps to boost the sales of the company, which may lead to an increase in profitability. In the first place, offering discount to customers may help a company to distinguish its products from that of competitors (Nadiri 1969). This is because a reduction in the price of a company's goods and services will present it as different from other companies due to differences in the price. The offer of trade credit to customers may also entice them to purchase more, which may lead to profitability maximisation. Investment in inventories may also lead to higher company profitability because it will make goods and services readily available to customers. This may encourage repeat purchases as customers will always find what they want at the

company. As argued by Shah et al (2010), maintaining adequate inventory must be ensured every time to meet requirements of customers as and when they demand. For SMEs, the efficiency utilisation of current assets is very crucial due to the fact that they find it very difficult to secure external financing. According to Padachi (2006), the amounts invested in working capital are often high in proportion to the total assets employed and therefore it is vital that these amounts are used in an efficient and effective way. Raheman et al (2010) found a positive association between gross working capital efficiency and profitability. It is therefore argued here that an efficient utilisation of current assets in generating sales may result in higher performance. Therefore, it is hypothesised as follows:

H16 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN GROSS WORKING CAPITAL EFFICIENCY AND PROFITABILITY.

6.2.2.2.8 Working Capital Requirement

The working capital requirement represents the amount needed to fund investment in current assets (Padachi et al. 2010) and the higher the investment, the higher the amount of money required. The working capital requirement of companies is influenced by the magnitude of investment in both customers and inventories (Padachi et al. 2010). An increase in these variables will trigger an increase in the demand for short-term debts and credit from suppliers. The level of working capital requirement will affect profitability of companies as it will indicate the level of investment made in customers

and inventories, which determines sales and ultimately profitability. A lower or no money required means that the company has no investment in current assets (Padachi et al. 2010). Lower or no investment in current assets will help a company to avoid seeking finance. The avoidance of external finance should improve the profitability of a company because of the avoidance of interest payment. Also, the lack of working capital requirement is an indication that the company is able to secure more credit from suppliers than what is given to customers and investment in inventories. The higher credit secured from suppliers may increase profitability because it may mean that the company is using suppliers' money in running its business. There will also be no capital tied up in current assets, which will help avoid the lost opportunity of capital tied up. According to McCosker (2000), an abundance of cash sales, few debtors, low levels of stock, and most purchase being for credit is likely to lead to no cash flow problems.

Alternatively, no working capital requirement means that the company is not investing in current assets in terms of customers and inventories (Padachi et al. 2010). The lack of investment in inventories may result in the reduction of the company's sales, which may affect profitability. No investment in inventories for example may result in out of stock situations (Deloof 2003; Falope and Ajilore 2009; Gill et al. 2010; Mathuva 2010). Out of stock situations may affect both the current and future sales of the company because customers may not find what they want at the point of purchase. Also, out of stock situations may affect the reputation of the company, which may cause the loss of business dealings in the future. Out of stock situation may also cost the company in

terms of idle time, thereby negatively affecting profitability. In terms of customers, the lack of investment may result in reduced sales (Gill et al. 2010) because there will be no incentives for customers to purchase more, which may impair profitability. For example, the lack of cash discount may cause customers to take their businesses elsewhere they can get better deals. Alam et al (2011) and Haq et al (2011) found a positive relationship between working capital requirement and profitability. In the nutshell, it is maintained that due to the high cost of borrowing as far as SMEs are concerned, a reduction or no working capital requirement should lead to higher performance. It is therefore hypothesised as follows:

H17 THERE IS A SIGNIFICANTLY NEGATIVE RELATIONSHIP BETWEEN WORKING CAPITAL REQUIREMENT AND PROFITABILITY.

6.2.2.2.9 Industry Classification

Since different industries have different risk profile and competition intensity, companies belonging to different industries will have varied levels of profitability. Many theoretical perspectives have long recognised the importance of industry membership for company profitability (Rumelt 1991; McGahan and Porter 1997; Short et al. 2007). For example, it has been found that companies belonging to the same industry exhibit similar profitability profile but profitability differences exist between companies of different industries. Porter's (1979) five forces are best used as profitability indicator of companies belonging to different industries. His five forces

include: (1) the bargaining power of suppliers; (2) the bargaining power of customers; (3) threat of new entrants; (4) threat of substitute products and (5) competitive rivalry within an industry. The profitability level of companies within an industry will be dependent on the bargaining power between the suppler and customer. In an industry with few suppliers but many customers, suppliers may enjoy enhanced profitability by dictating to customers; such as determining the price of the products, the terms of credit to be offered etc.

On the other hand, an industry with many suppliers but few customers may see profitability plummeting because customers will be dictating the terms of engagement. The current and future profitability level of companies within an industry may be impaired if there are not enough entry barriers available. Also, the availability of substitute products may negatively affect profitability because it will reduce the market share of companies within an industry. The level of competition within an industry may also impair upon companies profitability. Intense competition may cause profitability to drop because of the level of infighting. However, companies in a low competitive industry may boost profitability because they can take initiatives without retaliation from other companies. It is suggested that the industry belonging explains between 17 per cent and 20 per cent of profitability variance (Schmalansee 1985; Wernerfelt and Montgomery 1988; Rumelt 1991). In line with these arguments, it is hypothesised that:

H18 THERE IS A SIGNIFICANTLY POSITIVE OR NEGATIVE RELATIONSHIP BETWEEN INDUSTRY CLASSIFICATION AND PROFITABILITY.

Table 5: Summary of Variables and Hypothesised sign

Hypothesis Number	Variables	Acronym	Hypothesised sign
	Explanatory Variables		
H1	Inventory Holding Period	IHP	–
H2	Accounts Receivable Period	ARP	–
H3	Accounts Payable Period	APP	–
H4	Cash Conversion Cycle	CCC	–
	Corporate Governance Characteristics		
H5	Company board size	BSIZE	–
H6	CEO age	CEOAGE	+
H7	CEO tenure	CEOTURN	+
H8	Proportion of non-executive directors	NEDs	+
H9	Remuneration of Directors	LDREM	+
	Company Characteristics		
H10	Company age	CAGE	+
H11	Company size	LTURN	+
H12	Assets tangibility	ATAN	+
H13	Financial Leverage	LEV	–
H14	Liquidity Ratio	LIQ	+
H15	Short-term financing	SFIN	–
H16	Gross working capital efficiency	GWCAP	–
H17	Working capital requirement	WCREQ	–
H18	Industry Classification	INDUST	+/ –

6.3 RESEARCH METHODOLOGY

In this section, information on the research design is provided. This is because a scientific research has to be replicable, but this is only made possible if the research has laid down the procedures of how it was carried out (Hussey and Hussey 1997). It aims to achieve four main objectives. Firstly, it tries to provide a detailed description of the data and research methodologies employed in this study. The second aim is to clearly show the reason for the various data and methodological selection made. The third aim is to give explanation of both the methodological and data employed. Finally, it aims to provide information as to how robust the derived empirical results are.

6.3.1 Sample Selection Process

Given that the main objective of this piece of research is to investigate the effect of WCM on profitability of SMEs listed on the AIM, the sample companies were all drawn from the membership of the AIM. As at 8th of March 2010, a total of 1316 companies were officially listed on the AIM. The listed companies on the AIM belong to 39 different sectors. The AIM is dominated by mining companies, support services and financial services with the three sectors making up 30.19 percent of the entire companies population of the AIM.

For the sole objective of this study, the financial services sector with 128 companies, banks sector with 2 companies, equity investment instruments sector with 47 companies, nonequity investment instruments sector with 1 company and non life

insurance sector with 12 companies, which altogether make up 14.59 percent of the AIM population were excluded from the sample. The reasons for their removal are in three fold. Firstly, financial, insurance and investment companies have certain regulations that are more rigurous and somehow different from those required by nonfinancial companies. Secondly, and as argued by Falope and Ajilore (2009), financial services companies financial characteristics and investment in working capital are largely different from non-financial companies. Thirdly, the exclusion of the financial services companies allow for easy comparability with prior studies, which also excluded financial services companies (e.g. Deloof 2003; Falope and Ajilore 2009; Lazaridis and Tryfonidis 2006).

For the remaining 1,124 companies representing 85.41 percent of the AIM population after the exclusion of the financial servies companies, further yardsticks were used to justify the inclusion of a company into the sample frame. All the companies that met the definition of SMEs as defined by the UK Companies Act 2006, section 382 and 465 were included for selection. Out of the 1,124 companies remaining, 250 met the criterion of non-financial SME representing 19 per cent of the entire AIM population of companies. Secondly, to be included a company should have its financial statement in terms of balance sheet, income statement and cashflow statement for the entire period under consideration, which is from 1st of January 2005 to 31st of December 2010 inclusive. Thirdly, companies with negative sales, negative assets, or missing strict substantial yearly figures were also removed from the sample. Due to the application of

the criteria, only 160 companies made it to the final sample as indicated in table 6, which represents 64 percent of the non-financial SMEs listed on the AIM. Finally, due to the large number of sectors for which the final sample of SMEs belong to and also in order to get enough number of companies per sector for analysis purposes, this research

Table 6: Summary of the Sample Selection

Sector composition of all SMEs with full data	No. in each Industry	Percentage (%) of population
Aerospace & Defence	1	0.63
Alternative Energy	1	0.63
Automobiles & Parts	2	1.25
Beverages	2	1.25
Chemicals	3	1.88
Communications	1	0.63
Construction & Materials	1	0.63
Electronic & Electrical Equipment	11	6.88
Food Producers	2	1.25
General Industrials	1	0.63
General Retailers	2	1.25
Health Care Equipment & Services	11	6.88
Household Goods & Home Construction	1	0.63
Industrial Engineering	6	3.75
Industrial Metals & Mining	2	1.25
Leisure Goods	1	0.63
Media	17	10.63
Mining	10	6.25
Mobile Telecommunications	4	2.50
Oil & Gas Producers	5	3.13

Oil Equipment & Services	1	0.63
Personal Goods	1	0.63
Pharmaceuticals & Biotechnology	11	6.88
Real Estate Investment & Services	2	1.25
Software & Computer Services	33	20.63
Software consultancy and supply	1	0.63
Support Services	21	13.13
Technology	1	0.63
Technology Hardware & Equipment	3	1.88
Travel & Leisure	1	0.63
	160	100

follows the path of Gray et al (1995) by amalgamating similar sectors. This action is justified by the fact that most of the sectors are closely related and that they all share similar characteristics. Table 7 shows the amalgamation of similar sectors, which brings the final sectors under consideration to six (6).

6.3.1.1 Data and Sources

Three separate sets of data were employed to establish the association between WCM and company profitability. The first set of data concerned financial data involving both accounting figures and ratios. These data were extracted from the Analyse Major Databases from European Sources (AMEDEUS). This database contains both annual accounts and management details of about 330,000 public and private companies in 41 European countries including UK. Even though most of the financial information could

Table 7: Amalgamation of Sampled Companies

SMEs sector composition	No. in each Industry	Percentage(%) of of population
Construction and Mining (A&D/AE/AP/CH/C&M/IE/ IM&M/M/O&G/OE&S/)[1]	204	21.25
Software and Communications (C/ME/MT/S&CS/SC&S/T/TH&E)[2]	360	37.50
Food and Pharmaceuticals (B/FP/P&B/)[3]	90	9.38
Support Services (HCE&S/SS)[4]	192	20.00
Household and Personal Goods (GR/HG&HC/LG/REI&S/T&L/PG)[5]	48	5.00
Electronic and Electrical Equipment (E&EE)[6]	66	6.88
	160	100

[1] A&D= Aerospace & Defence, AE= Alternative Energy, AP= Automobiles & Parts, CH= Chemicals, C&M= Construction & Materials, IE= Industrial Engineering, IM&M= Industrial Metals & Mining, M= Mining, O&G= Oil & Gas Producers, OE&S= Oil Equipment & Services

[2] C= Communications, ME= Media, MT= Mobile Telecommunications, S&CS= Software & Computer Services, SC&S= software consultancy and supply, T= Technology, TH&E= Technology Hardware & Equipment

[3] B= Beverages FP= Food Producers P&B= Pharmaceuticals & Biotechnology

4 HCE&S= Health Care Equipment & Services, SS= Support Services

5 GR= General Retailers HG&HC= Household Goods & Home Construction, LG= Leisure Goods, REI&S= Real Estate Investment & Services, T&L= Travel & Leisure, PG= Personal Goods

6 E&EE= Electronic & Electrical Equipment

have been sourced directly from the companies own websites, for consistency sake and time constraints the researcher used those found in AMEDEUS.

Also, in order to ascertain the ages of companies, the dates of incorporations of all the sampled companies were extracted from the database of the Companies House. The second set of data used consists of corporate governance variables. This set of data was obtained from Perfect Information database. Some annual reports could not be found in Perfect Information database, which were either obtained from Northcote database (which is a links to Annual and Interim reports, dividends and company information on UK listed companies) or individual company's website.

6.3.2 Dependent Variables

An empirical examination of the effect of WCM on company profitability fervently requires the selection of appropriate profitability measure to ensure objective analysis. There are different forms of accounting measures that can be used as proxy for companies' profitability. Many researchers have used different types of criteria as a form of companies' profitability measure. For example, in conducting a study on the effect of WCM on profitability Raheman and Nasr (2007) used net operating profit as the proxy of companies' profitability. Lazaridis and Tryfonidis (2006) also employed gross operating profit as a measure of companies' profitability. Vishnani and Shah (2007) used return on capital employed to represent companies' profitability. Garcia-Teruel and Martinez-Solano (2007) used Return On Assets (ROA), whilst Velnampy

Table 8: Summary of Variables Calculations and definitions

Variables	Acronym	Measurement
Dependent variables		
Return on total assets	ROA	Profit before interest and tax divided by its total assets at the end of the financial year
Return on Equity	ROE	Net profit divided by total equity at the end of the financial year
Explanatory Variables		
Working Capital Components	WCC	Stands for the four explanatory variables, namely IHP, ARP, APP and CCC
Inventory Holding Period	IHP	inventory multiplied by 365 and divided by the amount of cost of goods sold at the end of the financial period
Accounts Receivable Period	ARP	accounts receivable multiplied by 365 and divided by the turnover at the end of the financial period
Accounts Payable Period	APP	accounts payable multiplied by 365 and divided by the amount of cost of goods sold at the end of the financial period
Cash Conversion Cycle	CCC	Inventory holding period plus accounts receivable period minus accounts payable period
Corporate Governance Characteristics		
Company board size	BSIZE	The total number of all directors on the board of a company at the end of the financial statement
CEO age	CEOAGE	CEO age at the end of each financial year
CEO tenure	CEOTURN	Number of years at the CEO post

Proportion of non-executive directors	NEDs	Number of non-executive directors divided by total directors on the board at the end of the financial year
Remuneration of Directors	DREM	Natural log of the total remuneration of directors for each financial year
Company Characteristics		
Company age	COAGE	Number of years between incorporation and the calendar year end of each firm
Company size	COSIZE	The natural log of firm's turnover at the end of the financial year
Financial Leverage	LEV	Ratio of total debt divided by capital at the end of the financial year
Assets tangibility	ATAN	The ratio of fixed assets divided by total assets at the end of the financial year
Liquidity Ratio	LIQ	Current assets divided by current liabilities at the end of the financial year
Short-term financing	SFIN	Current liabilities divided by total assets at the end of the financial year
Working capital requirement	WCREQ	Ratio of current assets to total assets at the end of the financial year
Gross working capital efficiency	GWCAP	The ratio of sales divided by current assets at the end of the financial year
Industry dummy	INDUST	A dummy variable for each of the six industries: technology and communication, mining and construction, pharmaceuticals and food, healthcare and support services and personal services

and Niresh (2012) also used Return On Equity (ROE) as measures of company profitability. However, despite their vast usage it must be said that they have come under harsh criticisms. One criticism is that accounting measures are backward looking and that they can easily be manipulated by management (Mangena and Tauringana 2008). Accounting measures have also been criticised for been historical measures and therefore poor indicator of future profitability (Ross et al. 2002). Another criticism is their ignorance to take risk into consideration. This is because two companies with identical current profitability cannot be judged to be equally profitable if the risk level of one is greater than the other (Ross et al. 2002). In this research, Return On Assets (ROA) and Return On Equity (ROE) are used as proxies of company profitability. Accounting based measures of company profitability have widely been used in the WCM literature (Padachi et al. 2010; Hayajneh and Yassine 2011; Mojtahedzadeh et al. 2011).

ROA and ROE are used as profitability measure because they are indicators of the performance of management with regard to the given resources. Another reason for their use is the ability to remove size effects, therefore allowing for inter-industry comparison (Lev and Sunder, 1979). A higher ROA and ROE indicate an efficient and effective management performance, whilst a lower ROA and ROE suggest bad management performance. The full description of the variables used in analysing the quantitative data is contained in table 8.

6.3.3 Data Analysis Methods

The aim of this section is to briefly explain the various methods that have been chosen to analyse the quantitative data.

6.3.3.1 General Consideration

The purpose of any research undertaken is to provide information in order to help answer the research question (Saunders et al. 2003; Zikmund 2003). Therefore, the researcher gathers raw data that is processed to generate the needed information. This transformation is aided by the use of analytical methods that convert data into information needed to make decisions (Davis 1996). There are diverse kinds of analytical methods that can be used in analysing data, however, care must be taken to ensure that appropriate analytical methods are chosen in order to arrive at the correct conclusions. As argued by Zikmund (1997), the choice of a particular method of statistical analysis depends on many factors including: (1) the type of question to be answered; (2) the number of variables and (3) the scale of measurement.

For the quantitative data analysis, two main objectives have been set out to answer the research question. The first objective is to determine if working capital components including inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle affect profitability. Secondly, to assess the effect of firm characteristics and corporate governance factors on profitability. To this end, descriptive

statistics, bivariate analysis and multivariate analysis will be employed in meeting the objectives set up above.

6.3.3.2 Descriptive Statistics

Descriptive statistics refers to the method of transforming raw data into a form that will make them easy to understand and interpret. According to Zikmund (2003), descriptive responses or observations are typically the first form of analysis. Descriptive statistics is important as the starting point in any statistical analysis because it can help in detecting any abnormalities in the data collected. As argued by Quartey (2003), descriptive analysis is particularly useful because it is a holistic approach that gives preliminary but useful characteristics of the data.

6.3.3.3 Bivariate Analysis

Bivariate analysis refers to the tests of differences or measures of association between two variables at a time (Zikmund 2003). The tests of differences refer to an investigation of hypothesis that two or more differ with respect to measures of variables (Zikmund 1997). The measures of association on the other hand refer to values designed to represent co-variation between variables. This quantitative data analysis will employ the Pearson's correlation coefficient. The Pearson's coefficient is used to measure the association among variables. The Pearson's correlation considers the joint variation in two measures (Ghauri and Gronhaug 2005). It helps to establish the strength of the linear relationship between two variables. The correlation coefficient takes on the values

from –1 to +1. A correlation coefficient close to either –1 or +1 indicates a strong negative or positive relationship respectively between variables, whilst a correlation coefficient of zero indicates that the variables are unrelated. Correlation matrix is also used as a tool in determining whether multicollinearity is present in the regression equation. The formula for the Pearson's correlation is given below as:

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

Where the symbols X and Y represent the sample means of X and Y respectively

6.3.3.4 Multivariate Analysis

Multivariate analysis is a statistical method that is used to simultaneously investigate two or more variables (Zikmund 2003). In this research, Panel data estimations are used to establish and test the simultaneous relationship between the various variables. Multivariate analysis is employed because of the inherently multidimensional nature of the dependant variable. Profitability of businesses is simultaneously affected by many factors and therefore by independently measuring the influence of each factor on profitability will give an inaccurate result.

6.3.3.4.1 Panel Data Analysis

Panel or longitudinal data analysis is a form of multivariate analysis that allows for the pooling of observations on a cross section over several time periods. Cross section observation can be households, countries, firms or individuals. Unlike Ordinary Least Square (OLS) regression, panel data regression has two dimensions, one for cross-section units and the other for time series. Due to the two dimensional nature of panel data, the data sets provide rich sources of information for accurate analysis. Panel data regression has several advantages over one-dimensional regression.

Firstly, panel data allows for the control of individual heterogeneity (Hsiao 2003). This can be possible by the use of either one-way or two-way analysis to control for the individual and time invariant variables, but a time-series study or a cross-section study alone cannot. This means that using only time-series or cross-section studies, which does not control for heterogeneity will run the risk of obtaining biased results. Secondly, panel data gives more informative data, more variability, more degree of freedom and more efficiency (Baltagi 2005). Whilst time-series studies always suffer from multicolinearity, this is less likely in a panel data. In panel data, the variation in the data can be decomposed into variation between and within variables. The former variation is usually bigger. Because of the additional and more informative data, panel data can produce a more reliable parameter estimates. Also, by combining time-series of cross-section observations, panel data can significantly increase the number of observations. This is particularly important for the study of WCM and profitability, which are characterised by cross-section observations and time-series. Thirdly, panel data can be

used to obtain consistent estimators in the presence of omitted variables (Wooldridge 2002). OLS will provide biased estimators if omitted or unobservable variables are correlated with the dependent variables. This is a problem when investigating only a cross-section data, however, panel data provides a solution to this problem. There is however some limitations or disadvantages associated with panel data including the following. First, design, data collection and data management can pose a problem because of the cross-sectional and time-series dimension of data involved. Second, the choice of appropriate model depending on the degree of homogeneity of the intercept and slope coefficients and the extent to which any individual cross-section effects are correlated with the explanatory variables can be a problem (Song and Witt 2000).

A classical panel data linear regression model is given as follows:

$$y_{it} = \alpha + x'_{it}\beta + \varepsilon_{it} \qquad \text{with } i = 1\ldots..N \text{ and } t = 1\ldots\ldots..T$$

With i denoting the cross-section dimension, e.g. regions, countries, and t denoting time series dimension, such as years, quarters. á is a scalar, â is K x i vector and X_{it} is the itth observation on K explanatory variables. ε_{it} is the disturbance term. A panel equation can be estimated using either one-way ($\varepsilon_{it} = \mu_i + \varepsilon_{it}$) or two-way error ($\varepsilon_{it} = \mu_i + \lambda_t + \varepsilon_{it}$) component model. Where μ_i denotes the unobservable individual-specific effect, λ_t denotes the unobservable time effect and ε_{it} denotes the remainder disturbance.

In this research, the balanced panel data is favoured over the unbalanced panel data. This is because balanced panel data allows for the equal observation for every unit of

observation for every time period. In principle, there are three ways of estimating a static panel data model. The choice of these three methods depends on whether the individual cross-section effects are considered to be constant, fixed or random. However, it must be said that the choice of model is not arbitrary as statistical test must be applied in order to choose the one, which is more consistent and efficient in analysing a given data. For this reason, all three models will be estimated and then the necessary tests applied before choosing the appropriate model. These three models are discussed in turns.

6.3.3.4.1.1 Pooled OLS Regression

If it is assumed that the term (μ_i or $\mu_i + \lambda_t$) above is constant, then there is neither significant individual nor significant time effects. In this regard Pooled OLS regression will be the model to use. This is because Pooled OLS will provide consistent and efficient estimates of the homogenous intercept and slope. The good thing about Pooled OLS model is that it is easy to estimate and interpret because one can pool all of the data and run an OLS regression model. However, the idea that the unit-specific effects do not differ in Pooled OLS makes it very restrictive and usually unrealistic. As argued by Baum (2006), pooled OLS regression can have a complicated error process such as heteroskedasticity across panel units, serial correlation within panel units etc. Due its severe limitations, the decision is taken in this thesis to consider only FE or RE models.

6.3.3.4.1.2 Fixed Effects model

The Fixed Effects (FE) model assumes that the slope coefficients are constant for all firms, but the intercept varies across firms. As argued by Greene (2003), the formulation of the FE model assumes that differences across unit can be captured in differences in the constant term. In FE model each (μ_i or $\mu_i + \lambda_t$) is treated as an unknown parameter to be estimated. According to Baltagi (2005), the FE model is an appropriate specification if the focus is on a specific set of (N) firms or regions. One advantage of FE is that there is no need to assume that the effects are independent of (ε_{it}) because it allows the unobserved individual effects to be correlated with the included variables. The disadvantages of FE are that FE estimator cannot estimate the effect of any time invariant variable like location. Therefore, any time invariant variable is wiped out by the deviations from means transformation. In addition, the FE model suffers from a large loss of degree of freedom because of estimating (N-1) extra parameters. Also, too many dummies may increase the problem of multicollinearity among the regressors.

6.3.3.4.1.3 Random Effects model

The Random Effects (RE) estimator is more efficient than the FE estimator if it can be assumed that firm effects are randomly distributed across firms. Under the RE assumptions, (μ_i or $\mu_i + \lambda_t$) is uncorrelated with X_{it}. Therefore, the generalised least squares (GLS) estimator of Balestra and Nerlove (1966) can be used. RE model is an appropriate specification if (N) cross-sectional units are randomly drawn from a large population. The one advantage as argued by Owusu-Gyapong (1986) and Greene (1997)

is that GLS estimator is a weighted average of the within-group and between-group estimators, which enables the researcher to extract information from those two variations. However, the disadvantage of RE model is that the researcher has to make specific assumptions about the pattern of correlation between the effects and the included explanatory variables (Hsiao 2003).

6.3.3.4.1.4 Empirical Studies

Following the adoption of the panel data analysis, the equation to be estimated is as follows:

$$ROA_{it} = \alpha_{0} + \beta_1 WCC + \beta_2 COAGE + \beta_3 LTURN + \beta_4 LEV + \beta_5 ATAN + \beta_6 LIQ + \beta_7 SFIN + \beta_8 WCREQ + \beta_9 GWCAR + \beta_{11} INDUST + \beta_{12} BSIZE + \beta_{13} NEDS + \beta_{14} CEOAGE + \beta_{15} CEOTURN + \beta_{16} DREM + \mu_i + \lambda_t + \varepsilon_{it}$$

Where the subscript i denotes the nth company (i = 1,... 160), and the subscript t denotes the tth year (t=1,...6). μ_i is the unobservable heterogeneity (individual effects) which is specific for each firm, λ_t is the parameters of time dummy variables and ε_{it} is the error term. Refer to table 8 for variable description and definition.

6.3.3.4.1.5 Hausman Test

If the Pooled OLS regression is rejected, the researcher should then decide whether to select FE effects or RE by first determining whether there is a correlation between the unobservable heterogeneity (μ_i) of each firm and the explanatory variables of the model. In case of a correlation, then it would be possible to obtain the consistent estimation by

means of the FE (within group) estimator. But where there is no correlation between them, then the RE (between groups) method which is based on GLS regression is deemed appropriate. There are several guidelines in the econometric literature that aid in the selection of one over the other (see, Balestra 1992; Baltagi 1995). These guidelines indicate that the RE model is appropriate when the researcher has some time invariant observation. Also, the RE is preferred when (N) individuals are randomly drawn from a large population. On the other hand the FE model is appropriate if the sample is closed and exhaustive. However, as argued by Mutenheri (2003), most studies are not based on these a priori reasons for the choice of modelling technique. This is because, and thankfully, Hausman's specification test (1978) is used to choose between the RE and the FE models.

According to the Hausman test, the RE is correct only if the orthogonality assumption that the unobservable firm effects are uncorrelated with the exogenous variable is not violated. On the other hand the FE estimator is unbiased and consistent even if the orthogonality condition is violated. The null hypothesis of the Hausman test is that the unobserved firm effects and the exogenous variables are uncorrelated. The formula for the Hausman test is:

In performing the Hausman's test, the industry classification variable was eliminated due to the fact that FE model does not accept time invariant variables.

$$H = (\beta_{FE} - \beta_{RE})' [var(\beta_{FE}) - var(\beta_{RE})]^{-1} (\beta_{FE} - \beta_{RE}) \sim X^2_k$$

Where k denotes the dimension of slope vector β

Thus H_0: $cov(\eta_i ; x_{it}) = 0$

H_1: $cov(\eta_i ; x_{it}) \neq 0$

The rule is that the FE is consistent but inefficient under the H_0, and consistent and efficient under the H_1. Alternatively, the RE estimator is consistent and efficient under the H_0 but inconsistent under H_1. In order to choose the appropriate model, both the FE and RE estimators were used to estimate the coefficients in models 1 to 4. Then, the Hausman test was performed, which accepted the null hypothesis that the unobserved heterogeneity is uncorrelated with the regressors in all the eight models as contained in Appendix 2-5. This finding means that the RE is not significantly different from the FE, and therefore the RE is the more consistent and efficient method to use.

6.3.4 Dealing with Outliers

To start with, all data were tested for the presence of outliers using box plot procedure due to the wide variation in the samples. Particularly, there were extreme values in some of the variables namely: ROA, inventory holding period, accounts receivable period, accounts payable period, cash conversion cycle, company size, assets tangibility, financial leverage, liquidity ratio, working capital requirement, gross working capital efficiency and directors' remuneration. However, company age, CEO age, non-executive directors and board size were found to be without outliers. After the outlier detection, the next step was to clean the sample in order to reduce the effects of outliers.

There are two ways to deal with outliers including winsorisation or data removable (see, Durnev and Kim 2005; Beiner et al. 2006; Black et al. 2006; Chhaochharia and Grinstein 2007). The method which was applied in this study was to winsorise the data with outliers at the 5% and 95% levels by replacing the extreme observations with the nearest un-outlier observation (Hellerstein 2008).

The decision not to completely eliminate the outlier observations stems from the fact that balanced panel data is employed for this research. In balanced panel data, an attempt to eliminate one observation from the sample means that all associated data must also be removed. For example, in this study a six year data observation is used which means that a decision to remove one observation will lead to the other five year observations being removed. The decision to winsorise the affected data follows similar procedure by previous researchers in finance literature including: Barth et al (2006), Muiño Vázquez and Trombetta (2009), Ntim (2009), Kieschnick et al (2006), Hill et al (2010), Guojin et al (2011), Chen and Mahajan (2010) and many more. The whole regression results that will be reported and discussed below are based on the winsorised data. Appendix 6 contains the results obtained from running the regressions with the outliers included before winsoring at the 5% and 95% levels. Also, Appendix 7 contains the results obtained from running the regression after winsorizing at the 5% and 95% levels. As can be seen, the difference between the two results is substantially the same.

6.3.5 Breusch-Pagan/Godfrey Test

Because the data for this research is a cross-section of firms, this raises concerns about the existence of heteroscedasticity and serial correlation. According to Pindyck and Rubinfeld (1998), there are occasions in econometric modelling when the assumption of constant error variance, or homoscedasticity is unreasonable. Also, heteroscedasticity arises when there is a wide range of the (X) variables and when using grouped data. This is because, in this case each observation is an average for a group and the groups are of different sizes (Greene 2000). To test for heteroscedasticity, the Breusch-Pagan/Godfrey test is used. The probability associated with this test is reported in Appendix 8. As can be seen, the results show that heteroskedasticity is present at 1% level of significance in all models. Heteroskedasticity can be corrected either by using White's heteroskedastic-consistent covariance matrix estimation or employing robust standard error (see, Padachi 2006).

6.3.6 Woodridge Test

Another problem to consider is serial correlation. The presence of serial correlation indicates that the variables in the model violate the assumptions of the regression (Anderson et al. 2007). To cater for serial correlation, the Woodridge test for autocorrelation is employed. Since the data involves both cross section and time-series, it raises the suspicion of the existence of serial correlation. The results from the Wooldridge test for serial correlation in panel data depicts that only two out of the eight models have no serial correlation (for brevity reasons not shown here).

6.3.7 Robust Standard Error

Because of the presence of heteroscedasticity and autocorrelation the decision is taken to employ robust standard error. The advantage of using robust standard error is that it controls for both heteroscedasticity and serial correlation which can pose problems in panel data (Lei 2006). Therefore, all models are estimated with robust standard error to take into account of heteroscedasticity and serial correlation.

6.3.8 Variance Inflation Factor

The last test to perform is the Variance Inflation Factor (VIF), in order to control for the effect of multicollinearity. According to Field (2005), any value of a predictor in a model with VIF greater or equals to 10 indicate a high level of mulitcollinearity, whilst the average VIF significantly greater than one shows that the regression is biased. Also, the VIF tolerance coefficients with values below 0.1 indicate that the model is highly exposed to multicollinearity. From Appendix 9, it can be confirmed that multicollinearity is not an issue since the VIF values are all far below the critical value of ten.

6.4 QUANTITATIVE DATA RESULTS

This section discusses the empirical results on the quantitative data analysis. It tries to achieve two main objectives. First, it investigates whether WCM and its components affect AIM listed SME companies, as measured by return on assets (ROA). Second, it

examines the effect of selected control variables of corporate governance and company characteristics on profitability.

6.4.1 Descriptive Statistics of Continuous Variables

Table 9 below shows the descriptive statistics for all continuous variables. Part A of the table looks at the dependent variable, part B contains the four explanatory variables, part C explains the corporate governance variables, whilst part D looks at the company characteristics.

6.4.1.1 Dependent Variable

ROA after winsorisation ranges from a minimum of -75.74% to a maximum of 18.87% with an average of -13.96% for the overall sample. The average loss of –13.96% for the sampled companies indicates that the majority of companies listed on the AIM are making a loss.

Table 9: Summary Descriptive Statistics of all Continuous Variables

Panels	Variable	Mean	Std Dev	Min	Median	Skewness	Kurtosis	Max	Observation
Panel A	ROA	-13.96032	25.65187	-75.74	-3.35	-1.024102	3.889376	18.87	960
Panel B	IHP	38.20396	68.14371	0	0	7.360246	62.02359	254.2	960
	ARP	59.93131	51.08863	0	55.625	3.736812	24.21816	187.9	960
	APP	46.63662	62.46642	0	25.99	4.217073	23.03856	247.41	960
	CCC	62.40998	110.3767	-127.37	43.2	5.187676	44.71871	376.62	960
Panel C	BSIZE	4.826042	1.483995	2	5	.1603284	3.079979	11	960
	CEOAGE	51.2151	8.789974	30	50	.2460179	2.61778	77	960
	CEOTEN	4.430208	5.094161	0.425	2.9	2.834375	14.13445	38.8	960
	NEDS	47.68924	17.87472	0	50	.0414423	3.30791	0.875	960
	DREM	307594.7	183170.1	36000	272782.5	15.45109	370.9081	720000	960
Panel D	COAGE	13.34871	15.18298	5.1205479	8.20685	2.763215	11.72083	99.67397	960
	COSIZE	4142.657	5051.2	0	3820.77	1.450443	8.656785	21839	960
	ATAN	.3689063	.272929	0.25	.35	.3338239	2.053656	.87	960
	LEV	22.17876	40.40939	0	1.49	5.787943	45.39263	151.88	960
	LIQ	2.365	2.746321	0	1.33	7.664995	84.005	10.37	960
	SFIN	.4135834	.383736	0	.3	13.048	203.664	1.5	960
	GWCAP	.5732292	.2977409	0	1.43	30.33564 -	933.2832	.99	960
	WCREQ	1.646479	1.467494	0	.6	.3340064	2.071358	5.03	960

Variables are defined as follows: return on assets (ROA), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), gross working capital (GWCAP), working capital requirement (WCREQ)

6.4.1.2 WCM Variables

The descriptive statistics of the explanatory variables are found in panel B of table 9. Inventory holding period is on average 38.20 days, which is an indication that it takes the average company within the sample just over a month to turnover its inventory. It has a range of 0 day minimum and 254.2 days maximum. The standard deviation of 68.14 days shows that the sampled companies have sparse variation of inventory turnover. The minimum inventory turnover of 0 is because some of the companies do not have inventory and therefore have no inventory turnover days. The accounts receivable period ranges from a minimum of 0 days to a maximum of 187.9 days with an average collection period of 59.93 days. The mean accounts receivable period of approximately 60 days explains that it takes on average two months for companies to collect monies owed by customers. Similar days of 61.21 were recorded by Falope and Ajilore (2009). As with inventory holding period, the minimum accounts receivable period of 0 day means that some companies do not have debtors. A standard deviation of 51.09 days specifies that there is less variation of accounts receivable period between the companies.

The average accounts payable period is 46.64 days and a minimum and maximum of 0 day and 247.41 days respectively. The results show that companies take on average one and half months to pay their suppliers. 62.47 days as the standard deviation reveals that supplier payment patterns of companies widely varies. A similar average accounts payable period of 49.50 days was postulated by Gill et al (2010). Finally, the cash

conversion cycle ranges from -127.37 days to 376.62 days with a mean of 62.41 days. The mean of 62.41 days indicates that AIM listed SMEs are slow both in converting inventory into sales and collecting monies owed by customers but pay their suppliers faster. In order words, it takes an average of about two months' time between the outflow of cash and the inflow of cash. Mathuva (2010) reported a similar cash conversion cycle duration of 69.35 days when he investigated the influence of WCM components on corporate profitability of Kenyan listed firms. The high standard deviation of 110.38 days is an indication of the wider variation in the cash conversion cycle of sampled companies.

6.4.1.3 Control Variables

6.4.1.3.1 Corporate Governance

The descriptive statistics of the corporate governance variables are presented in panel C. Panel C indicates that the board size of the sampled companies ranges from a minimum of 2 and a maximum of 11 with an average size of 4.83. The CEOs of companies in the sample has an average of 51.21 years, with a minimum and maximum of 30 and 77 years respectively. On average, an AIM listed SME's CEO spend 4.43 years in the realm of affairs, with a minimum of 0.425 years and a maximum of 38.8 years. The average company in the sample has 47.69 percentage of its directors as non-executive directors. The minimum and maximum percentages of non-executive directors are 0 per cent and 87.5 per cent respectively. This indicates that some companies have no non-executive directors in a particular year. The directors' remuneration package of the

average company within the sample is £307,594. The minimum annual package of directors is £36,000 but the maximum package is £720,000.

6.4.1.3.2 Company Characteristics

The descriptive statistics of the company characteristics variables are contained in panel D. The sampled companies' ages range from 5.12 years to 99.67 years with an average year of 13.39. The average age of the sampled companies of over 13 years may explain the reason why the average company within the sample is making a loss. According to Warusawitharana (2008) companies above 10 year of age realise lower profitability, on average. The standard deviation of 15.18 shows that there is less variation in the ages of the companies. The size of the companies ranges from a minimum of £0 to a maximum of £21.839m with an average size of 4.142m. Since turnover was used as an indication of the size of companies, then a size of zero means that a company did not make any sales in a particular year. Also, the average size of £4.142m suggests that majority of the companies fall under the small-size category of companies. The UK companies Act of 2006 section 382 defines a small company as having a turnover of not more than £11.4m. For asset tangibility, its variation is from a minimum of 0.25% to a maximum of 87% with an average of 37%. The minimum of 25% indicates that some companies do possess small amount of tangible fixed assets whilst the average of 37% shows that the majority of the companies have less assets in the form of fixed assets. This discovery is very common among SMEs, which tend to have more current assets than fixed assets (see, Padachi 2006; Padachi et al. 2008).

The average financial leverage of the sampled companies is 22.18% and ranges from a minimum of 0% to a maximum of 151.88%. The average financial leverage of 22.18% explains that the majority of the companies are using equity capital to finance their business. This is very understandable given that all the companies are listed on a stock exchange, which gives them unlimited access to equity capital. Liquidity ratio ranges from a minimum of 0 to a maximum of 10.37 with a mean of 2.365. These results signify that SMEs listed on the AIM are highly liquid, which is typical of SMEs (see, Deloof 2003; Padachi 2006; Padachi et al. 2008). The standard deviation figure of 2.75, which is very close to the mean figure designates that the companies have similar liquidity levels. Short-term finance of the companies ranges from a minimum of 0 to a maximum of 1.5 with a mean of 0.41. This is an indication that about 40% of companies' assets are financed by short-term finance, which is very common in SMEs. Stephen and Elvis (2011) also reported a similar short-term financing figure of 46 per cent in their studies of SMEs WCM in Kenya. The standard deviation of 0.38 points to a moderate variation among the companies.

The reported mean of the gross working capital is 0.57 and ranges from 0 to 0.99. The standard deviation of 0.30 signifies that there are less variations of gross working capital efficiency among the companies. The average gross working capital efficiency of 0.57 indicates that the sampled companies are not efficient in their use of gross working capital to generate sales, which explains why they rely more on short-term finance. The working capital requirement of the sample ranges from a minimum of 0 to

a maximum of 5.03 with a mean of 1.65. It has a standard deviation of 1.47, which indicates the fact that the companies have similar working capital requirement needs. The average working capital requirement of 1.65 indicates that the companies invest significant amount in both inventories and customers, which demands an increase in short-term debt as evidenced above. This also explains why the cash conversion cycle has a positive figure of 62.41 days.

6.4.1.4 Correlation Analysis

Correlation analysis is undertaken for the purpose of identifying variables that are highly correlated to each other. A high correlation between variables may indicate the presence of multicollinearity (Saunders et al. 2003; Anderson et al. 2007). Field (2005) suggest that multicollinearity becomes a problem only when the correlation coefficient exceeds 0.80. The purpose of checking for multicollinearity is because it leads to misspecification of test results of the regression. Table 10 below presents the Pearson correlation coefficient among the dependent variable, explanatory variables, corporate governance variables and company characteristics variables with their significance levels at 0.10 or less. The correlations among the dependent and independent variables suggest that multicollinearity should not be a problem in the panel data regression analysis, since the coefficient values are well below the limit prescribed by Field (2005).

ROA is negatively correlated with all the four explanatory variables including inventory holding period, accounts receivable period, accounts payable period and cash

Table 10: Correlation Matrix of Profitability and all Continuous Variables for all (960) Company Years.

	ROA	IHP	ARP	APP	CCC	COAGE	COSIZE	ATAN
ROA	1.0000							
IHP	-0.1176***	1.0000						
ARP	-0.0597*	0.1495***	1.0000					
APP	-0.2155***	0.1275***	0.2569***	1.0000				
CCC	-0.0257	0.7597***	0.4345***	-0.2522***	1.0000			
COAGE	0.1712***	0.0245	0.0504	-0.0730**	0.0585*	1.0000		
COSIZE	0.1483***	0.1631***	0.3192***	0.0537*	0.2064***	0.1817***	1.0000	
ATAN	-0.0366	0.0018	0.0478	0.1192***	-0.0663**	-0.0708**	0.1094***	1.0000
LEV	0.0080	0.0354	0.0530	0.0033	0.0490	0.0740**	0.2390***	0.1802***
LIQ	-0.1467***	0.0581*	0.0311	0.0843***	0.0701**	-0.0536 *	-0.2062***	-0.2389***
SFIN	0.0159	-0.0852***	-0.0461	0.0455	-0.1077***	0.0848 ***	0.2525***	-0.0026
WCREQ	-0.0631**	0.1057***	0.1031***	0.0025	0.1500***	0.0796**	0.2917***	-0.6890***
GWCAP	0.1994***	-0.1148***	0.0157	-0.0787**	-0.0722**	0.1212***	0.6541***	0.2503***
BSIZE	-0.0653**	0.1109***	0.1755***	0.0002	0.1430***	-0.0354	0.1672***	0.0594*
CEOAGE	0.0974***	0.0479	-0.0314	-0.0269	0.0033	0.2138***	-0.0989***	0.0585*
CEOTEN	0.1041***	0.0082	0.0077	-0.0943***	0.0379	0.1892***	0.1570***	-0.0686
NEDS	-0.0543*	0.0706	-0.0149	0.0070	0.0515	0.0477	-0.0958***	0.0128
DREM	-0.0368	0.1025***	0.1629***	0.0672**	0.1183***	0.0435	0.3366***	0.0208

Table 10: Correlation Matrix of Profitability and all Continuous Variables for all 960 Firm Years Continued

	LEV	LIQ	SFIN	WCREQ	GWCAP	BSIZE	CEOAGE	CEOTEN	NEDS	DREM
LEV	1.0000									
LIQ	-0.2323***	1.0000								
SFIN	0.1133***	-0.4680***	1.0000							
WCREQ	-0.0646 **	0.3820***	0.2035***	1.0000						
GWCAP	0.2646***	-0.4149**	0.4580 ***	-0.0186	1.0000					
BSIZE	0.0677**	0.0349	-0.1287***	-0.0053	-0.0066	1.0000				
COAGE	-0.0031	-0.0633*	-0.0194	-0.0830***	-0.0689 **	0.0729**	1.0000			
CEOTEN	0.0217	-0.0374	-0.0213	0.1022***	0.0723**	0.1360***	0.2114***	1.0000		
NEDS	-0.0507	0.0494	0.0010	-0.0353	-0.1279 ***	0.0612*	-0.0120	-0.0411	1.0000	
DREM	0.0588*	-0.0288	0.0220	0.0744**	0.1396 ***	0.3289***	0.0076	0.1283***	-0.0387	1.0000

Note: ***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). *. Correlation is significant at the 0.10 (2-tailed). Variables are defined as follows: return on assets (ROA), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), working capital requirement (WCREQ), gross working capital (GWCAP)

Industry classification has been specifically excluded because of its non-continuous nature.

conversion cycle which signifies that reduction in WCM components leads to higher ROA, however, the correlation between ROA and cash conversion cycle is not significant. Among the explanatory variables, there are significant positive correlations between all of them except for the correlation between cash conversion cycle and accounts payable period which is negative. The positive correlation between inventory holding period, accounts receivable period and cash conversion cycle makes sense because for example, an increase in inventory will encourage a company to increase sales by offering generous credit period which will lead to increase in both inventory holding period and accounts receivable period. The increase in these two components of WCM will also trigger a corresponding increase in cash conversion cycle. The negative correlation between cash conversion cycle and accounts payable period is reasonable because early payment to suppliers will benefit the company in the form of early payment discount received.

Regarding the corporate governance variables, ROA is negatively correlated significantly with board size, non-executive directors and directors' remuneration. This result indicates that bigger board size, higher proportion of non-executive directors and higher remuneration of directors all lead to a reduction in profitability. However, the relationship of ROA with CEO age and CEO tenure is significantly positive which point to the fact that older CEOs and longer tenure of CEOs result in maximisation of profitability. In terms of the WCM components, inventory holding period, accounts receivable period and cash conversion cycle are positively correlated significantly with

board size and directors remuneration. Accounts payable period is negatively and positively correlated significantly with CEO age and directors remuneration respectively.

In terms of company characteristics, ROA is significantly correlated positively with company age, company size and gross working capital efficiency. This means that the older a company, the bigger a company and high investment in current assets of a company leads to higher profitability. There is a negatively significant correlation of ROA with liquidity ratio and working capital requirement. This signifies that higher proportion of liquidity and higher working capital requirement results in lower profitability. Inventory holding period is positively correlated significantly with company size, liquidity ratio and working capital requirement but negatively correlated with short-term financing and gross working capital efficiency. Accounts receivable period is positively correlated significantly with company size and working capital requirement but correlated insignificantly with the rest of the company characteristics variables. Accounts payable period is positively correlated significantly with asset tangibility and liquidity ratio but negatively correlated significantly with company age. Finally, cash conversion cycle is positively correlated significantly with company age, company size, liquidity ratio and working capital requirement but negatively correlated significantly with asset tangibility, short-term financing and gross working capital efficiency.

6.4.1.5 Empirical Results

The results from the Hausman's test indicates the use of RE and therefore the main balanced panel data results are obtained by using RE. The results are contained in table 11. Because the combination of the other three components of WCM including inventory holding period, accounts receivable period and accounts payable period results in the calculation of the cash conversion cycle, each WCM variable is therefore run separately with the control variables to avoid collinearity issues (see, Padachi 2006; Garcia-Teruel and Martinez-Solano 2007; Mathuva 2010) . In RE the adjusted overall R^2 is relevant and therefore in the discussion of the results the adjusted overall R^2 is used (Lei 2006). The type of statistical software used to run the RE panel data regression is STATA application version (11.2).

Table 11: Random Effect Regression Results of the Impact of Working Capital Management on Profitability (ROA)

Regression Models	**(1)**	**(2)**	**(3)**	**(4)**
INDEPENDENT VARIABLES	ROA (with robust S.E)	ROA (with robust S.E)	ROA (with robust S.E)	ROA (with robust S.E)
Adjusted R^2 Overall	0.1543	0.1502	0.1687	0.1451
No. of Observation	960	960`	960	960
Working Capital Management Variables				
Constant	2.062(0.29)	3.639(0.49)	3.740(0.46)	3.174(0.44)
IHP	-.041(-2.84)***			
ARP		-.042(-3.62)***		
APP			-.067(-4.15)***	
CCC				-.006(-0.75)
Corporate Governance Variables				
BSIZE	-1.130(-3.35)***	-1.062(-2.93)***	-1.322(-3.82)***	-1.146(-3.37)***
CEOAGE	.274(3.07)***	.263(3.01)***	.266(2.81)***	.264(2.97)***
CEOTURN	.285(2.84)***	.292(3.10)***	.248(2.70)***	.308(3.11)***
NEDs	-.032(-0.74)	-.045(-1.01)	-.046(-1.09)	-.040(-0.95)
DREM	-1.111(-2.43)**	-1.112(-2.25)**	-1.028(-2.13)**	-1.128(-2.40)**
Company Characteristics Variables				

COAGE	.163(7.51)***	.172(6.38)***	.150(5.99)***	.169(7.07)***
COSIZE	1.893(2.88)***	1.871(3.39)***	1.889(2.98)***	1.611(2.59)***
ATAN	-27.639(-7.86)***	-27.942(-7.78)***	-26.170(-8.44)***	-28.437(-8.19)***
LEV	-.028(-1.10)	-.028(-1.15)	-.028(-1.21)	-.028(-1.09)
LIQ	-.057(-0.12)	.005(0.01)	.236(0.57)	-.019(-0.04)
SFIN	-3.704(-1.46)	-3.609(-1.40)	-1.178(-0.39)	-3.756(-1.43)
GWCAP	2.120(2.31)**	2.362(2.56)***	1.953(2.18)**	2.713(3.03)***
WCREQ	-26.594(-8.13)***	-27.302(-7.95)***	-28.342(-8.42)***	-27.042(-7.97)***
INDUST				
Software and Communications	.0043401(0.00)	1.035526(0.63)	.6052427(0.40)	.7977863(0.48)
Food and Pharmaceuticals	-3.400468(-1.13)	-4.058915(-1.56)	-2.441709(-0.84)	-3.89432(-1.45)
Support Services	5.057523(2.06)**	4.880132(1.87)*	4.76946(1.98)**	4.642323(1.85)*
Household and Personal Goods	-1.117157(-0.48)	-1.115911(-0.44)	-.8625237(-0.33)	-1.095176(-0.45)
Electronic and Equipment	-2.31731(-1.43)	-3.75848(-2.81)***	-2.576821(-3.43)***	-3.153999(-2.38)**

Notes: Coefficients are in front of parentheses. ***Significant at 0.01 level; **Significant at 0.05 level; *Significant at 0.10 level, t-statistics are in parentheses. Variables are defined as follows: return on asset (ROA), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), working capital requirement (WCREQ), gross working capital (GWCAP)

There are four models each representing one of the four explanatory variables. As a result, the models are numbered from 1 to 4. Model I of table 11 reveals that the adjusted overall R^2 is 0.1543, which means that model 1 explains 15.43% of variation in ROA of AIM listed SMEs. Model 2 shows that the adjusted overall R^2 is 0.1502 indicating that model 2 explains 15.02% of variation in ROA of AIM listed SMEs. Also, model 3 suggests that the adjusted overall R^2 is 0.1687 demonstrating that model 3 elucidates 16.87% of the variation in ROA of AIM listed SMEs. Finally, in model 4 the adjusted overall R^2 is 0.1451, which shows that at least 14.51% of the variation in ROA of AIM listed SMEs is explained by the model.

6.4.1.5.1 WCM Variables

6.4.1.5.1.1 Inventory Holding Period

The coefficient of inventory holding period is negatively associated with ROA at the 1 per cent level of significance (model 1 of table 11). This means that the management of inventory holding period affect ROA of AIM listed SMEs. The magnitude of the coefficient is (-4.13), which informs that a one day decrease in inventory holding period will cause a corresponding increase of 4.13 per cent in ROA. The significant negative relationship between inventory holding period and ROA reveals that the longer inventory is kept in stock, the lower is ROA. The finding confirms the hypothesis developed above that predicted a significantly negative association between inventory holding period and ROA. This result has the support of many prior studies that examined the relationship between profitability and inventory holding period (see

Deloof 2003; Ganesan 2007; Garcia-Teruel and Martinez-Solano 2007; Raheman and Nasr 2007; Samiloglu and Demirgunes 2008; Falope and Ajilore 2009; Sen and Oruc 2009; Dong and Su 2010; Gill et al. 2010; Raheman et al. 2010; Alipour 2011; Hayajneh and Yassine 2011; Karaduman et al. 2011; Stephen and Elvis 2011). There are previous research with negative association between ROA and inventory holding period but the association is insignificant including Lazaridis and Tryfonidis (2006) and Ramachandran and Janakiraman (2009), On the other hand, this result also differs from one previous research that documented a positive relationship between ROA and inventory holding period (Mathuva 2010). Padachi (2006) also postulated a positive relationship between ROA and inventory holding period but the result was not statistically significant.

There are a number of reasons that can be expounded to explain the negative relationship between ROA and inventory holding period. First, investment in inventory represents amount of money locked up, which could have been invested in a high return venture in order to increase ROA (Falope and Ajilore 2009). Such a move further reduces ROA because it may require a company to sort after short-term financing, which increases financing cost and eventually minimises ROA. Therefore, a reduction in inventory holding period will free up capital to be invested in profitable ventures to improve ROA. Second, negative relationship between ROA and inventory holding period implies that a reduction in inventory holding period leads to the minimisation of the various costs associated with holding inventory (Koumanakos 2008), which

improves ROA. Such holding cost include warehousing security cost, rental fee, heating and lightening, obsolesce, theft etc. Holding of inventory may negate against ROA because according to Blinder and Maccini (1991), the various costs of holding inventory is on average 10 per cent of the value of the inventory per year.

6.4.1.5.1.2 Accounts Receivable Period

From model 2 of table 11, accounts payable period is found to have a negative coefficient of (-0.04). This coefficient is significant at the 1 per cent level suggesting that the management of accounts receivable period has an influence on ROA of AIM listed SMEs. In effect, the result means that a reduction in the number of days it takes a company to recover amounts owed by customers will reflect in increasing ROA of SMEs listed on the AIM. The magnitude of the coefficient shows that a one day reduction in accounts receivable period will increase ROA by 4 per cent. The finding agrees with the hypothesis introduced above that suggested a significantly negative association between accounts receivable period and ROA. This result is consistent with many prior researchers including: Deloof (2003), Lazaridis and Tryfonidis (2006), Padachi (2006), Garcia-Teruel and Martinez-Solano (2007), Raheman and Nasr (2007), Samiloglu and Demirgunes (2008), Falope and Ajilore (2009), Sen and Oruc (2009), Dong and Su (2010), Gill et al (2010), Karaduman et al (2011), Mathuva (2010), Alipour (2011), Hayajneh and Yassine (2011), who also recorded a negative association between accounts receivable period and ROA. However, this finding also disagrees with

some prior researchers involving: Ramachandran and Janakiraman (2009), Raheman et al (2010) and Stephen and Elvis (2011).

There are a number of possible reasons as to why the relationship between accounts receivable period and ROA of AIM listed SMEs is negative. In the first instance the reduction of accounts receivable period will minimise or eliminate the prospect of bad debts occurring (Cheng and Pike 2003; Martinez-Sola et al. 2012), which will help improve ROA. Reduction in accounts receivable period means that a small amount of cash will be locked-up with customers and therefore the chances of default and its impact on ROA will very much be reduced. A lower accounts receivable period will also improve companies' ROA because it will free up cash which could be used to make payment of bills on time in order to enjoy early payment discounts. The excess free cash flow resulting from speedy collection of accounts receivable can also be invested in profitable ventures and therefore improve ROA. A reduced accounts receivable period will also lead to ROA enhancement because it will help a company to avoid the costly need of borrowing to fund investment in customers (Martinez-Sola et al. 2012).

6.4.1.5.1.3 Accounts Payable Period

The result in model 3 of table 11 reveals that the coefficient of accounts payable period in association with ROA is (-0.067). This relationship is significant at the 1 per cent level, which indicates that the management of accounts payable period has an effect on ROA of AIM listed SMEs. The negative coefficient indicates that a one day

minimisation of accounts payable period will magnify ROA by 6.7 per cent. This finding shows that the decision to make early payment to suppliers of goods and services by a company will help improve ROA. This finding confirms the hypothesis developed above that predicted a significantly negative association between accounts payable period and ROA. Many past studies also found a negative relationship between accounts payable period and ROA including: Deloof (2003), Lazaridis and Tryfonidis (2006), Ganesan (2007), Garcia-Teruel and Martinez-Solano (2007), Raheman and Nasr (2007), Karaduman et al (2011), Alipour (2011), Hayajneh and Yassine (2011) and Karaduman et al (2011). Padachi (2006) and Gill et al (2010) also found a negative association between accounts payable period and ROA, but the association was insignificant. On the contrary, the following studies also found significantly positive relationship between accounts payable period and ROA including: Falope and Ajilore (2009), Ramachandran and Janakiraman (2009), Dong and Su (2010) and Mathuva (2010). Raheman et al (2010) and Stephen and Elvis (2011) also found positive association between accounts payable period and ROA, but the associations were not significant.

The negative association between accounts payable period and ROA established here can be justified based on two reasons. First, early payment to suppliers will improve ROA because of the discount to be enjoyed (Ng et al. 1999). Many companies offer customers the benefit of paying early in the form of discounts and as recounted by Ng et al (1999), the amount of discount can be substantial which will enhance ROA. Second,

paying suppliers early will improve the business relationship between a company and its suppliers therefore ensuring continuous and sustainable future business deals, which will maximise ROA. Because of the benefits involved in paying suppliers early, Deloof (2003) argues that the most plausible explanation for the negative relationship between accounts payable period and ROA is that less profitable firms wait longer to pay their bills.

6.4.1.5.1.4 Cash Conversion Cycle

Model 4 of table 11 contains the results on the cash conversion cycle, which indicates that the coefficient on the relationship between cash conversion cycle and ROA is negative but insignificant. This finding rejects the hypothesis stated in chapter 6, which suggested a significantly negative association between cash conversion cycle and ROA. In contrast, it supports the results of prior studies in WCM (Deloof 2003; Ganesan 2007; Samiloglu and Demirgunes 2008). For example, Deloof (2003) reported a statistically insignificant and negative association between cash conversion cycle and ROA, using a sample of 1009 firms over a period from 1992-1996. There are other studies that also found a negative but significant relationship between cash conversion cycle and ROA including: Lazaridis and Tryfonidis (2006), Garcia-Teruel and Martinez-Solano (2007), Raheman and Nasr (2007), Falope and Ajilore (2009), Ramachandran and Janakiraman (2009), Sen and Oruc (2009), Dong and Su (2010), Mathuva (2010), Raheman et al (2010), Karaduman et al (2011), Alipour (2011) and Hayajneh and Yassine (2011). However, the result differs from prior studies that

documented either a significant or insignificant positive link between cash conversion cycle and ROA (e.g. Padachi 2006; Gill et al. 2010; Stephen and Elvis 2011).

Theoretically, it implies that a reduction in the cash conversion cycle improves ROA. This finding contradicts the majority of the prior research but it must be borne in mind that this study investigates SMEs, unlike many of the prior studies. Also, it specifically looks at SMEs that are listed on stock exchange – AIM. In the context of AIM listed SMEs this appears to indicate that it is rather the individual components of WCM (inventory holding period, accounts receivable period and accounts payable period) that are important in affecting profitability. The insignificant association between cash conversion cycle and ROA is to be expected because of the fact that all the three WCM components had a negative influence on profitability. This is because the cash conversion cycle is derived by subtracting accounts payable period from both inventory holding period and accounts receivable period. Deloof (2003) also supports this argument by stating that '*the insignificant results between cash conversion cycle and ROA is not a surprise because ROA declines with inventory holding period and accounts receivable period, but also with the accounts payable period, which is subtracted to calculate the cash conversion cycle*'.

6.4.1.5.2 Control Variables

6.4.1.5.2.1 Corporate Governance

With respect of the corporate governance control variables, and consistent with predictions in chapter 6, board size, CEO age and CEO tenure are found to be significantly associated with ROA in all four models. The coefficient of directors' remuneration is negative and significantly related to profitability, which therefore contradicts the hypothesis developed above. The relationship between non-executive directors and ROA is insignificant and therefore contradicts what was predicted above. The statistically significant and negative coefficient on board size implies that larger boards are less effective and therefore impair ROA of AIM listed SMEs. For SMEs, this finding makes sense because they are limited in financial resources (Ebben and Johnson 2011) and also their activities are less cumbersome and therefore no need for large board size. In this case, any unnecessary addition to the board of SMEs will simply results in a waste of financial resources, which will lead to reduced ROA. This result support prior studies including: Gill and Mathur (2011), Bennedsen et al (2006) and O'Connell and Cramer (2010). In contrast, it disagrees with other previous studies (e.g. Kyereboah-Coleman and Biekpe 2007). The statistically positive coefficient on CEO age indicates that older CEO improves AIM listed SMEs ROA, which can be explained to arise from the experience accumulated over the years (Holmstrom 1999). This finding supports the studies by Yim (2010) who also found a positive association between CEO age and ROA.

The tenure of AIM listed SMEs CEO is also found to be statistically positive and significant. This result shows that the longer a CEO stays in the realm of affairs, the

better it is for companies in the form of improved ROA. The improved ROA comes about because a longer tenured CEO will accumulate company specific knowledge and therefore enhance ROA (Shen 2003). Kyereboah-Coleman (2007a) also reported a positive and significant association between CEO tenure and ROA. The association between directors' remuneration and ROA is found to be statistically negative and significant. This result shows that maximising the compensation package of directors does not lead to any improvement in ROA of AIM listed SMEs. The same result was also postulated by Hassan et al (2003) in their investigation of the relationship between directors' compensation and ROA. Last on the effect of corporate governance variables on ROA is the non-executive directors. The result indicates a negative coefficient but insignificant association. According to this result, for SMEs listed on the AIM, the changes in the proportion of non-executive directors have no influence on ROA. This finding is confirmed by Chaghadari (2011) who found a negative but insignificant association between non-executive directors and ROA, using a sample of companies listed on Bursa Malaysia.

6.4.1.5.2.2 Company Characteristics

The company characteristics control variables including: company age, company size and working capital requirement are all significantly associated with ROA across all the four models at either the 1 or 5 per cent level, therefore confirming what was hypothesized. The results indicate significantly negative and positive associations between profitability and directors' remuneration and gross working capital efficiency

respectively, therefore contradicting what was hypothesized. However, other company variables including: financial leverage, liquidity ratio and short-term financing do not have any statistically significant relationship with ROA in any of the four models. With regards to the industry classification, some industries are significantly associated with ROA whilst others do not. The statistically positive association between company age and ROA indicates that the longer an AIM listed SME is in existence the higher the ROA. This confirms the findings by Majumdar (1997) who also found a significant and positive result. This is justified on the premise that older companies are more experienced because they have enjoyed the benefit of learning and therefore can enhance ROA (Stinchcombe 1965).

Company size has a significantly positive coefficient, specifying that AIM listed SMEs that are bigger in size have higher ROA. This association can be pinned on the fact that larger companies benefit from economies of scale and therefore improves ROA (Singh and Whittington 1975; Serrasqueiro and Nunes 2008). The positive coefficient on company size offers empirical support to past evidence (e.g. Weir and Laing 2000; Bozec 2005). There is a statistically negative and significant association between asset tangibility and ROA, which shows that higher proportion of tangible fixed assets leads to reduced ROA of AIM listed SMEs. These findings are consistent with the result of a study by Raheman and Nasr (2007) that also found a negative and significant association between asset tangibility and ROA. The coefficient on the association between gross working capital efficiency and ROA is positive and statistically

significant. This signifies that AIM listed SMEs with higher current assets improve ROA. The association between working capital requirement and ROA is significantly negative, meaning that AIM listed SMEs with no need of cash requirement to fund investment in current assets enjoy maximum ROA.

There is a negative coefficient on financial leverage but the association with ROA is insignificant. Theoretically, it shows that lower leverage will lead to higher ROA. The association between liquidity ratio and ROA is also found to be negative but statistically insignificant, indicating that companies that keep lower liquidity enhance ROA. The coefficient on short-term financing is negative but insignificant. Theoretically, it specifies that lower short-term borrowings results in higher ROA. Finally, the results show that only Support Services and Electronic and Electrical Equipment industries are significantly related to ROA but the others are not. These findings in part support prior studies of Shabbir and Padgett (2005), and Haniffa and Hudaib (2006) that reported that ROA of companies differ across industries.

6.5 CONCLUSION

This chapter started by developing a set of testable hypotheses, which can be used empirically to establish the effect of working capital management and its components, corporate governance and company characteristics on profitability. The quantitative data, its sources and sample selection procedures have thoroughly been described in section 6.3. In all, 160 AIM listed companies were used to analyse the quantitative data.

Three main types of data were employed including WCM variables, company specific characteristics and corporate governance variables. The WCM variables and company specific characteristics variables were gathered mainly from AMEDEUS, Perfect Information and Northcote databases. On the other hand, the corporate governance variables were all collected from BoardEx database. The data analysis methods that have been employed were also reviewed. In particular the balanced panel data was preferred over the unbalanced panel data. All the three types of static panel data were reviewed including the various statistical tests to be utilised in choosing the one that is more consistent and efficient.

Section 6.4 has focused on presenting and discussing the empirical results relating to the association between WCM, corporate governance, company characteristics and profitability of SME companies listed on the AIM, as measured by ROA. The results from the panel data regression indicated that the three WCM components including: inventory holding period, accounts receivable period and accounts payable period were all negative and significantly related to ROA of AIM listed SME companies. However, there was no evidence to suggest that cash conversion cycle has any association with the ROA of AIM listed SME companies. Finally, section 6.5 concluded this chapter.

CHAPTER SEVEN

ROBUSTNESS TESTS

7.1 INTRODUCTION

This chapter discusses the results based on two robustness tests. The central objective is to demonstrate how the results reported in chapter six are robust to alternative explanations and estimations. More specifically, the chapter subjects the results presented in chapter eight to an extensive set of sensitivity analyses, including carrying out an examination of the relationship between Return On Equity (ROE) and Working Capital Management (WCM) and results based on the differences between small and medium companies. The remainder of the chapter is organised as follows. Section 7.2 reports the results based on the relationship between ROE and WCM. Section 7.3 reports the results based on the differences in the relationship between WCM and profitability under small and medium companies. Section 7.4 concludes the chapter.

7.2 RESULTS BASED ON RELATIONSHIP BETWEEN ROE AND WCM

7.2.1 Correlation Analysis

Table 12 below presents the Pearson correlation coefficient among the dependent, explanatory and control variables with their significance levels at 0.10 or less. The

Table 12: Correlation Matrix of Profitability and all Continuous Variables

	ROE	IHP	ARP	APP	CCC	BSIZE	CEOAGE	CEOTEN
ROE	1.0000							
IHP	-0.1145***	1.0000						
ARP	-0.0568*	0.1495***	1.0000					
APP	-0.2106***	0.1275***	0.2569***	1.0000				
CCC	-0.0261	0.7597***	0.4345***	-0.2522***	1.0000			
BSIZE	-0.0609*	0.1109***	0.1755***	0.0002	0.1430***	1.0000		
CEOAGE	0.0945***	0.0479	-0.0314	-0.0269	0.0033	0.0729**	1.0000	
CEOTEN	0.1022***	0.0082	0.0077	-0.0943***	0.0379	0.1360***	0.2114***	1.0000
NEDS	-0.0519	0.0706***	-0.0149	0.0070	0.0515	0.0612*	-0.0120	-0.0411
DREM	-0.0364	0.1025***	0.1629***	0.0672**	0.1183***	0.3289***	0.0076	0.1283***
COAGE	0.1691***	0.0245	0.0504	-0.0730**	0.0585*	-0.0354	0.2138***	0.1892***
COSIZE	0.1502***	0.1631**	0.3192***	0.0537*	0.2064***	0.1672***	-0.0989***	0.1570***
ATAN	-0.0351	0.0018	0.0478	0.1192***	-0.0663**	0.0594*	0.0585*	-0.0686**
LEV	0.0114	0.0354	0.0530	0.0033	0.0490	0.0677**	-0.0031	0.0217
LIQ	-0.1422***	0.0581*	0.0311	0.0843***	0.0701**	0.0349	-0.0633*	-0.0374
SFIN	0.0137	-0.0852***	-0.0461	0.0455	-0.1077***	-0.1287***	-0.0194	-0.0213
WCREQ	-0.0614*	0.1046***	0.1017***	0.0020	0.1488***	-0.0063	-0.0824**	0.1018***
GWCAP	-0.0496	-0.0318	-0.0374	-0.0324	-0.0275	-0.0414	-0.0435	-0.0110

Table 12: Correlation Matrix of Profitability and all Continuous Variables Continued

	NEDS	DREM	COAGE	COSIZE	ATAN	LEV	LIQ	SFIN	WCREQ	GWCAP
NEDS	1.0000									
DREM	-0.0387	1.0000								
COAGE	0.0477	0.0435	1.0000							
COSIZE	-0.0958***	0.3366***	0.1817***	1.0000						
ATAN	0.0128	0.0208	-0.0708**	0.1094***	1.0000					
LEV	-0.0507	0.0588*	0.0740**	0.2390***	0.1802***	1.0000				
LIQ	0.0494	-0.0288	-0.0536*	-0.2062***	-0.2389***	-0.2323***	1.0000			
SFIN	0.0010	0.0220	0.0848***	0.2525***	-0.0026	0.1133***	-0.4680***	1.0000		
WCREQ	-0.0348	0.0726**	0.0792**	0.2888***	-0.6896***	-0.0650**	0.3825***	0.2033***	1.0000	
GWCAP	-0.0392	0.0216	-0.0121	0.0852***	0.0845***	0.0091	-0.0674**	0.0331	-0.0569*	1.0000

Note: ***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed). *. Correlation is significant at the 0.10 (2-tailed). Variables are defined as follows: return on equity (ROE), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), working capital requirement (WCREQ), gross working capital (GWCAP)

Industry classification has been specifically excluded because of its non-continuous nature.

correlations among the dependent and independent variables suggest that multicollinearity should not be a problem in the panel data regression analysis, since the coefficient values are well below the limit prescribed by Field (2005).

ROE is negatively correlated with all the four explanatory variables including inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle which means that reduction in WCM components leads to higher ROE. However, the correlation between ROE and cash conversion cycle is not significant. Among the explanatory variables, there are significant positive correlations between all of them except for the correlation between cash conversion cycle and accounts payable period which is negative.

Regarding the corporate governance variables, ROE is negatively correlated significantly with board size, non-executive directors and directors' remuneration. These results indicate that bigger board size, higher proportion of non-executive directors and higher remuneration of directors all lead to a reduction in profitability. However, the relationship of ROE with CEO age and CEO tenure are significantly positive which point to the fact that older CEOs and longer tenure of CEOs result in maximisation of profitability.

In terms of company characteristics, ROE is significantly correlated positively with company age, company size and gross working capital efficiency. This means that the

older a company, the bigger a company and high investment in current assets of a company leads to higher profitability. There are negatively significant correlation of ROE with liquidity ratio and working capital requirement. This signifies that higher proportion of liquidity and higher working capital requirement results in lower profitability.

7.2.2 Empirical Results

ROE is used as the dependent variable, which is defined as the net profit divided by total equity at the end of the financial year. Table 13 contains the results obtained by estimating the relationship between ROE and WCM components. The panel data regression used is as follows:

$$ROE_{it} = \alpha_{0} + \beta_1 WCC + \beta_2 COAGE + \beta_3 COSIZE + \beta_4 LEV + \beta_5 ATAN + \beta_6 LIQ + \beta_7 SFIN + \beta_8 WCREQ + \beta_9 GWCAP + \beta_{11} INDUST + \beta_{12} BSIZE + \beta_{13} NEDS + \beta_{14} CEOAGE + \beta_{15} CEOTURN + \beta_{16} DREM + \mu_i + \lambda_t + \varepsilon_{it}$$

Where ROE refers to the measure of financial performance, WCC refers to WCM components as measured by IHP, ARP, APP and CCC, and COAGE, COSIZE, LEV, ATAN, LIQ, SFIN, WCREQ, GWCAP and INDUST refer to company age, company size, financial leverage, asset tangibility, liquidity ratio, short-term financing, working capital requirement, gross working capital efficiency and industry classification. BSIZE, NEDS, CEOAGE, CEOTURN and DREM refer to board size, proportion of non-executive directors, CEO age, CEO tenure and directors' remuneration. The subscript i

Table 13: Random Effect Regression Results of the Impact of Working Capital Management on ROE

Regression Models	**(1)**	**(2)**	**(3)**	**(4)**
INDEPENDENT VARIABLES	ROE (with robust S.E)	ROE (with robust S.E)	ROE (with robust S.E)	ROE (with robust S.E)
Adjusted R^2 Overall	0.1507	0.1466	0.1641	0.1419
No. of Observation	960	960	960	960
Working Capital Management Variables				
Constant	2.638444(0.29)	4.27293(0.47)	4.373636(0.49)	3.765679(0.42)
IHP	-.0428642(-3.27)***			
ARP		-.0440388(-2.49)**		
APP			-.0694053(-5.10)***	
CCC				-.0079081(-0.99)
Corporate Governance Variables				
BSIZE	-1.113184(-1.83)*	-1.042428(-1.70)*	-1.309938(-1.87)*	-1.126547(-1.84)*
CEOAGE	.2786812(2.73)***	.2674378(2.62)***	.2699528(2.67)***	.2679742(2.61)***
CEOTURN	.2948948(1.66)*	.3013897(1.69)*	.2566993(1.65)*	.3176964(1.78)*
NEDs	-.0313917(-0.67)	-.0449601(-0.96)	-.0453491(-0.98)	-.0393162(-0.84)
DREM	-1.188867(-2.27)**	-1.190248(-2.27)**	-1.104654(-2.13)**	-1.206539(-2.29)**

Company Characteristics Variables				
COAGE	.1680938(2.78)***	.1777815(2.93)***	.1551056(2.58)***	.1747426(2.87)***
COSIZE	2.015255(3.95)***	1.992133(3.84)***	2.006405(4.03)***	1.733516(3.40)***
ATAN	-28.7879(-5.54)***	-29.10263(-5.59)***	-27.2925(-5.28)***	-29.62047(-5.68)***
LEV	-.0273694(-1.27)	-.0278453(-1.29)	-.0275388(-1.29)	-.0273638(-1.27)
LIQ	-.0114513(-0.02)	.0541914(0.11)	.2908656(0.62)	.0270339(0.06)
SFIN	-3.859679(-1.21)	-3.760998(-1.18)	-1.270862(-0.40)	-3.931022(-1.22)
WCREQ	-27.78536(-4.57)***	-28.51973(-4.68)***	-29.58309(-4.90)***	-28.23387(-4.62)***
GWCAP	2.210185(2.42)**	2.461291(2.70)***	2.048237(2.29)**	2.808213(3.10)***
INDUST				
Software and Communications	-.2672364(-0.10)	.8016871(0.31)	.3595014(0.14)	.5431179(0.21)
Food and Pharmaceuticals	-3.884268(-1.16)	-4.566736(-1.36)	-2.907747(-0.87)	-4.403663(-1.30)
Support Services	5.172524(1.82)*	4.988447(1.75)*	4.870662(1.73)*	4.756498(1.67)*
Household and Personal Goods	-1.287047(-0.29)	-1.285744(-0.29)	-1.025989(-0.23)	-1.264358(-0.29)
Electronic and Equipment	-2.692991(-0.69)	-4.186711(-1.08)	-2.969826(-0.77)	-3.555389(-0.91)

Notes: Coefficients are in front of parentheses. ***Significant at 0.01 level; **Significant at 0.05 level; *Significant at 0.10 level, t-statistics are in parentheses. Variables are defined as follows: return on equity (ROE), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), working capital requirement (WCREQ), gross working capital (GWCAP)

denotes the nth company (i = 1,... 160), and the subscript t denotes the tth year (t=1,...6). μ_i is the unobservable heterogeneity (individual effects) which is specific for each firm, λ_t is the parameters of time dummy variables and ε_{it} is the error term.

There are four models, each representing one of the four explanatory variables. As a result, the models are numbered from 1 to 4. Model 1 of table 13 reveals that the adjusted R^2 is 0.1507, which means that the model explains 15.07 per cent of variation in ROE of AIM listed SMEs. Model 2 shows that the adjusted R^2 is 0.1466 indicating that the model explains 14.66 per cent of variation in ROE of AIM listed SMEs. Also, model 3 suggests that the adjusted R^2 is 0.1641 demonstrating that the model explains 16.41 per cent of the variation in ROE of AIM listed SMEs. Finally, in model 4 the adusted R^2 is 0.1419, which shows that 14.19 per cent of the variation in ROE of AIM listed SMEs is explained by the model.

7.2.2.1 WCM Variables

The coefficient of inventory holding period is negatively associated with ROE at the 1 per cent level of significance (model 1 of table 13). This means that the management of inventory holding period affect ROE of AIM listed SMEs. The magnitude of the coefficient is (-0.043), which means that a one day decrease in inventory holding period will cause a corresponding increase of 4.03 per cent in ROE.

From model 2 of table 13, accounts receivable period is found to have a negative coefficient of (-0.044). This coefficient is significant at the 5 per cent level suggesting that the management of accounts receivable period has an influence on ROE of AIM listed SMEs. The result means that a reduction in number of days it takes a company to recover amounts owed by customers will reflect in increasing ROE of SMEs listed on the AIM. The magnitude of the coefficient shows that a one day reduction in accounts receivable period will increase ROE by 4.4 per cent.

The result in model 3 of table 13 reveals that the coefficient of accounts payable period in association with ROE is (-0.069). This relationship is significant at the 1 per cent level, which indicates that the management of account payable period has an effect on ROE of AIM listed SMEs. The negative coefficient indicates that a one day decrease in account payable period will increase ROE by 6.9 per cent. This finding indicates that the decision to make early payment to suppliers of goods and services by a company will help improve ROE.

Model 4 of table 13 contains the results on the cash conversion cycle, which indicates that the coefficient on the relationship between cash conversion cycle and ROE is negative but insignificant. This result shows that the management of cash conversion cycle has no significant effect on the ROE of AIM listed SMEs.

7.2.2.2 Control Variables

With respect of the corporate governance control variables, board size and directors remuneration are found to be negative and significantly associated with ROE at the 10 per cent and 5 per cent respectively. CEO age and CEO tenure are also found to be positive and significantly related to ROE at the 1 per cent and 10 per cent respectively. However, the relationsip between proportion of non-executive directors and ROE is found to be insignificant.

The company characteristics control variables including: company age, company size and gross working capital efficiency are found to be positive and significantly related to ROE at either 1 per cent or 5 per cent level. On the other hand, asset tangibiligy and working capital requirement are found to be negative and significantly related to ROE at the 1 per cent level. However, financial leverage, liquidity ratio and short-term financing were found to be insginficantly related to ROE.

7.3 RESULTS BASED ON DIFFERENCES BETWEEN SMALL AND MEDIUM COMPANIES

For the purpose of this section, a dummy variable is introduced to distinguish between small and medium companies. SME is a dummy variable coded “0” if the company is small and “1” if the company is medium. This section tries to achieve the objective of determining whether the effect of WCM and its components effect on profitability hold separately for small and medium companies. Table 14 contains the results obtained by

estimating the relationship between ROE and WCM components of small and medium companies. The panel data regression used is as follows:

$$ROA_{it} = \alpha_{0} + \beta_1 WCC + \beta_2 COAGE + \beta_3 COSIZE + \beta_4 LEV + \beta_5 ATAN + \beta_6 LIQ + \beta_7 SFIN + \beta_8 WCREQ + \beta_9 GWCAP + \beta_{11} INDUST + \beta_{12} BSIZE + \beta_{13} NEDS + \beta_{14} CEOAGE + \beta_{15} CEOTURN + \beta_{16} DREM + \beta_{17} SME + \mu_i + \lambda_t + \varepsilon_{it}$$

Where ROA refers to the measure of financial performance, WCC refers to WCM components as measured by IHP, ARP, APP and CCC. COAGE, COSIZE, LEV, ATAN, LIQ, SFIN, WCREQ, GWCAP and INDUST refer to company age, company size, financial leverage, asset tangibility, liquidity ratio, short-term financing, working capital requirement, gross working capital efficiency and industry classification. BSIZE, NEDS, CEOAGE, CEOTURN and DREM refer to board size, proportion of non-executive directors, CEO age, CEO tenure and directors' remuneration. SME is a dummy variable which is defined as "0" if the company is small and "1" if the company is medium. The subscript i denotes the nth company (i = 1,... 160), and the subscript t denotes the tth year (t=1,...6). μ_i is the unobservable heterogeneity (individual effects) which is specific for each firm, λ_t is the parameters of time dummy variables and ε_{it} is the error term.

7.3.1 Empirical Results

7.3.1.1 Inventory holding period

The adjusted R^2 is 17.52 per cent in model 1 of table 14. The coefficient of inventory holding period is negatively related to ROA at the 1 per cent level of significance. This means that the management of inventory holding period affect the profitability of AIM listed small and medium companies' seperately. The magnitude of the coefficient is -0.0399), which suggests that a one day decrease in inventory holding period will cause a corresponding increase of 4 per cent in ROA of AIM listed small and medium companies. The results indicate that the effect of inventory holding period is important for both small and medium companies. The significantly negative association between inventory holding period and ROA suggests that keeping inventory in stock for longer hurt the profitability of both small and medium companies.

7.3.1.2 Accounts receivable period

The results from module 2 of table 14 show an adjusted R^2 of 17.03 per cent. The coefficient of accounts receivable period is negatively related to ROA at the 1 per cent level of significance. This means that the management of accounts receivable period affect profitability of AIM listed small and medium companies. The magnitude of the coefficient is (-0.0371), which suggests that a one day reduction in the accounts receivable period will result in a corresponding increase of 3.71 per cent in profitability of AIM listed small and medium companies. The results indicate that accounts receivable period is important to both AIM listed small and medium companies. The significantly negative association between accounts receivable period

Table 14: Random Effect Regression Results of the Impact of WCM on Profitability (ROA) of small and medium companies

Regression Models	**(1)**	**(2)**	**(3)**	**(4)**
INDEPENDENT VARIABLES	ROA (with robust S.E)	ROA (with robust S.E)	ROA (with robust S.E)	ROA (with robust S.E)
Adjusted R^2 Overall	0.1752	0.1703	0.1860	0.1667
No. of Observation				
Working Capital Management Variables				
Constant	5.538633(0.69)	6.986636(0.83)	6.85118(0.77)	6.657279()
IHP	-.039932(-2.78)***			
ARP		-.0370873(-3.41)***		
APP			-.0619194(-3.95)***	
CCC				-.0069809(-0.78)
Corporate Governance Variables				
BSIZE	-1.269641(-4.15)***	-1.21245(-3.65)***	-1.435539(-4.57)***	-1.28613(-4.20)***
CEOAGE	.2688681(2.82)***	.2585278(2.78)***	.2611128(2.65)***	.2588088(2.74)***
CEOTURN	.197756(1.95)**	.2070236(2.07)**	.172292(2.78)**	.2177624(2.19)**
NEDs	-.0324262(-0.75)	-.0447841(-1.01)	-.0453377(-1.10)	-.0399147(-0.96)
DREM	-1.330126(-2.65)***	-1.330228(-2.45)***	-1.237545(-2.37)***	-1.350522(-2.61)***
Company Characteristics Variables				

COAGE	.132914(7.15)***	.1420944(5.76)***	.1241546(5.48)***	.1385889(6.54)***
COSIZE	1.025026(1.61)*	.9840804(1.78)*	1.074243(1.70)*	.74352(1.63)*
ATAN	-30.46388(-7.06)***	-30.75502(-6.88)***	-28.92341(-7.56)***	-31.28205(-7.21)***
LEV	-.0315672(-1.34)	-.0319841(-1.39)	-.0314877(-1.45)	-.0316463(-1.34)
LIQ	-.3111293(-0.71)	-.2475558(-0.62)	-.0179134(-0.05)	-.2789107(-0.66)
SFIN	-1.87993(-0.56)	-1.815316(-0.53)	.2797186(0.08)	-1.908127(-0.55)
WCREQ	-25.97252(-7.05)***	-26.65596(-6.95)***	-27.655(-7.41)***	-26.38811(-6.93)***
GWCAP	2.854228(3.51)***	3.124069(3.89)***	2.680371(3.30)***	3.43146(4.39)***
SME	9.338218(4.69)***	9.193357(4.14)***	8.547352(4.36)***	9.489213(4.51)***
INDUST				
Software and Communications	.6776764(0.40)	1.651749(1.00)	1.219395(0.82)	1.449189(0.86)
Food and Pharmaceuticals	-2.638131(-0.90)	-3.264441(-1.30)	-1.850166(-0.67)	-3.105644(-1.20)
Support Services	5.794196(2.18)**	5.576816(2.02)**	5.438581(2.09)**	5.41151(2.01)**
Household and Personal Goods	.8823808(0.34)	.8545921(0.30)	.94694(0.34)	.9358864(0.35)
Electronic and Equipment	-1.542645(-0.92)	-2.894832(-2.11)**	-1.893852(-2.52)**	-2.335563(-1.65)*

Notes: Coefficients are in front of parentheses. ***Significant at 0.01 level; **Significant at 0.05 level; *Significant at 0.10 level, t-statistics are in parentheses. Variables are defined as follows: return on asset (ROA), inventory holding period (IHP), accounts receivable period (ARP), accounts payable period (APP), cash conversion cycle (CCC), board size (BSIZE), CEO age (CEOAGE), CEO tenure (CEOTEN), proportion of non-executive directors (NEDS), directors remuneration (DREM), company size (COSIZE), company age (COAGE), asset tangibility (ATAN), financial leverage (LEV), liquidity ratio (LIQ), short-term financing (SFIN), working capital requirement (WCREQ), gross working capital (GWCAP), small and medium enterprise (SME) introduced as a dummy variable to indicate "0" if a company is small and "1" if a company is medium.

and ROA suggests that allowing customers a lengthy credit period hurt the profitability of both small and medium companies.

7.3.1.3 Accounts payable period

The adjusted R^2 of model 3 of table 14 is 18.6 per cent. The coefficient of the accounts payable period in association with ROA is (-0.0619) for both small and medium companies. The relationship between accounts payable period and profitability is significant at the 1 per cent level. Therefore, a one day reduction in accounts payable period will result in an increase of 6.19 per cent in profitability for AIM listed small and medium companies. This means that the management of accounts payable period affect the profitability of both small and medium companies listed on the AIM.

7.3.1.4 Cash conversion cycle

The model (4 of table 14) has an adjusted R^2 of 16.67 per cent. The coefficient of cash conversion cycle is (-0.0669), which indicates that a one day reduction in cash conversion cycle will result in a 0.07 per cent increase in profitability. However, the relationship between cash conversion cycle and ROA is not significant for AIM listed small and medium companies.

7.3.1.5 Control Variables

7.3.1.5.1 Corporate governance

Board size is negative and significantly associated with profitability at the 1 per cent level in all four models. This means that the reduction in size of the board of companies will improve the profitability of both small and medium companies. The coefficient of CEO age is positive and significantly related to profitability at the 1 per cent level in all four models. This suggests that an older CEO will enhance the profitability of medium and small companies. The relationship between CEO tenure and profitability is positive at the 5 per cent level of significance in all four models. This means that the length of service of the CEO has influence on the profitability of both small and medium companies. The coefficient of the proportion of non-executive directors in relation to profitability is negative but insignificant under all four models. This indicates that the proportion of non-executive directors present on the boards of small and medium companies does not make any difference to their profitability. The relationship between directors' remuneration and profitability is negative and significant at the 1 per cent level in all four models. These results show that higher payment to directors reduces the profitability of both small and medium companies.

7.3.1.5.2 Company characteristics

The coefficient of company age is positive and significant at the 1 per cent level in all four models. These results show that age affects the profitability of both small and medium AIM companies. Company size is positively related to profitability at the 10 per cent level in all four models. This indicates that bigger companies have higher profitability. Asset tangibility is negative and significantly related to profitability at the

1 per cent level in all four models. This means that small and medium AIM companies with more tangible assets will have lower profitability. The coefficient of financial leverage is negative but insignificant in all four models. The coefficient of liquidity ratio is negative in all four models; however, the relationship is insignificant. The relationship between short-term financing and profitability is negative but insignificant in all four models. The coefficient of working capital requirement is negative and significant at the 1 per cent level in all four models, which indicates that a reduction in the working capital requirement will lead to an increase in profitability. The relationship between gross working capital efficiency and profitability is positive and significant at the 1 per cent significant level in all four models, indicating that changes in the gross working capital efficiency of AIM listed small and medium companies affect their profitabilty. The results also indicate that industry classification affects the profitability of AIM listed small and medium companies.

7.3.1.5.3 SME Variable

The SME variable is introduced in the model as a dummy variable to indicate “0” if a company is small and “1” if a company is medium. The result in model 1 of table 14 shows that SME has a coefficient of 9.338, which is positive and significant at the 1 per cent level. In model 2 the coefficient of SME is 9.193 and significant at the 1 per cent level. The variable SME in model 3 has a coefficient of 8.547 and is significant also at the 1 per cent level. Lastly, model 4 of table 14 shows that the variable SME has a coefficient of 9.489, which is significant at the 1 per cent level. The results show that

WCM has an influence separately on the profitability of AIM listed small and medium companies.

8.7 CONCLUSIONS

This chapter has examined the robustness of the empirical results of the study presented in chapter six. Specifically, the main aim of the chapter has been to ascertain the extent to which the results reported in chapter six are rebust to alternative empirical estimations.

First, the relationship between WCM and its components and profitability of AIM listed SMEs were re-estimated by using ROE as the measure of profitability. The aim is to determine if WCM effect on AIM listed SME profitability hold for alternative measures of profitability. The results based on ROE as a measure of profitability remain generally unchanged from that reported in chapter six. Consistent with the results reported in chapter six, the findings from the ROE model suggest that the relationships between WCM components of inventory holding period, accounts receivable period and accounts payable period and ROE are negative and significant at the 1 per cent level. As with the results reported in chapter six, the ROE results confirms an insignificant relationship between cash conversion cycle and AIM listed SMEs profitability.

Second, whether WCM influences the profitability separately for small and medium companies was expored by introducing a dummy variable “SME” and re-estimating the

regression model. The findings confirm the results obtained in chapter six that suggested significant relationsip between all three WCM components and AIM listed profitability. Specifically, the results support the earlier findings that found that inventory holding period, accounts receivable period and accounts payable period are negatively associated with AIM listed SMEs profitability at the 1 per cent level of significance. Also, the results further confirm that cash conversion cycle relationship with AIM listed SME profitability differs between small and medium companies.

CHAPTER EIGHT

QUALITATIVE DATA AND RESULTS

8.1 INTRODUCTION

This chapter describes the questionnaire survey procedure and results. The questionnaire survey was undertaken with the sole purpose of finding evidence to corroborate or refute the findings of the quantitative data results. The results from the questionnaire survey analysis will help to unearth whether Working Capital Management (WCM) is as important or otherwise to AIM listed SME companies as suggested by the quantitative data analysis in chapter six above. The questionnaire survey will bring to light the detailed mechanisms employed by AIM listed SME companies since these internal practices are not available from their published financial information. The rest of the chapter is divided as follows: Section 8.2 explains the primary data gathering procedure and statistical analyses used. Section 8.3 reports the T-test, one-way ANOVA and post hoc test results on WCM practices of SMEs listed on the AIM. Section 8.4 tries to contrast the results from both the quantitative data analysis and questionnaire survey. Finally section 8.5 concludes the chapter.

8.2 QUESTIONNIARE SURVEY DESIGN AND METHODOLOGY

A questionnaire survey was carried out in order to assess whether it corroborates or refutes the quantitative data results. It was necessary to undertake the survey because

what is found from quantitative data may be contrary to what financial directors actually think. This section describes the research design and methodology involved.

8.2.1 Data Collection Method

This section explains the data collection process including the sampling frame and survey procedures, the respondents involved and measures employed to increase the response rates.

8.2.1.1 Sampling Frame and Survey Procedure

The study employed a two-stage approach to the questionnaire survey. Collis and Hussey (2009) define a questionnaire as *"a method for collection primary data in which a sample of respondents are asked a list of carefully structured questions chosen after considerable testing, with a view to eliciting reliable responses"*. The first part involved a pilot study, which was carried out in February 2011. For the purpose of the pilot study, questionnaires were distributed to a sample of twenty-five financial directors of AIM listed SMEs. This helped to assess the validity and understandability of the questionnaire. Based on the suggestions and comments received the questionnaire was amended (see Appendix 10). Following the amendments to the questionnaire after the pilot study, the main survey was conducted between June and July 2012. The target was the whole population of AIM listed non-financial SMEs of 250 companies. The whole population was chosen due to the following reasons: (1) the whole population of AIM listed SMEs is known, which makes it possible to conduct such a test. (2) the population

of AIM listed SMEs is not marginally large and (3) the cost, labour and time constraints are relatively insignificant. 72 (29.03%) useable responses were received and analysed. The response rate is considerably good in terms of surveys undertaken on SMEs. Perhaps, the good response rate is due to the strategies employed such as the appearance of the questionnaire and the follow up.

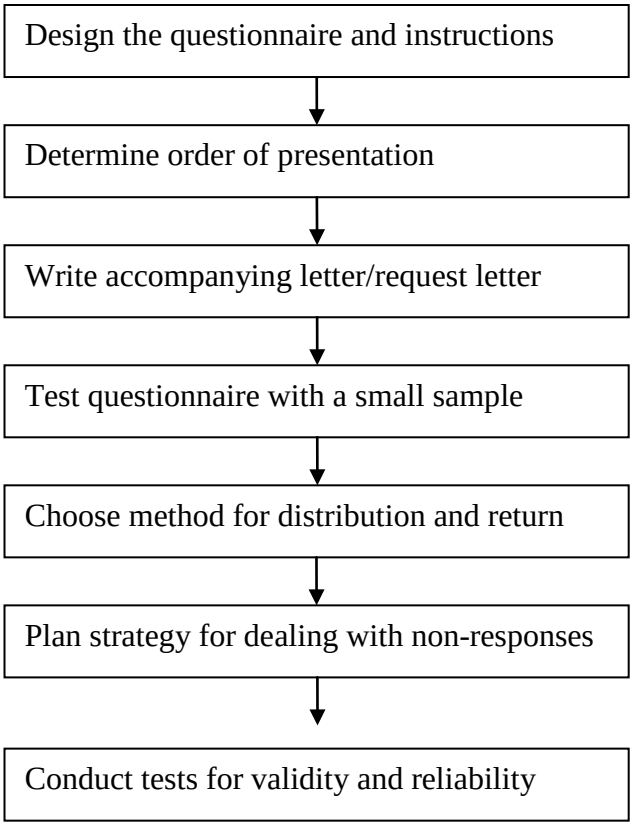
Mail questionnaires, particularly on SMEs have always received a low response rate and for that matter around 30 per cent is deemed acceptable (Bryman and Bell 2003, p.144; Sekaran 2000, p.250; Das Gupta 2008). Bryman and Bell (2007) argue that there are a number of weaknesses of using questionnaires rather than interviews including: the tendency to use closed questions as open questions are more difficult and time consuming to complete and that respondents might be unwilling to answer them. However, according to Spicer and Lundstedt (1976), the strength in using questionnaires is that it evokes honest responses and also brings out a valid indirect measure of behaviour. In summary, and notwithstanding the weaknesses, there are advantages that overwhelm the disadvantages of using mail questionnaire, including: cheaper and quicker administration, absence of the interviewer effects, high anonymity, access to wide respondents etc.

8.2.1.2 The Respondents

A carefully drafted questionnaire with self-addressed envelopes was posted to the registered main business office address of each company with the financial directors as

addressees. A covering letter which accompanied the questionnaires introduced the researcher and explained the purpose for such a research. Respondents were given a 60 day period as the duration by which they were supposed to return answered questionnaires in the self-addressed envelopes. In agreement with Collis and Hussey

Table 15: Steps Involved in Designing a Questionnaire



Collis and Hussey (2009)

(2009), this primary survey followed the established main steps involved in designing a questionnaire as summarized in table 15.

8.2.1.3 Measures to Increase Response Rates

It has been frequently found that research that uses postal surveys faces lower response rates than the other more direct methods. Usually, the general response rates from mailing surveys on SMEs are lower (Sainidis *et al.* 2001; De Saulles, 2008; Bates, 1995). Due to this deficiency in mail survey, the following measures have been taken in order to attempt to increase the response rates.

8.2.1.3.1 Questionnaire Return Time Period

In order to ascertain the quality of results and responses from respondents, the survey questionnaires were disseminated during the less busy time of the tax year. In the UK, companies are required to file for their tax returns by the 19th of May of every year, therefore, a period after the tax year was chosen. Also, respondents were given a whole two months in which to fill and return questionnaires, which gave respondents an ample time period.

8.2.1.3.2 The Questionnaire Booklet Appearance

To boost respondents' appetite of filling the questionnaire, the front page of the survey was printed in colour (refer to Appendix 11- the cover letter). The questionnaires were also printed in high quality style to ensure a clear layout so that respondents would understand that a professional research was been undertaken. Also, in order to increase the validity of the research so as to obtain honest and valid responses from respondents, the logo of the Bournemouth University was printed on the cover letter.

8.2.1.3.3 Extra Measures

In addition to the timing and booklet appearance, the following steps were also employed in order to boost the response rate.

- Stamped, addressed, return envelopes were supplied to ensure no cost (apart from respondents' time) was associated with completing the questionnaire
- After the expiry of the questionnaire return date a follow up email was made to remind respondents.
- The content of the questionnaire was as precise as possible to allow respondents to complete them in approximately 15 minutes at most.

8.2.2 Questionnaire Design, Variables Development and Measurement

This section will describe how the questionnaire and variables were developed and the measurements used. The questionnaire was designed with the sole purpose of gathering information on the WCM practices of AIM listed SME companies. This information was necessary to determine the importance of WCM to AIM listed SMEs profitability. To be able to capture such information, a five point likert scale questionnaire was used. Also, open-ended questions were asked in an attempt to seek the views of respondents in order to enrich the results from the questionnaire. The three-page SME questionnaire was divided into three sections as shown in Appendix 12.

8.2.2.1 Section A – General Background Hypothetical Questions

This section contained 6 hypothetical questions which sought to obtain information about the SME companies and their respective personnel in charge of WCM. First, respondents were asked to indicate their positions in the company. Response from this instrument will be used to determine the types of personnel responsible for managing the WCM affairs of sampled companies. Second, respondents were asked to specify their highest educational qualification. Response from this instrument is used to establish the educational qualification of managers of AIM listed SMEs WCM. Third, respondents were asked about their experience in their current position. Response from this question will be utilised in determining the relative experiences of those entrusted with managing the WC of AIM listed SMEs. Fourth, respondents were asked to show the industry in which their company operates in. Answers from this instrument will be used to indicate the differences in the WCM practices within industries.

8.2.2.2 Section B – General Constraints to WCM Practices

This section consisted of three hypothetical questions on the general constraints to effective WCM practices. The first question asked respondents to indicate whether they sometimes have to prioritise which component of WCM to manage effectively due to resources constraint. The response from this question will be used to determine if effective WCM is curtailed by lack of resources. The second question asked respondents to indicate in a ranking order which WCM component does the company gives much priority. Response from this instrument will be used to determine the priority given to each component of WCM of AIM listed SMEs. The last question asked

respondents to specify on a five-likert scale the extent to which technology, expertise, money and time act as a constraint to an effective WCM. Response from this instrument will be used to indicate the most inhibiting factor to effective WCM.

8.2.2.3 Section C – Importance of WCM Components to Profitability

This section contained 16 closed ended questions and 4 open ended questions. The first set of four questions asked respondents to indicate the importance of each of the four components of WCM to AIM listed SME companies' profitability. The second set of four questions asked respondents to show whether their companies set specific level of each component of WCM. The third set of four questions asked respondents to indicate how often their companies alter each component of WCM. The last four set of questions asked respondents to specify how increases in each component of WCM affect profitability. The four open ended questions asked respondents to give their own opinion as to how each component of WCM affect profitability.

8.2.3 Internal Validity (Reliability) Test

The validity and reliability are the most important criterion of research which is concerned with the integrity of the conclusions that are generated from a piece of research (Bryman and Bell 2007). In this research, the Cronbach's alpha is used to test for the internal validity. Internal validity is concerned with the question as to whether a conclusion that incorporates a casual relationship between two or more variables holds water (Bryman and Bell 2007). The Cronbach's coefficient alpha internal consistency

reliability measure is seen to represent a more efficient way of assessing reliability. Cronbach's coefficient alpha internal consistency reliability attempts to measure with accuracy how well a set of items (variables) measure the construct being studied. According to Sekaran (2000), it tries to answer "*to what extent does the research design permit the researcher to conclude that the independent variable A causes a change in the dependent variable B*". For example, in this research the Cronbach' alpha test how well the WCM scale items developed for the assessment of AIM listed SMEs profitability measures what it is intended to measure with a good degree of accuracy. The formula for the Cronbach's coefficient alpha internal consistency reliability measure is given as:

$$\alpha = \frac{n}{n-1}\left(1 - \frac{\Sigma Vi}{Vtest}\right)$$

Where:

- n = number of questions
- Vi = variance of scores on each question
- Vtest = total variance of overall scores (not %'s) on the entire test

The central aim of using the Cronbach's coefficient alpha internal consistency is to help achieve high alpha (correlation and reliability) scores. As a general rule the higher the correlation coefficient of the Cronbach's alpha coefficient, the higher the internal consistency of the test. The acceptable range for Cronbach's alpha coefficient internal consistency is usually between 0.7 – 1 (Hair et al. 2006). However, the Cronbach's coefficient alpha may decrease to 0.6 in exploratory research (Hair et al. 2006).

Table 16: Description of Questionnaire Instruments

Variables	Description
Qualification	Qualifications of WCM managers divided into five groups: high school, bachelor, master, professional and PhD
Work experience	The number of years of experience in the current position divided into five groups: 0-5, 6-10, 11-15, 16-20, 21-25
WCM priority	Whether companies have to give priority to a particular WCM component because of resources constraint involving a no and yes
WCM component ranking	The importance each company attach to each component of WCM in times of limited resources
Technology	Technology constraint to WCM
Expertise	Expertise constraint to WCM
Money	Money constraint to WCM
Time	Time constraint to WCM
WCM components importance to profitability	The relative importance of each WCM component to profitability
WCM components target	Whether companies set a specific target for each component of WCM
WCM components alteration	The frequency at which companies alter each component of WCM
WCM components strategy	Whether companies pursue either a aggressive or conservative strategy for each component of WCM.

Therefore, this research data will be subjected to statistical test using Cronbach's alpha through Stata. Table 16 gives a description of the variables employed.

8.2.4 Methods of Research Statistical Analysis and Measurement

According to Proctor (1997), statistical analysis is undertaken to identify patterns that are not as easy to see in the data. This research is therefore developed to focus on using appropriate tools in providing answers to the research question:

8.2.4.1 Data Analysis Technique

Univariate analysis of descriptive statistics, bivariate analysis in the form of t-test, one-way analysis of variance (ANOVA) and post hoc test (Turkey) were used to analyse the working capital management practices of AIM listed SME companies. These techniques selected were consistent with the research aims and objectives, characteristics of the data and properties of the statistical techniques (Malhotra and Birks 1999). The methodological issues and assumptions of each technique are discussed in the next sub-sections.

8.2.4.1.1 Univariate Analysis

Univariate analysis refers to analyses in which there is a single variable without reference to other variables (Tabachnick and Fidell 2001). In this research, univariate

descriptive statistics were used to provide a description of the qualification levels, work experience, industry classification and positions of respondents.

8.2.4.1.1.1 T-Test

There are two types of t-test including the independent means t-test and dependent means t-test (Field 2005). The independent t-test is used when two participants are each assigned to a different condition, whilst the dependent t-test is employed when two participants are subjected to the same conditions. Here, the dependent t-test was utilised because all participants (managers) answered the same questions.

8.2.4.1.1.2 One-Way ANOVA

One-way ANOVA is used to measure the statistical variation between two economic variables (Quartey 2003). According to Zikmund (2003), analysis of variance is "*the investigation of the effects of one treatment variable on an interval-scaled dependent variable; a hypothesis-testing technique to determine whether statistically significant differences in means occur between two or more groups*". As argued by Malhotra et al (1999), ANOVA is by far the most flexible and widely used technique of quantitative analysis. One-way ANOVA is specifically chosen as a statistical methodology to compare the differences in mean values of the instruments because they are being measured on an interval scale. The advantages of using ANOVA accrue from the following. Firstly, it shows whether the means of two groups differ in some way

although it does not tell which way those means differ. To determine that, it is necessary to compare two means at a time. Secondly, it provides a more sensitive test of a factor where the error term may be reduced (Cramer and Howitt 2004). The key statistic in one-way ANOVA is the variance ratio (F), testing if the means of the groups formed by values of the independent variables are different enough not to have occurred by chance. The F-ratio is based on the differences between two estimates of variance. The larger the F-ratio, the bigger are the differences between the means of the groups making up a factor in relation to the differences within the groups and the more likely it is to be statistically significant (Cramer and Howitt 2004). On the other hand, if the group means do not differ considerably, then it is assumed that the independent variables did not have an effect on the dependent variable. The test statistic is the usual F-test defined as:

- $$Fcal = \frac{\text{Between Groups Mean Squares (MSG)}}{\text{Within Groups Mean Square (MSW)}}$$

Where k-1 is numerator degrees of freedom and n-k is denominator degrees of freedom. The decision rule is to reject the null hypothesis (Ho) if Fcal > Ftable, that is, reject Ho if MSG/MSW > F k-1, n-k, α, or otherwise accept Ho.

8.2.4.1.1.3 Post-hoc procedure

Whilst the ANOVA procedure provides a method of rejecting the null hypothesis and accepting the alternative hypothesis that groups' means are not equal, it does not pinpoint exactly where the significant difference lies if there are more than two groups

(Field 2005). In order to ascertain whether the means of the different groups that integrate each of the variables are significantly different, the pairwise multiple comparisons post hoc tests is used. There are a number of post hoc tests, however, there is no clear consensus about which tests are the most appropriate to use (Cramer and Howitt 2004). In this research, the post hoc test of Tukey's Honestly Significant Difference (HSD) is used.

8.3 QUESTIONNAIRE SURVEY RESULTS

8.3.1 Survey Distribution and Response Rates

The survey questionnaire was distributed to 248 AIM listed SME companies. The initial plan was to distribute the survey questionnaire to all the 250 non-financial SME companies listed on the AIM, however, at the time of the questionnaire distribution 2 of the companies had ceased business. Therefore, the survey questionnaire was sent to 248 AIM listed SME companies. Out of the 248 questionnaires, 7 were returned uncompleted. Therefore, out of the 79 survey questionnaires returned, 72 questionnaires, representing 29.03 per cent of the total sample were usable and therefore could be further analysed. Although the response rate was low, it was comparable to similar studies involving questionnaire survey of SMEs (Sainidis *et al.* 2001; De Saulles 2008; Bates 1995) who reported response rates of 10.6 per cent, 14.4 per cent and 19 per cent respectively.

8.3.1.1 Background of Respondents

This section describes respondents' demographics including qualification levels, work experience, industry classification and position (see questions one, two, three and six of the questionnaire in Appendix 12). The highest educational level of the respondents was professional qualification with 58%, followed by master's degree with 28% and then the last qualification of respondents was bachelor's degree with 18%. However, there were no respondents with either high school or PhD qualification.

The work experience of the respondents was grouped under five categories: 0-5, 6-10, 11-15, 16-20 and 21-25 years. The upper limit of 25 years means that the maximum years of work experience of respondents was 25 years. The respondents with work experience ranging between 0 and 5 years had the highest frequency of 34 (47.22%); this was followed by respondents with work experience between 6 and 10 years with a frequency of 25 (34.72%). Respondents with work experience of between 11 and 15 came third with a frequency of 5 (6.94%). Respondents with work experience of between 16-20 and 21-25 all achieved the same frequency tally of 4 (5.55%) each. These findings suggest that AIM listed SME companies have a very high WCM managers turnover given that the majority of them have been with their companies for at most five years.

With regard to the positions occupied by respondents within their companies, a total of 54 (75%) of respondents were the Chief Financial Officer of their companies, 4 (5.5%) were accountants, 2 (2.7%) were treasury managers, 9 (12.5%) were directors, whilst

the rest of 3 (4.2%) were company secretaries. This finding contradicts the study by Solanki (2009), which found that working capital personnel are mostly the owners of SMEs themselves. The differences in results can be deduced from the fact that whilst Solanki's study concentrated primarily on unlisted SMEs, this present study focuses on SMEs listed on AIM. Also a research by Agyei-Mensah (2010) in contradictory to this study found results which suggested that SMEs lack qualified accounting staff. He noted that 60% of the SMEs in his sample had heads of finance department with little or no accounting background. However, this difference is expected given that whilst he researched in developing countries, this research is based on companies in developed country – UK.

In terms of the industry classification, a total of 43 responding companies representing 59.7% were in the service industry, the second industry with the highest respondents was manufacturing/construction industry with total respondents of 22, representing 30.5%. Agriculture/mining industry achieved the third highest number with 4 respondents representing 5.5%, followed by retail/wholesale industry with a total number of 3 respondents, representing 4.1%. The dominance of service sector companies is evident in a similar survey in the UK by Cosh and Hughes (2003), which also reported a large number of companies in the service sector.

8.3.1.2 Internal Validity (Reliability Test)

The Cronbach's coefficient alpha internal consistency measure is used for reliability test. The use of Cronbach's alpha is based on the fact that it is seen to represent a more efficient way of assessing reliability (Pavot et al. 1991). The Cronbach's alpha will help to answer the question as to what extent do the tests and/or procedures measure the same construct in the study with precision. A high internal validity facilitates a better argument that a relationship is causal whilst a low internal validity indicates less valid results (Sekaran 2000). The 12-item scale reliability test outcome shows a high reliability of 7.471 in a scale of 1 to 10.

Also, the assessment of the reliability of individual items in the scale gives different results. The results indicate that the value of Cronbach's alpha for 9 out of the 12 constructs were more than 7, whilst the other three remaining constructs were more than 6 (see Appendix 13). This suggest that the instruments used were valid and of a high degree of reliability.

8.3.1.3 Constraint to Effect Working Capital Management

Question 9 of the questionnaire asked respondents to indicate on a scale from 1 to 5 the extent to which the following four factors: technology, expertise, money and time act as a constraint to effective WCM. According to Nyamao et al (2012), lack of proper management of working capital is credited as one of the main causes of SME failure.

The result indicates that technology does not in any way act as a constraint to effective WCM. This is because about 63.88 per cent of the respondents disagreed that technology was a constraint to effective WCM. The percentage of respondents that agreed to the fact that technology was a constraint to effective WCM was only 13.88 per cent. This result was anticipated because the sample companies are all trading on the AIM, which is situated in a developed country where technology abounds.

On the question of whether expertise acts as a constraint to effective WCM, 29.16 per cent strongly disagreed that expertise was a constraint to effective WCM, 13.88 per cent disagreed, 43.05 per cent neither agreed nor disagreed, 11.11 per cent agreed, whilst only 2.77 per cent strongly agreed. The above analysis indicates that expertise is not a major constraint to WCM of AIM listed SME companies. The explanation for the unconstraint effect of expertise is that the sample companies are all listed on a stock exchange where demand for high calibre personnel is high.

Respondents were asked to show how money acts as a constraint to effective WCM. 25 per cent of respondents strongly disagreed to the statement that money is a constraint, 22.22 per cent showed a disagreement to the fact that money act as a constraint, 19.44 per cent neither agreed nor disagreed that money was a constraint, 18.05 of the respondents agreed, whilst 15.27 strongly agreed that money was a constraint to an effective WCM. Given that about one-third (33.32%) of the respondents agreed or strongly agreed that money was a constraint to an effective WCM, it can therefore be

concluded that money hamper the effective management of working capital of AIM listed SME companies.

Finally, respondents were asked to indicate the extent to which time act as a constraint to an effective WCM. 23.61 per cent of respondents strongly disagreed to the fact that time act as a constraint, only 8.33 disagreed, 29.16 neither agreed nor disagreed, 30.55 agreed, whilst 8.33 also strongly agreed. With 38.8 per cent of respondents either agreeing or strongly agreeing, this analysis shows that time act as a constraint to an effective WCM of AIM listed SME companies.

Overall, it can be concluded that time is the most constrained factor to effective WCM, followed by money, then expertise and finally technology.

8.3.1.4 T-Test – Working Capital Priority

Question 7 of the questionnaire asked respondents to indicate whether they sometimes have to prioritise which component of WCM to manage because of resources constraint. Table 17 contains the t-test results of priority given to WCM components based on educational level and work experience. 44 (61.1%) of respondents indicated that they sometimes had to prioritise which component of WCM to manage because of resources constraint, as against 28 (38.9%) respondents who indicated that they did not need to prioritise which component of WCM to manage because of resources constraint. These results indicate that many AIM listed SME companies are unable to effectively manage

WCM as a whole (Peel and Wilson 1996). This finding is consistent with a research by Atrill (2006) that found that SMEs often lack the resources to manage their WCM effectively.

8.3.1.4.1 Educational Level

The t-test results of whether companies give priority to WCM components based on the educational level is contained in table 17. This analysis tries to investigate if possessing a higher level of educational qualification could influence whether or not priority is given to some of the WCM components. It is believed that a higher level of education will reduce the magnitude of constraints that negate against effective WCM and therefore there will be no need to pay particular attention to selected WCM components.

Table 17: Mean Different Between Variables (T-Test)

Independent/Dependent Variable	**Mean**	**SD**	**t**
Educational level			2.2098**
No	3.821429	.547964	
Yes	3.454545	.7611052	
Current work experience			0.7497
No	2	1.360828	
Yes	1.886364	1.145586	

**** significant at p < 0.05**

The results from table 17 show that there is significant difference between whether a company prioritise WCM components or not based on the educational level of managers in charge of WCM with a $t = 2.2098$, $p < 0.05$. Managers who indicated that they do not prioritise which component of WCM to manage because of resources constraint had a mean of 3.821429 (SD = 0.547964) compared to a mean of 3.454545 (0.7611052) to those managers that indicated that they do prioritise which WCM component to concentrate.

8.3.1.4.2 Work Experience

The t-test results of whether companies give priority to WCM components based on the work experience of WCM managers is found in table 17. This analysis tries to investigate if having more years of working experience could influence whether or not priority is given to some of the WCM components. It is also believed that more years of working experience will lead to the elimination of WCM constraints, which will avoid the need to prioritise which WCM component to give much attention. Table 17 reveals that there was no significant mean difference between work experience and whether a company prioritises WCM components or not with $t = 0.3812$, $p = >0.05$. Managers who indicated that they do not prioritise which component of WC to manage because of resources constraint had a mean of 2 (SD = 1.360828) compared to a mean of 1.886364 (SD = 1.145586) to those managers that indicated that they do prioritise which WCM component to concentrate.

8.3.2 One-Way Avova, Post Hoc Test (Tukey)

8.3.2.1 Education Level and WCM Priority

Question 2 of the questionnaire asked respondents to indicate their highest level of education or nearest equivalent. The ANOVA results of whether companies give priority to which component of WCM to manage based on the educational level of their managers is found in table 18. In general, the ANOVA suggested that there are

Table 18: One-Way ANOVA and Post Hoc Test (Turkey) – Education and Work Experience

	WCM Priority		
Independent variable	**mean**	**SD**	**F**
Educational level			3.721**
Bachelor	.7778	.44096	
Masters	.9091	.30151##	
Professionals	.5192	.50450##	
Current work experience			3.154**
0-5	.6000	.49705	
6-10	.6000	.50000	
11-15	1.0000	.00000##	
16-20	1.0000	.00000##	
21 over	.0000	.00000##	

****** Significant at p <0.05

Tukey post hoc test, p < 0.05

significant difference between individual managers educational level and whether priority is given to some components of WCM over the others with $F = 3.721$, $p < 0.05$. A research by (HM Treasury 2000) supported the view that proportions of differences in productivity are accounted for by differences in education.

The mean score of each educational level shows some interesting patterns. The results indicate that managers with master's degree have the highest score at 0.9091, followed by those holding bachelor degrees with a mean score of 0.7778, whilst professionally qualified WCM managers came last with a mean score of 0.5192. This pattern reveals that AIM listed SME companies whose WCM managers have professional qualification are the least to prioritise which component of WCM to manage. This result means that managers with higher qualification have the ability and competence to manage all components of WCM. A study by Haskel and Hawkes (2003) showed that top performers in UK hired workers with, on average, an extra qualification level compared to the lower profitable ones. One surprise is the fact that managers with master's degree are more likely to prioritise which component of WCM to manage than those possessing bachelor's degree. Overall, the results imply that managers with professional qualification are more competent and therefore able to manage all components, followed by managers with bachelor's degree and the last is managers having master's degree, who are less competent and therefore prioritise which component of WCM to

concentrate on. Therefore, it can be said that educational level of managers plays an important role in the management of WCM components.

Post hoc test show that managers possessing master's degree were statistically different from managers holding professional qualification at the 5 per cent level. However, there was no difference between managers with bachelor's degree and that of managers with either master's degree or professional qualification.

8.3.2.2 Work Experience and WCM Priority

Question 3 of the questionnaire asked respondents to indicate their years of work experience. The ANOVA results of the WCM priority based on the years of work experience is outlined in table 18. The results show that there was a significant difference between the priority given to WCM based on the work experience of managers with $F = 3.154$, $p < 0.05$. This means that whether companies have to give special priority to a selected component of WCM is related to the work experience of the responsible manager.

The descriptive statistics results indicate that WCM managers with work experience of 11-15 and 16-20 years have a mean of ($M = 1$, $SD = 0.000$). This outcome reveals that managers with work experience of between 11 and 20 years are the most likely to prioritise which component of WCM to concentrate. The mean score of managers with

current years' experience of 0-5 and 6-10 are (M = 0.6000, SD = 0.49705) and (M = 0.06000, SD = 0.50000) respectively. These findings indicate that managers with work experience of between 0 and 10 years are really undecided when it comes to priority given to WCM. Lastly, those managers with work experience of over 21 years achieved a mean score of (M = 0.000, SD = 0.0000). This result indicates that managers with the highest years of work experience do not give priority to some WCM components. This agrees with literature because many years of work experience should equip a manager (Rynes et al. 1997) to be able to successfully manage all components of WCM. As argued by Dokko et al (2009), work experience has often been treated as proxy for knowledge (Almeida et al. 2003, Huckman and Pisano 2006).

The post hoc test results of whether priority is given to WCM components based on work experience indicate that there was significant difference of whether priority is given to WCM components between managers with 11-15 and over 25 years of work experience of AIM listed SME companies. There is also significant difference of whether priority is given to WCM components between managers with 16-20 and over 25 years of work experience. However, whether priority is given to WCM by managers with 0-5, 6-10 years do not significantly differ from each other.

8.3.2.3 WCM Components and Ranking Order

Table 19: One-Way ANOVA and Post Hoc Test (Turkey) – WCM Components

	Ranking order			Importance			Target level			Alteration			Strategy		
	Mean	SD	F	mean	SD	F	Mean	SD	F	Mean	SD	F	mean	SD	F
IV			16.657*			11.347*			3.495*			.099			11.542*
IHP	1.638	1.025#		2.875	1.6609#		2.250	1.3505#		2.166	.1493		1.708	.1194#	
ARP	2.902	1.164#		4.152	1.2408#		2.930	1.3771#		2.222	.1572		2.652	.1770#	
APP	2.430	.961#		3.875	1.1741#		2.722	1.1894		2.250	.1450		2.763	.1405#	
CCC	2.472	1.209#		3.666	1.4042#		2.583	1.2643		2.152	.1291		2.805	.1685#	

***** Significant at p <0.01 # Tukey post hoc test, p < 0.01

Question 8 of the questionnaire asked respondents to indicate in a ranking order which WCM component they give much attention in cases of limited resources. Table 19 demonstrates the ANOVA results of the ranking order of each component of WCM in case of limited resources. Results suggest that there was a significant difference in the ranking order of WCM components of AIM listed SME companies with $F = 16.657$, $p < 0.01$. The significant result means that in times of limited resources, companies manage components of WCM in a ranking order.

The descriptive statistics results indicate that accounts receivable period has the highest mean score of ($M = 2.9028$, $SD = 1.16474$), followed by cash conversion cycle with a mean score of ($M = 2.4722$, $SD = 1.20996$), then followed by accounts payable period with a mean score of ($M = 2.4306$, 0.96161) and then finally inventory holding period with a mean score of ($M = 1.6389$, $SD = 1.02511$). This pattern reveals that AIM listed SME companies rank accounts receivable period higher than all the other WCM components. The mean score of both the cash conversion cycle and accounts payable period are almost the same, meaning they are ranked by companies almost at par. The results also show that inventory holding period is the least ranked WCM component because it achieved the lowest mean score.

The post hoc test shows that inventory holding period is ranked significantly different from that of accounts receivable period. The results also indicate that inventory holding

period is ranked significantly different from accounts payable period. Inventory holding period is again found to be ranked significantly different from the ranking of the cash conversion cycle. From the post hoc test, accounts receivable period is also found to be ranked significantly different from the ranking of accounts payable period. Accounts receivable period is once again ranked significantly different from the ranking of cash conversion cycle.

8.3.2.4 WCM Components and Importance to Profitability

Questions 10, 14, 18 and 22 of the questionnaire asked respondents to indicate the importance of the management of each of the four components of WCM to profitability. The results of the importance of each component of WCM to profitability of AIM listed SME companies indicate that there are differences in the importance of each component of WCM to profitability with $F = 11.347$, $p < 0.01$ (see table 19). This results specify that managers believe each component of WCM contribute to profitability differently.

According to the descriptive statistics, accounts receivable period achieved the highest mean score of ($M = 4.1528$, $SD = 1.24085$), followed by accounts payable period with a mean score of ($M = 3.8750$, $SD = 1.17410$), then followed by cash conversion cycle with a mean score of ($M = 3.6667$, $SD = 1.40422$) and then lastly inventory holding period with a mean score of ($M = 2.8750$, $SD = 1.66096$). The mean scores of the WCM components reveal that accounts receivable period is perceived as the most important

WCM component that enhances profitability. Once again, both accounts payable period and cash conversion cycle achieved almost the same mean scores, which indicate that managers perceive these two WCM components to have almost the same impact on profitability of AIM listed SME companies. Inventory holding period achieved the lowest mean score and is therefore considered to be the least important WCM component to affect profitability of AIM listed SME companies.

Post hoc comparisons using the Tukey HSD test indicates that the importance of the inventory holding period management to profitability was significantly different from the accounts receivable period management. Also, inventory holding period management importance to profitability is significantly different from the accounts payable period management. The importance of inventory holding period management to profitability was also found to be significantly different from the importance of cash conversion cycle management to profitability.

8.3.2.5 WCM Components and Target Level

Questions 11, 15, 19 and 23 of the questionnaire asked respondents to indicate if their companies set a specific level of each of the four components of WCM. The ANOVA results of whether companies set specific level of each component of WCM are contained in table 19. The results indicate that indeed differences exist in the way AIM listed SME companies set target for each WCM component with $F = 3.945$, $p < 0.01$.

The descriptive statistics of the target levels set for each component of WCM by AIM listed SME companies indicate that accounts receivable period has the highest mean score (M = 2.9306, SD = 1.37714), followed by accounts payable period with a mean score of (M = 2.7222, SD = 1.18942). The WCM component with the third highest mean score is cash conversion cycle (M = 2.5833, SD = 1.26435) and finally, inventory holding period achieved the lowest mean score of (M = 2.2500, SD = 1.35053). This results show that AIM listed SME companies specifically set target for accounts receivable period more than any other WCM component. However, the findings specify that inventory holding period is the least of the WCM component to have a specific target set for it.

The post hoc results of the differences between the targets levels set for each component of WCM by AIM listed SME signify that the target level set for inventory holding period is significantly different from the target level set for accounts receivable period. Apart from the differences in the target levels set between inventory holding period and accounts receivable period there are no any other significant difference between accounts receivable period, accounts payable period and cash conversion cycle.

8.3.2.6 WCM Components and Their Alteration Frequency

Questions 12, 16, 20 and 24 of the questionnaire asked respondents to indicate the frequency of the alteration of each of the four WCM components. The ANOVA results of

the frequency of alteration of WCM components level set indicate that the frequency at which managers of AIM listed SME companies alter the level set for each component of WCM does not differ from each other.

The descriptive statistics results of the frequency at which AIM listed SME companies alter their WCM components show that accounts payable period has the highest mean score of (M = 2.2500, SD = 1.23048), followed by accounts receivable period with a mean score of (M = 2.2222, SD = 1.33451). Cash conversion cycle is third with a mean score of (M = 2.1528, SD = 1.09621), and then the WCM component with the lowest mean score is inventory holding period (M = 2.1667, SD = 1.26714).

The post hoc results of the frequency at which AIM listed SME alter their WCM components indicate that there are no significant differences of the frequency at which companies alter the level set for each of the WCM components.

8.3.2.7 WCM Components and Their Strategy

Questions 13, 17, 21 and 25 of the questionnaire asked respondents to indicate whether an increase in each of the four WCM components improves profitability. The ANOVA results of the strategy pursued for each component of WCM indicate that there are differences in whether an increase in each component of WCM by AIM listed SME companies influence profitability with $F = 11.542$, $p < 0.01$.

The results of the descriptive statistics show that cash conversion cycle has the highest mean score of (M = 2.8056, SD = 1.43044), followed by accounts payable period with a mean score of (M = 2.7639, SD = 1.19262). Accounts receivable period has the third highest mean score of (M = 2.6528, SD = 1.50267), whilst inventory holding period achieved the lowest mean score of (M = 1.7083, SD = 1.01312). The mean score of 1.7083 for inventory holding period shows that companies strongly believe increasing inventory holding period does not lead to increase in profitability and therefore it can be said that companies pursue the aggressive strategy when it comes to inventory holding period. the mean score for accounts receivable period, accounts payable period and cash conversion cycle of 2.6528, 2.7639 and 2.8056 respectively which is between the disagree and neither disagree nor agree is an indication that companies mildly believe that increase in accounts receivable period, accounts payable period and cash conversion cycle do not lead to higher profitability and therefore can be interpreted that companies pursue the aggressive style of WCM for accounts receivable period, accounts payable period and cash conversion cycle.

The post hoc test results of whether companies believe that increase in WCM components results in higher profitability show that inventory holding period is significantly different from the mean score of accounts receivable period. Inventory holding period is again significantly different from accounts payable period. Inventory holding period is also significantly different from cash conversion cycle in terms of

whether increases in their levels lead to higher profitability. However, there are no differences in perception as to whether increases in accounts receivable period, accounts payable period and cash conversion cycle lead to higher profitability.

8.4 CONTRASTING THE QUANTITATIVE DATA RESULTS AND QUESTIONNAIRE SURVEY RESULTS

The results of the quantitative data and questionnaire results show similarities and dissimilarities. One major similarity is that both the quantitative results and questionnaire results indicate that reducing the level of each component of WCM leads to higher profitability. Whilst the results from the quantitative data results show a negative association between each component of WCM and profitability, the responses from the questionnaire survey results also show that financial directors believe reducing the levels of each component of WCM will lead to maximum profitability. In terms of the dissimilarities, the quantitative results show that accounts payable period has the highest influence on profitability, followed by accounts receivable period then inventory holding period judging from the coefficients of -0.067, -0.042 and -0.041 respectively. Cash conversion cycle was found to have no statistical significance on profitability of AIM listed SME. However, the questionnaire results on the other hand show the importance of each component of WCM to profitability of AIM listed SME companies in the following order: accounts receivable period, cash conversion cycle, accounts payable period and inventory holding period. The conflicting findings on the relative

importance of inventory holding period, accounts receivable period, accounts payable period and cash conversion cycle using panel data regression and questionnaire survey reported in this study could be due to the following:

8.4.1 The bargaining power of suppliers and customers

A customer that has more bargaining power may demand undue credit period way beyond the standard level set by a company. A customer may have power over a company if that company is relatively large and also if the business of that customer forms a major part of a companies revenue (Banerjee et al. 2007). Also, the presence of numerous suppliers but very few customers will endow a customer with more bargaing power. In such a case, the competitiveness of suppliers market will help to push trade credit upwards. Wilson and Summers (2002) found a positive association between customer power and trade credit.

The bargaining power of suppliers may also influence the amount of trade credit granted to a company, contrary to that which may improve profitability. A supplier with more power than its customers will be able to push its credit policy on them. A supplier may have more power than customers if it enjoys a monopoly power. This is where there are few suppliers and numerous customers such that customer do not have many alternatives to choose from. In such a situation, the supplier may practice a restricted credit policy whereby customers are given limited credit period or even asked to pay

upfront. It is therefore argued that less trade credit will be given in situations where the supplier has power over customers.

8.4.2 The prevailing economic conditions

The state of the economy has effect on the level of WCM components that a firm can or may keep. Macro-economic factors such as interest rate, money supply, inflation and Gross Domestic Product (GDP) etc may affect WCM levels. Blinder and Maccini (1991) found that recessions are related to drastic inventory reductions. Michaelas et al (1999) argue that small businesses heavily depend on short-term financing and therefore make them more susceptible to macro-economic changes. According to Schall and Haley (1991), the level of investment in working capital should increase as economic activity increases and decrease as economic activity decreases. A study by Lamberson (2005) on a sample of 50 firms over a period from 1980 to 1981 in the USA found evidence of a relationship between changes in economic conditions and changes in WCM components.

8.4.3 The financial position of companies.

A company in financial distress may be compelled to offer more trade credit to its customers (Petersen and Rajan 1997; Wilner 2000). Such a company will be desperate for sales because it would not be able to even afford the various cost associated with holding inventories. As a result of this weak position, customers will exert their wishes

on the company. According to Bhattacharya (2008), the opportunistic behaviour of the customer becomes more pronounced when the customer is one of the principal customers.

These arguments indicate that even though AIM listed SME financial directors may have a target level of working Capital can influences profitability, the bargaining power of suppliers and customers, the prevailing economic condition and financial position may force them to alter the level set for each component of WCM.

8.5 CONCLUSION

The primary data research was explored in this chapter. Here, the sample included all the 250 non-financial AIM listed SMEs. The questionnaire design and structure was also examined. T-test, One-way ANOVA and post hoc test (Tukey's HSD) which were used to analyse the primary data was also reviewed. Section 8.3 examined the working capital practices of AIM listed SME companies from the perspective of financial directors or their equivalent. The results of the survey distribution and response rates showed a response rate of 29.03 per cent, comparable to previous studies on SMEs (Sainidis et al. 2001; De Saulles, 2008; Bates, 1995). The internal validity of the instruments used was tested, which found that all 12 instruments were valid and reliable as measured by the Cronbach's Alpha test. The results indicate that the constraint to an effective is time, followed by money, then expertise and finally technology.

The one-way AVOVA and post hoc (Tukey) test was also employed to establish the association between WCM variables. The test between educational level and WCM priority showed a significant association. There was also a statistically significant relationship between work experience and WCM priority. One-way ANOVA test on the ranking order of WCM components indicated statistically significant differences. On the importance of each component of WCM to profitability, the one-way ANOVA indicated statistically significant differences. The target level set was also found to be significantly different from each WCM component. The one-way ANOVA showed that there were differences in terms of the increase in each WCM component and the effect on profitability. Section 8.4 contrasted the findings from the quantitative data results and questionnaire survey results, which showed both similarities and dissimilarities. And finally, section 8.5 concluded the chapter.

CHAPTER NINE

CONCLUSIONS

9.1 INTRODUCTION

This chapter provides summary and conclusion of the research. Also, the implications of results and limitations of the research are discussed. Lastly, suggestions concerning the avenues for future research and improvements are given.

The rest of the chapter is organised as follows. The next section, which is 9.2, presents the objectives of the research. This is followed by the research methodology and methods in section 9.3. Section 9.4 presents the possible policy implications. Section 9.5 briefly summarises the research contributions of the study. Section 9.6 looks at the probable limitations of the research. Finally, section 9.7 identifies the potential avenues for future research and improvements.

9.2 RESEARCH OBJECTIVES

The main research objective was to investigate the effect of Working Capital Management (WCM) on the profitability of AIM listed SME companies. Also, as an auxiliary to the main objective, this thesis also had two subsidiary objectives: (1) to examine the influence of corporate governance factors including: board size, CEO age, CEO tenure, proportion of non-executive directors and directors remuneration on

profitability and (2) to examine the influence of company characteristics including: company age, company size, asset tangibility, financial leverage, liquidity ratio, short-term financing, gross working capital efficiency, working capital requirement and industry classification.

9.3 RESEARCH METHODOLOGY AND METHODS

The sample section issues were discussed for both the quantitative and qualitative analysis. The thesis results analysis was divided into two involving quantitative data results and questionnaire survey results. To this end, two sets of data were collected for the quantitative data analysis and questionnaire survey analysis. For the quantitative data analysis, the sample comprises of 160 companies from a possible sample of 273 companies. Three conditions were set for the sampling frame. First, all companies belonging to the financial services section were excluded because they have certain regulations that are different from those required by non-financial companies, their working capital characteristics are largely different and finally to allow for easy comparability with prior studies (e.g. Deloof 2003; Falope and Ajilore 2009). Second, all the companies were supposed to have met the definition of SME as defined by the UK Companies Act 2006, section 382 and 465. Third, to be included a company should have its financial statement for the entire period that was considered, which is from 1st of January 2005 to 31st of December 2010 inclusive. Therefore, the quantitative data

results was based on the financial statements of 160 companies for the year 2005, 2006, 2007, 2008, 2009 and 2010, which led to 960 company years.

The questionnaire survey analysis consisted of 248 companies sample size with a return rate of 29.03 per cent. The criteria for inclusion in the sample frame was all AIM listed SME non-financial companies.

9.4 POLICY IMPLICATIONS

There are many implications of the results reported in this thesis. First, the results show that WCM still affect the profitability of SME companies listed on the stock exchange. Even though past research suggests that WCM affect SMEs, it was solely focused on unlisted SME companies. One of the problems that face unlisted SME companies is the lack of finance, which makes the management of WC very crucial to their survival and profitability. But being listed on the stock exchange should mean that such SME companies will have an unlimited access to finance through stock issue (Kellick 2008; Pagano and Roell 1998; Zara 2003; Gill and Pope 2004). However, despite being listed on a stock exchange with unlimited access to finance, this research indicates that WCM is still very important to such SME companies. This implies that regardless of the abundance of access to finance, AIM listed SME companies must still make WCM their top priority since it affects their profitability. The possible explanation as to why WCM is still important to SME companies listed on the stock exchange is that the

management of WC affect both profitability and risk of companies (Smith 1980). A report by Shin and Soenen (1998) found out that even though Wal-mart and Kmart all had similar capital structure, the poor management of Kmarts working capital led to it going bankrupt. A report by REL Consultancy Group (2005) on Working Capital Survey indicates that U.S. corporations had roughly $460 billion unnecessarily tied up in working capital.

Second, the results from both the quantitative data analysis and questionnaire survey results indicate that the perception of sampled AIM listed SME companies as to the importance of each WCM component is contrary to what is found from the financial data results. Whilst the quantitative data results show that accounts payable period is the most important WCM component to affect profitability, the questionnaire survey results indicate that it is actually accounts receivable period that is very important in influencing profitability of AIM listed SME companies. As will be stated further down, this clearly shows that there are some constraining factors that are inhibiting companies from effectively managing WC. Also, other external factors that can possibly hamper WCM include: (1) the bargaining power of suppliers and customers, (2) the prevailing economic conditions and (3) the financial position of companies.

Third, the results from the panel data regression and questionnaire survey show that accounts receivable period and accounts payable period are the two most important

WCM components to affect profitability of AIM listed SME companies. The fact that both the quantitative data analysis and questionnaire survey all ranked accounts receivable period and accounts payable period as first and second respectively means they should be taken more seriously by SME companies and policy makers alike. The results imply that AIM listed SME companies should forge a strong inter-business relationship with both their suppliers and customers in order to maximise the benefits from both accounts receivable period and accounts payable period. A strong relationship between a company and customers will generate many benefits including: (1) it will help the company to better understand its customers. Understanding a customer better will help to tailor-made credit arrangement suitable to that particular customer, thereby reducing the incident of bad debt. (2) the relationship will lead to trust building, which will allow the company to extend credit facilities to such a customer in order to stimulate sales. On the other hand, a stronger relationship between a company and its suppliers will lead to better terms being offered to the company by suppliers. Since suppliers' credit is used by companies, especially SMEs as a source of short-term financing, then any credit facility from suppliers will help improve profitability.

Fourth, the finding from the questionnaire survey which shows that time is the most important constraint affecting effective WCM means that SME companies should devote ample time towards the management of WC. The management of WC should not be left to the lower level managers, but rather it should be integrated into the corporate

strategy of SME companies. SME companies can benefit a lot by integrating WCM into their corporate strategy because the strategic choices will ultimately affect WCM. First, the management of WC will influence the value of the company (Kieschnick et al. 2008). Second, companies have the ability to use WCM as a competitive weapon (Ruback and Sesia 2000). Strategically analysing the needed WC and also assessing the appropriate sources of finance can be an advantage to companies. Dell's situation better illustrates the importance of incorporating a company's WCM into its strategic planning. Even though Dell operates in an industry that requires huge inventory balances and the need to finance customers, Dell's decision to change the rules of the industry by negotiating with suppliers have left it almost with no inventories. Also, most of its sales are made upon customer payment. These strategic moves have left Dell with a negative WC. In addition to incorporating WCM into corporate strategy, companies must assign a specific manager to be responsible for each component of WCM. As argued by Garcia-Teruel and Martinez-Solano (2007), companies over concentrate on long term financial decisions to the detriment of WCM. Also, SME companies should endeavour to employ qualified and competent personnel to manage WC. This research shows that the educational level of managers greatly affect the management of WC.

Fifth, the panel data regression results indicate that corporate governance variables including: board size, CEO age, CEO tenure and remuneration of directors influence profitability. However, it was found that the proportion of non-executive directors has

no effect on AIM listed SME companies. The results that corporate governance factors affect the profitability of AIM listed SME companies' means that corporate governance should be taken very seriously. Even though AIM companies are not obliged to comply with the UK's combined code on corporate governance but rather encouraged to follow (Jeffrey 2007), this research suggests that complying with the combined code on corporate governance is beneficial to companies themselves in the form of increase profitability. The importance of complying with the combined code is summed up by Mendoza (2007) who contends that any sub-optimal corporate governance regime will threaten the continuity of a company as an AIM listed company.

Six, the indication that cash conversion cycle has no effect on profitability of AIM listed SME companies and also coming third on the importance of WCM components to profitability from the perspective of financial directors show that cash conversion cycle in itself is not important. The cash conversion cycle is the aggregate of the three components of WCM, which means that the level of the cash conversion cycle is dependent on the other three components. This therefore means that concentration and attention should be directed towards the three WCM components including: inventory holding period, accounts receivable period and accounts payable period because their management determines the cash conversion cycle level. This has brought new light into the WCM literature in that the cash conversion cycle should not be solely relied upon as a measure of a company's WCM effectiveness. For example, Garcia-Teruel and

Martinez-Solano (2010a) used the cash conversion cycle as a determinant of companies WCM effectiveness without regard to the other three components. Also, the WCM literature is divided into two parts based on the level of the cash conversion cycle. Whilst one side argue in favour of an aggressive WCM, the other group of the spectrum are in favour of a conservative WCM. However, this division has erupted because of the use of the cash conversion cycle as a measure of how well a company is performing in terms of its WCM. The findings from this research have shown that neither the aggressive nor the conservative strategy of cash conversion cycle influences profitability, but rather it is the management of the three components that does affect profitability. The implication is that AIM listed SME companies should not be persuaded in achieving either the aggressive or conservative cash conversion cycle strategy but rather they should concentrate on effectively managing the WCM components in the light of the prevailing conditions and opportunities in order to increase profitability. For example, a very generous offer of credit from a supplier or huge bulk purchase discount should not be rejected simply because it will alter the cash conversion cycle level.

Finally, the findings suggest that company specific characteristics including company age, company size, asset tangibility, gross working capital efficiency and working capital requirement all affect profitability of AIM listed SME companies. On the contrary, the findings show that financial leverage, liquidity ratio and short-term

financing do not influence profitability of AIM listed SME companies. The company characteristics differences and effect on profitability means that AIM listed SME companies should endeavour to identify their specific characteristics that improve profitability and work towards improving those areas. Also, attention should not be focused on areas such as the financial leverage, liquidity ratio and short-term financing since they do not influence profitability. Policy makers, in implementing any regulation and rules should also consider the differences in companies' specific characteristics so as to tailor made rules and regulations to suit SME companies.

9.6 CONTRIBUTION TO KNOWLEDGE

This research is important because it will provide evidence on the relationship between AIM listed SMEs profitability and their WCM. The evidence of the relationship between WCM and profitability in SMEs is limited in the existing literature. So far only Garcia-Teruel and Martinez-Solano (2007) in Spain, Afeef (2011) in Pakistan and Stephen and Elvis (2011) in Kenya, have investigated the issue. The reason for the lack of literature on this subject stems from the fact that data on SMEs is difficult to find. This is because the majority of SMEs are private and that they are not obliged by law to publish their full financial information. Another factor is the time and cost involved in trying to gather information on SMEs. Due to their smallness, SMEs lack the proper and formal internal controls, which allow for the free and accurate flow of information. This makes it very difficult to accumulate adequate and accurate information for

research purposes. Also, due to their inherent moral hazard issue, the information available from SMEs is treated with contempt. Research has revealed that SMEs have the tendency of providing false information in order to avoid the payment of taxation. Also, the secrecy of owner-managers of SMEs makes acquiring information a hard task. SMEs are very reluctant to give away information for the fear that it will be disclosed to and used by their competitors.

Another intriguing factor is that no such research has been undertaken in the UK context. The previous researches were not based in the UK, which means that there is no evidence as to the relationship between WCM and SMEs based in the UK. Those researches cannot be assumed to apply in the UK context because of the country specific differences between these two countries. For example whilst Spain uses the definition established by the European Commission recommendation 96/280/CE of 3rd April 1996, the UK uses the definition of the UK Companies Act 2006, section 382 and 465 for SMEs.

The second contribution is that unlike previous studies that have investigated unlisted SMEs, this research examines SMEs that are listed on a stock exchange. AIM listed SMEs are probably under more pressure in terms of reporting a profit than unlisted ones. Also, being listed on a stock exchange means that their financial information is available to the public. Listed SMEs information can also be trusted because of the

scrutiny of the market and the fact that the market requires them to have a proper internal control mechanism.

Investigating the relationship between WCM and profitability of companies on the AIM is particularly interesting given that AIM listed SMEs have a higher investment risk than is associated with established companies. The risk attached to AIM companies was illustrated by a commissioner at the US American Exchange Commission who likened the AIM to a gambling 'den' because he was concerned that 30% of issuers that list on AIM would go into liquidation within one year (Treanor 2007). Further, the case of Langbar International which was allowed to list on the AIM with market capitalisation of £375 million but then discovered that the company had none of the assets it declared at listing also further illustrated the risk attached to AIM companies (Taylor 2007). The lax accounting rules and the fact that companies are not required to have a trading history before admission to the AIM exacerbates the risk associated with investing or lending to such companies. Consequently, traditional forms of lines of finance are limited and WCM is critical for the profitability and survival of AIM listed SMEs.

The administration of a questionnaire has brought to light the WCM practices of SMEs. As financial data analysis can only establish the association between WCM and profitability, a questionnaire administration has helped unearth the detailed mechanisms employed by SMEs in the management of their WC. These internal practices are not

available from their published financial information. A thorough search through the existing literature indicates that only Belt and Smith (1991) have used a questionnaire in establishing the association between WCM and company profitability, however, their study was based on larger companies. This research has therefore provided answers to important but inherent questions such as the general knowledge about WCM and the importance of each component of WCM from the perspective of financial directors.

9.7 LIMITATION OF THE RESEARCH

Whilst the research findings have important implications, like any other empirical studies, it may suffer from many limitations which need to be acknowledged. First, the thesis used ROA as the measure of sampled companies' profitability. There are different forms of measures that can be used as proxy for companies' profitability. Many researchers have used different types of criteria as a form of companies' profitability measure. For example, in conducting a study on the effect of WCM on profitability Raheman and Nasr (2007) used net operating profit as the proxy of companies' profitability. Lazaridis and Tryfonidis (2006) also employed gross operating profit as a measure of companies' profitability. Vishnani and Shah (2007) used return on capital employed to represent companies' profitability. The variation in the proxies used to measure companies profitability shows that a single measure cannot represent a complete measure of companies' profitability and therefore the results should be interpreted with care.

Second, another limitation of this thesis is that it focused mainly on SMEs listed on the AIM. This means that the results cannot be generalised to include other non-listed SME companies. The characteristics and features of SME listed become somehow different from unlisted one. Such differences includes the ability of a listed SME to have unlimited access to finance, whilst unlisted SME company is limited to only owners' equity and finance from friends and families. Access to finance may influence the levels of each WCM component of companies. For example, having enough money may cause a company to take advantage of cash discount by paying suppliers with upfront cash, which should reduce the level of accounts payable period. Also, having enough cash may entice a company to give generous credit facilities to its customers, which will increase the accounts receivable period. Being listed on the stock exchange may also influence a company's WCM dynamics because of the improved reputation it receives (Marchisio and Ravasi 2001; Beatty and Ritter 1986; Sirgy 2002). This is because the stock market membership signals to outsiders the quality of a company.

Third, the sample size is relatively small, especially the questionnaire survey rate of return. The quantitative data analysis used a sample size of 160 companies. Even though a bigger sample size would have been preferable, the number of SME companies present on the AIM as at the time of data collection and also the strict criteria used for inclusion meant that only 160 companies could be employed in this thesis. However, the 160 sample size is larger compared with the samples of prior studies in WCM field (see,

Vishnani and Shah 2007; Mathuva 2010; Gill et al. 2010). For example, Gill et al (2010) used a sample of 88 American manufacturing companies listed on the New York Stock Exchange for the period of 3 years from 2005 to 2007 to accentuate the relationship between WCM and profitability. Also, in investigating WCM and profitability, Sen and Oruc (2009) obtained data on 49 production companies. The questionnaire results were based on a return number of 72 (29.03%) respondents out of a possible 248 (100%). This is a shortcoming given that it does not even represent half of the AIM listed SME population. Nevertheless, it compares favourably with other previous researches (see, Sainidis et al. 2001; De Saulles 2008; Bates 1995). The low return rate means that the results must be interpreted with caution.

Fourth, the six-year period seems to be short. Given the time constraint of this research and the non-availability of data, only a time period of six year was utilised. This is, however, longer than most of the prior evidence (see, Deloof 2003; Lazaridis and Tryfonidis 2006; Raheman and Nasr 2007). Also, the 160 sampled companies, which generated a total of 960 company-year observations, form a significant percentage of the total possible sample. It constitutes approximately 64 per cent of the useable sample of 250 AIM listed SME companies, which statistical sampling (central limit theorem) theory suggest is a sufficiently large sample (Anderson et al. 2007).

Five, although some sensitivity tests were conducted, there is multitude of factors that may influence AIM listed SME profitability. However, their effect on the results of the research was not examined. Such include status of the economy (depression or boom).

Six, the quantitative data for this research was captured from the AMEDEUS database rather than the individual companies themselves, which means that errors in the data could affect this thesis results. Retrieving the financial statement directly from the individual companies' website was the preferred option, however, upon examination of the individual companies' website it was found out that the majority of the companies did not have enough financial statements on their website to cover for the needed duration of this research. The rigorousness of the AMEDEUS information was verified by comparing some of its information with that of the available financial statements from the companies own website and it was found that the two information are consistent. The reliability of AMEDEUS data is also evident from the fact that it is used extensively by other researchers (see, Ruubel and Hazak 2011; Badunenko et al. 2010; Garcıa-Teruel and Martınez-Solano 2007; Martynova et al. 2006).

Seven, WCM components were used as explanatory variables to measure their influence on profitability. However, there was no attempt to determine the factors that may influence size of the explanatory variables.

9.8 FURTHER RESEARCH

The limitations of this thesis, which are listed above presents several potential avenues for future research and improvements. First, the studies can be replicated on SMEs that are listed on other stock exchanges. It may be interesting to know if SME companies listed on other stock exchanges with different economic climate will exhibit the same pattern of results as that of those listed on the AIM. Given that the UK operates a well-developed capital market and that finance can be sourced more easily, it may be more prudent to replicate this study in countries which has rather a more developed banking system like Spain (Garcıa-Teruel and Martınez-Solano 2007). This is necessary because a research by Demirguc-Kunt et al (2006) suggest that companies operating in countries with more developed banking systems grant more trade credit to their customers, and at the same time they receive more finance from their own suppliers.

Second, other proxies other than ROA can be used as a measure of profitability to determine the influence of WCM. Since the measure of company's profitability is faceted, it will be very interesting to undertake a research that examines the effect of WCM on other measures of profitability. Such measures of profitability can include among others Return On Equity, Return On Capital Employed, Return On Investment etc.

Third, one of the limiting factors of this research was that the sample size for both the quantitative data analysis and questionnaire survey were small, which were 160 and 72 companies respectively. Even though it compared favourably with previous studies, a bigger sample size may be more beneficial by improving the results and therefore bring new light into the effect of WCM on profitability of companies.

Fourth, a comparative analysis between SME companies listed on a stock exchange and those that are not can be done to determine whether there are any differences among their WCM practices. A SME company that is listed on a stock exchange exhibit characteristics that are somehow different from those unlisted SME companies. Whilst a listed SME has access to unlimited finance through the issue of shares, unlisted SME companies are not allowed to solicit for funds through the public. Also, a listed SME company may have higher reputation because of the stringent regulations imposed on it. The higher reputation of listed SMEs will allow for good dealings with both suppliers and customer, which will improve the profitability.

Fifth, further studies can also explore other corporate governance factors other than those used in this thesis to measure the influence on AIM listed SMEs profitability. This thesis used five corporate governance measures including: board size, CEO age, CEO tenure, proportion of non-executive directors and directors' remuneration. However, other influential corporate governance measures such as institutional shareholders,

block shareholders, CEO duality etc. can be explored to determine if they affect the association of WCM on profitability.

Six, further studies can also explore other company characteristics other than those used in this research to measure the influence on AIM listed SMEs profitability. This thesis used nine company characteristics including: company age, company size, asset tangibility, financial leverage, liquidity ratio, short-term financing, gross working capital efficiency, working capital requirement and industry classification. This list is not exhaustive and therefore future research can explore on the other company characteristics and determine the influence of WCM on profitability.

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APPENDIX 1: SAMPLED COMPANIES

COMPANIES	SECTOR
@UK PLC	Software & Computer Services
1spatial Holdings PLC	Software consultancy and supply
Access Intelligence PLC	Software & Computer Services
Accumuli PLC	Software & Computer Services
Acta SPA	Electronic & Electrical Equipment
Active Energy Group PLC	Electronic & Electrical Equipment
Active Risk Group PLC	Software & Computer Services
Advanced Power Components Public Limited Company	Electronic & Electrical Equipment
Alba Mineral Resources PLC	Mining
Angel Biotechnology Holdings PLC	Pharmaceuticals & Biotechnology
Ant PLC	Software & Computer Services
Aortech International PLC	Health Care Equipment & Services
Arcontech Group PLC	Software & Computer Services
Ariana Resources PLC	Mining
Atlantic Global PLC	Software & Computer Services
Avacta Group PLC	Health Care Equipment & Services
Bango PLC	Software & Computer Services
Beowulf Mining PLC	Mining
Berkeley Mineral Resources PLC	Industrial Metals & Mining
Blavod Wines And Spirits PLC	Beverages
Brady Public Limited Company	Software & Computer Services
Byotrol PLC	Chemicals
Caspian Holdings Public Limited Company	Oil & Gas Producers
Cellcast PLC	Media
Ceps Plc.	Support Services
Cheerful Scout PLC	Communications
Clinical Computing PLC	Software & Computer Services
Clontarf Energy PLC	Oil & Gas Producers

Coburg Group PLC	Beverages
Conexion Media Group PLC	Media
Conroy Gold And Natural Resources Public Limited Company	Mining
Coolabi PLC	Media
Corero Network Security PLC	Software & Computer Services
Croma Group PLC	Aerospace & Defense
Cscape Group PLC	Technology Hardware & Equipment
Cyan Holdings PLC	Technology Hardware & Equipment
Cyprotex PLC	Pharmaceuticals & Biotechnology
DDD Group PLC	Software & Computer Services
Deltex Medical Group PLC	Health Care Equipment & Services
Dillistone Group PLC	Software & Computer Services
Driver Group PLC	Support Services
Earthport PLC	Software & Computer Services
Edenville Energy PLC	Mining
EG Solutions PLC	Software & Computer Services
Energy Technique Plc.	Industrial Engineering
Eruma PLC	Support Services
Feedback PLC	Electronic & Electrical Equipment
Fitbug Holdings PLC	Leisure Goods
Fletcher King PLC	Real Estate Investment & Services
Forbidden Technologies PLC	Software & Computer Services
Futura Medical PLC	Pharmaceuticals & Biotechnology
Getech Group PLC	Oil Equipment & Services
Gold Oil PLC	Oil & Gas Producers
Hardide PLC	Chemicals
Highams Systems Services Group PLC	technology
Holders Technology PLC	Electronic & Electrical Equipment
I S Solutions PLC	Software & Computer Services
Image Scan Holdings PLC	Electronic & Electrical Equipment
Imagelinx PLC	Support Services

Immedia Group PLC	Media
Indian Restaurants Group PLC	Travel & Leisure
Infoscreen Networks PLC	Media
Intandem Films PLC	Media
Intellego Holdings PLC	Support Services
Intercede Group PLC	Software & Computer Services
Ipoint-Media Plc.	Mobile Telecommunications
Ipplus PLC	Support Services
John Lewis Of Hungerford PLC	Household Goods & Home Construction
John Swan & Sons P.L.C.	General Retailers
Karelian Diamond Resources Public Limited Company	Mining
Kleenair Systems International PLC	Industrial Engineering
Lagan Capital PLC	Software & Computer Services
Lees Foods Public Limited Company	Food Producers
Lidco Group PLC	Health Care Equipment & Services
Lombard Medical Technologies PLC	Health Care Equipment & Services
Lombard Risk Management PLC	Software & Computer Services
Lo-Q PLC	Software & Computer Services
LPA Group PLC	Electronic & Electrical Equipment
Maintel Holdings PLC	Support Services
MAR City PLC	Real Estate Investment & Services
Mediazest PLC	Media
Mediwatch PLC	Health Care Equipment & Services
Mercury Recycling Group PLC	Support Services
Messaging International PLC	Mobile Telecommunications
Metrodome Group PLC	Media
Mid-States PLC	Industrial Engineering
Milestone Group PLC	Media
Mobile Streams PLC	Mobile Telecommunications
Mobile Tornado Group PLC	Mobile Telecommunications
Motive Television PLC	Media

Namibian Resources PLC	Mining
Nanoco Group PLC	Technology Hardware & Equipment
Netcall PLC	Software & Computer Services
Nextgen Group PLC	Pharmaceuticals & Biotechnology
Nexus Management PLC	Software & Computer Services
Norman Broadbent PLC	Support Services
Omega Diagnostics Group PLC	Health Care Equipment & Services
Parallel Media Group PLC	Media
Pennant International Group PLC	Software & Computer Services
Pentagon Protection PLC	Construction & Materials
Petards Group PLC	Support Services
Phsc PLC	Support Services
Physiomics PLC	Health Care Equipment & Services
Pipehawk PLC	Electronic & Electrical Equipment
Plant Impact PLC	Chemicals
Plethora Solutions Holdings PLC	Pharmaceuticals & Biotechnology
Porta Communications PLC	Media
Powerhouse Energy Group PLC	Alternative Energy
Proteome Sciences PLC	Pharmaceuticals & Biotechnology
Provexis PLC	Food Producers
Publishing Technology PLC	Software & Computer Services
Pursuit Dynamics PLC	Industrial Engineering
Ram Active Media PLC	Media
Rare Earth Minerals PLC	Mining
RED Rock Resources PLC	Mining
Red24 PLC	Support Services
Reneuron Group PLC	Pharmaceuticals & Biotechnology
Resources In Insurance Group PLC	Support Services
RTC Group PLC	Support Services
Sareum Holdings PLC	Pharmaceuticals & Biotechnology
Savile Group PLC	Support Services
Servicepower Technologies PLC	Software & Computer Services

Servision PLC	Electronic & Electrical Equipment
Sirius Petroleum PLC	Oil & Gas Producers
SKY High PLC	Support Services
Socialgo PLC	Software & Computer Services
Solid State PLC	Electronic & Electrical Equipment
Sopheon PLC	Software & Computer Services
Stagecoach Theatre Arts Public Limited Company	General Retailers
Stilo International PLC	Software & Computer Services
Surface Transforms PLC	Automobiles & Parts
Surgical Innovations Group PLC	Health Care Equipment & Services
Symphony Environmental Technologies PLC	General Industrials
Synairgen PLC	Pharmaceuticals & Biotechnology
T.F. & J.H. Braime (Holdings) P.L.C.	Industrial Engineering
Talent Group PLC	Media
Thor Mining PLC	Mining
Tiger Resource PLC	Support Services
Totally PLC	Media
Touch Group PLC	Media
Transense Technologies PLC	Automobiles & Parts
Tricorn Group PLC	Industrial Engineering
Tri-Star Resources PLC	Industrial Metals & Mining
Tristel PLC	Health Care Equipment & Services
Ultima Networks PLC	Software & Computer Services
Ultrasis PLC	Software & Computer Services
Valirx PLC	Pharmaceuticals & Biotechnology
Verona Pharma Plc.	Pharmaceuticals & Biotechnology
Vindon Healthcare PLC	Health Care Equipment & Services
Vipera PLC	Support Services
Viridas PLC	Personal Goods
Vitesse Media PLC	Media
Vphase PLC	Electronic & Electrical Equipment

Water Hall Group PLC	Support Services
Water Intelligence PLC	Support Services
Westminster Group PLC	Support Services
Woburn Energy PLC	Oil & Gas Producers
Workplace Systems International PLC	Software & Computer Services
World Careers Network Plc.	Support Services
Zoo Digital Group PLC	Software & Computer Services

APPENDIX 2

Random Effect Regression Results Of The Impact Of Working Capital Management On Accounting Based Profitability (ROA) including outliers

Regression Models	(1)	(2)	(3)	(4)
INDEPENDENT VARIABLES				
Adjusted R^2 Overall	0.1453	0.1462	0.1536	0.1415
F-ratio	159.85	160.93	170.62	154.94
No. of Observation	960	960	960	960
Working Capital Management Variables				
Constant	6.877(0.73)	8.396(0.90)	8.259(0.88)	7.725(0.82)
IHP	-.008(-2.56)***			
ARP		-.029(-2.73)***		
APP			-.028(-3.97)***	
CCC				-.004(-1.52)
Corporate Governance Variables				
BSIZE	-1.144(-1.81)*	-.973(-1.54)	-1.303(-2.07)	-1.082(-1.71)
CEOAGE	.260(2.44)**	.247(2.32)**	.250(2.36)**	.257(2.41)**
CEOTURN	.345(1.86)*	.357(1.93)**	.331(1.80)*	.363(1.95)**
NEDs	-.054(-1.12)	-.057(-1.18)	-.056(-1.17)	-.057(-1.18)
DREM	-1.452(-2.64)***	-1.513(-2.76)***	-1.413(-2.59)***	-1.519(-2.76)***

Company Characteristics Variables				
COAGE	.164(2.61)***	.172(2.75)***	.156(2.49)***	.170(2.70)***
COSIZE	2.846(6.86)***	3.026(7.26)***	2.856(6.93)***	2.895(6.97)***
ATAN	-31.260(-6.40)***	-31.054(-6.35)***	-29.382(-6.00)***	-31.693(-6.47)***
LEV	-.001(-0.14)	-.002(-0.23)	-.000(-0.06)	-.002(-0.23)
LIQ	.368(2.50)***	.365(2.48)***	.404(2.74)***	.360(2.43) ***
SFIN	1.413(2.95)***	1.424(2.98)***	1.445(3.04)***	1.439(3.00)***
WCREQ	-37.251(-7.46)***	-37.816(-7.60)***	-37.082(-7.48)***	-37.886(-7.59)***
GWCAP	-.125(-2.14)**	-.130(-2.22)**	-.131(-2.25)**	-.124(-2.11)**
INDUST				
Software and Communications	1.320234(0.49)	.8892873(0.33)	.9692213(0.36)	1.168523(0.43)
Food and Pharmaceuticals	-3.007021(-0.87)	-4.311095(-1.24)	-2.639204(-0.76)	-3.607946(-1.04)
Support Services	6.058182(2.04)**	5.673983(1.92)**	5.723013(1.94)**	5.885459(1.98)**
Household and Personal Goods	-.5238755(-0.11)	-.5116111(-0.11)	-.3459216(-0.08)	-.7284636(-0.16)
Electronic and Electrical Equipment	-2.466141(-0.61)	-3.754325(-0.92)	-2.640587(-0.65)	-2.903905(-0.71)
Notes: Coefficients are in front of parentheses. ***Significant at 0.01 level; **Significant at 0.05 level; *Significant at 0.10 level, t-statistics are in parentheses.				

APPENDIX 3

Random Effect Regression Results Of The Impact Of Working Capital Management On Accounting Based Profitability (ROA) excluding outliers

Regression Models	(1)	(2)	(3)	(4)
INDEPENDENT VARIABLES				
Adjusted R^2 Overall	0.1543	0.1502	0.1687	0.1451
	171.51	166.08	190.74	159.58
No. of Observation	960	960	960	960
Working Capital Management Variables				
Constant	2.062(0.24)	3.639(0.42)	3.740(0.44	3.174(0.37)
IHP	-.041(-3.32)***			
ARP		-.042(-2.53)***		
APP			-.067(-5.24)***	
CCC				-.006(-0.91)
Corporate Governance Variables				
BSIZE	-1.130(-1.95)*	-1.062(-1.83)*	-1.322(-2.30)**	-1.146(-1.97)**
CEOAGE	.274(2.83)***	.263(2.72)***	.266(2.77)***	.264(2.71)***
CEOTURN	.285(1.70)*	.292(1.73)*	.248(1.48)	.308(1.82)*
NEDs	-.032(-0.74)	-.045(-1.03)	-.046(-1.05)	-.040(-0.91)
DREM	-1.111(-2.23)**	-1.112(-2.23)**	-1.028(-2.08)**	-1.128(-2.26)**
Company Characteristics Variables				

COAGE	.163(2.84)***	.172(3.00)***	.150(2.64)***	.169(2.94)***
COSIZE	1.893(3.90)***	1.871(3.80)***	1.889(3.99)***	1.611(3.32) ***
ATAN	-27.639(-5.60)***	-27.942(-5.65)***	-26.170(-5.34)***	-28.437(-5.74)***
LEV	-.028(-1.39)	-.028(-1.41)	-.028(-1.41)	-.028(-1.39)
LIQ	-.057(-0.13)	.005(0.01)	.236(0.53)	-.019(-0.04)
SFIN	-3.704(-1.22)	-3.609(-1.19)	-1.178(-0.39)	-3.756(-1.23)
WCREQ	-26.594(-4.60)***	-27.302(-4.71)***	-28.342(-4.94)***	-27.042(-4.65)***
GWCAP	2.120(2.44)**	2.362(2.73)***	1.953(2.30) **	2.713(3.15)***
INDUST				
Software and Communications	.0043401(0.00)	1.035526(0.42)	.6052427(0.25)	.7977863(0.32)
Food and Pharmaceuticals	-3.400468(-1.07)	-4.058915(-1.27)	-2.441709(-0.77)	-3.89432(-1.21)
Support Services	5.057523(1.87)*	4.880132(1.80)*	4.76946(1.79)*	4.642323(1.71)*
Household and Personal Goods	-1.117157(-0.27)	-1.115911(-0.27)	-.8625237(-0.21)	-1.095176(-0.26)
Electronic and Electrical Equipment	-2.31731(-0.63)	-3.75848(-1.02)	-2.576821(-0.71)	-3.153999(-0.85)
Notes: Coefficients are in front of parentheses. ***Significant at 0.01 level; **Significant at 0.05 level; *Significant at 0.10 level, t-statistics are in parentheses.				

APPENDIX 4

Hausman's Test on Inventory Holding Period – Dependent Variable: ROA

Independent Vairiables	**Inventory Holding Period**	
Models	FE	RE
Adjusted R^2 Overall	0.1453	0.1454
F – Ratio	11.38***	160.75***
Observations	960	960
WORKING CAPITAL MANAGEMENT VARIABLES		
IHP	-.040(-3.29)***	-.039(-3.24)***
ARP		
APP		
CCC		
COPORATE GOVERNANCE VARIABLES		
BSIZE	-1.049(-1.83)*	-1.124(-1.97)**
CEOAGE	.284(3.01)***	.291(3.09)***
CEOTURN	.215(1.33)	.232(1.44)
NEDs	-.022(-0.50)	-.022(-0.51)
DREM	-1.321(-2.66)***	-1.258(-2.54)**
COMPANY CHARACTERISTICS VARIABLES		
COAGE	.168(3.07)***	.163(2.98)***
COSIZE	2.035(4.45)***	2.049(4.50)***
ATAN	-27.547(-5.64)***	-27.418(-5.64)***
LEV	-.025(-1.27)	-.028(-1.39)
LIQ	-.186(-0.42)	-.170(-0.39)
SFIN	-4.782(-1.60)	-4.628(-1.55)
WCREQ	-26.071(-4.55)***	-26.169(-4.57)***
GWCAP	2.241(2.59)***	2.258(2.62)***

APPENDIX 5

Hausman's Test on Accounts Receivable Period – Dependent Variable: ROA

Independent Vairiables	Accounts Receivable Period	
Models	FE	RE
AdjustedR² Overall	0.1401	0.1402
F – Ratio	10.85***	154.04***
Observations	960	960
WORKING CAPITAL MANAGEMENT VARIABLES		
IHP		
ARP	-.035(-2.09) **	-.036(-2.17)**
APP		
CCC		
COPORATE GOVERNANCE VARIABLES		
BSIZE	-.999(-1.73)*	-1.061(-1.85)*
CEOAGE	.262(2.78)***	.270(2.86)***
CEOTURN	.219(1.35)	.234(1.45)
NEDs	-.033(-0.77)	-.033(-0.76)
DREM	-1.330(-2.67)***	-1.274(-2.57)***
COMPANY CHARACTERISTICS VARIABLES		
COAGE	.171(3.12)***	.166(3.04)***
COSIZE	2.019(4.29)***	2.046(4.36)***
ATAN	-28.093(-5.74)***	-27.976(-5.74)***
LEV	-.027(-1.35)	-.030(-1.48)
LIQ	-.118(-0.27)	-.105(-0.24)
SFIN	-4.383(-1.46)	-4.263(-1.42)
WCREQ	-27.138(-4.72)***	-27.228(-4.75)***
GWCAP	2.507(2.90)***	2.505(2.90)***

APPENDIX 6

Hausman's Test on Accounts Payable Period – Dependent Variable: ROA

Independent Vairiables	**Accounts Payable Period**	
Models	FE	RE
Adjusted R^2 Overall	0.1614	0.1615
F – Ratio	12.86***	181.99***
Observations	960	960
WORKING CAPITAL MANAGEMENT VARIABLES		
IHP		
ARP		
APP	-.069(-5.36)***	-.069(-5.37)***
CCC		
COPORATE GOVERNANCE VARIABLES		
BSIZE	-1.218(-2.15)**	-1.291(-2.28)**
CEOAGE	.268(2.88)***	.275(2.96)***
CEOTURN	.179(1.12)	.194(1.21)
NEDs	-.035(-0.82)	-.035(-0.82)
DREM	-1.214(-2.47)**	-1.153(-2.35)**
COMPANY CHARACTERISTICS VARIABLES		
COAGE	.150(2.77)***	.145(2.69)***
COSIZE	2.060(4.61)***	2.076(4.66)***
ATAN	-26.215(-5.41)***	-26.034(-5.39)***
LEV	-.026(-1.32)	-.028(-1.42)
LIQ	.150(0.34)	.161(0.37)
SFIN	-1.932(-0.65)	-1.792(-0.60)
WCREQ	-28.184(-4.96)***	-28.213(-4.98)***
GWCAP	2.031(2.39)**	2.031(2.40)**

APPENDIX 7

Hausman's Test – Dependent Variable: Profitability (ROA)

Independent Vairiables	CCC	
Models	FE	RE
Adjusted R^2 Overall	0.1363	0.1363
F – Ratio	10.53***	149.18***
Observations	960	960
WORKING CAPITAL MANAGEMENT VARIABLES		
IHP		
ARP		
APP		
CCC	-.005(-0.72)	-.005(-0.72)
COPORATE GOVERNANCE VARIABLES		
BSIZE	-1.076(-1.87)*	-1.145(-1.99)**
CEOAGE	.264(2.79)***	.272(2.88)***
CEOTURN	.236(1.46)	.253(1.56)
NEDs	-.030(-0.68)	-.030(-0.68)
DREM	-1.339(-2.69)***	-1.281(-2.58)***
COAGE	.170(3.10)***	.165(3.01)***
COSIZE	1.784(3.88***	1.801(3.93)***
ATAN	-28.450(-5.80)***	-28.366(-5.81)***
LEV	-.027(-1.32)	-.029(-1.45)
LIQ	-.140(-0.32)	-.126(-0.28)
SFIN	-4.529(-1.50)	-4.405(-1.46)
WCREQ	-26.831(-4.66)***	-26.937(-4.68)***
GWCAP	2.802(3.26)***	2.817(3.28)***

APPENDIX 8

Breusch-Paga/Cook-Weisberg Test

	IHP	ARP	APP	CCC
ROA	51.70***	42.13***	48.75***	46.53***

APPENDIX 9

Variance Inflationary Factor

Dependent variable: ROA				
Independent variables	VIF	VIF	VIF	VIF
IHP	1.22			
ARP		1.24		
APP			1.25	
CCC				1.17
BSIZE	1.25	1.25	1.22	1.25
CEOAGE	1.23	1.22	1.25	1.22
CEOTURN	1.25	1.25	1.06	1.25
NEDs	1.07	1.06	1.28	1.07
DREM	1.28	1.28	1.12	1.28
COAGE	1.29	1.29	1.29	1.29
COSIZE	3.86	3.97	3.74	3.82
ATAN	3.06	3.06	3.08	3.06
LEV	1.15	1.15	1.15	1.15
LIQ	2.57	2.56	2.59	2.56
SFIN	2.28	2.28	2.34	2.29
WCREQ	5.00	5.00	5.00	5.00
GWCAP	2.75	2.71	2.68	2.67
Software and Communications	2.44	2.41	2.41	2.42
Food and Pharmaceuticals	1.46	1.46	1.47	1.46
Support Services	1.97	1.97	1.96	1.97
Household and Personal Goods	1.40	1.40	1.40	1.40
Electronic and Electrical Equipment	1.48	1.47	1.47	1.47

APPENDIX 10.

PILOT STUDY QUESTIONNAIRE

WORKING CAPITAL MANAGEMENT PRACTICES

SECTION A

1. What is your position in the firm?.....
2. How many years of experience do you have in your current position?.....
3. Which industry does your company operates in?
    1. Retail/Wholesale □
    2. Manufacturing/Construction □
    3. Service □
    4. Finance □
    5. Agriculture/Mining □
    6. Any other ———————— (Please specify)

SECTION B

Please indicate the extent of your disagreement or agreement with the following statements by ticking one of the boxes from (1) to (5) where (1) = strongly disagree (2) = Disagree (3) = Neither agree or disagree (4) = Agree (5) = strongly agree

INVENTORY HOLDING PERIOD

4. Management of inventory is important for increasing the company's profitability

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

5. The company sets a specific level of inventory to be maintained

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

6. The company alters its inventory level frequently

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

7. The company keeps high inventory levels

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

8. Do you think that that management of inventory levels affect profitability? Why or Why not?

.....

.....

.....

.....

.....

.....

.....

.....

.....

ACCOUNTS RECEIVABLE PERIOD

9. Management of accounts receivable is important for increasing the company's profitability

   1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

10. The company sets a specific level of accounts receivable

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

11. The company alters its accounts receivable period frequently

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

12. The company gives a longer credit period compared to its rivals

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

13. The company gives trade credit in order to increase sales

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

14. The company tolerates late payment from customers

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

15. Increase in sales always results in increase in profitability

    1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

16. What is the effect of accounts receivables management on profitability of your company?

……
……
……
……
……
……
……

ACCOUNTS PAYABLE PERIOD

17. Management of accounts payable is important for increasing the company's profitability

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

18. The company set a specific level of accounts payable

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

19. The company alters its accounts payable period frequently

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

20. The company always ask for longer trade credit from suppliers

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

21. The company sometimes delay in paying suppliers

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

22. Paying suppliers late increases the company's profitability

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

23. Do you think that managing the level of trade payables increase the company's profitability? Why or Why not?.....

.....…….....

.....……

…….....

.....

.....

.....

CASH CONVERSION CYCLE

24. Management of Cash Conversion Cycle is important for increasing the company's profitability

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

25. The company sets a target Cash Conversion Cycle

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

26. The company alters its Cash Conversion Cycle frequently

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

27. Negative Cash Conversion Cycle increases profitability

1☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

28. Can you please explain the effect of the cash conversion cycle on your profitability, if any?

……..……

…….....

.....

.....

.....

.....

.....

.....

Thank you for your help and participation

APPENDIX 11 – COVER LETTER

Working Capital Management Practices – Main Study

10th May 2012

Dear Sir/Madam,

My name is Godfred Afrifa, a doctoral student in the department of finance and risk at Bournemouth University. I am researching on the relationship between Working Capital Management and company profitability. I would therefore be extremely grateful if you could take some time to complete and return the questionnaire below by 17th June 2012. In most cases you are required to select from a list of closed ended questions ranging from 1 to 5, however, few questions demand your personal opinion. If you would like to write additional comments on the questionnaire, please feel free to do so.

All information that you provide through your participation in this study will be kept confidential and used solely for the purpose of this study. Also, you will not be identified in any publication based on this research. If after receiving this letter you have any questions about this study or would like additional information to assist you in completing it, feel free to contact me via e-mail: gafrifa@bournemouth.ac.uk.

Thank you in advance for your co-operation in my research.

Yours sincerely,
Godfred Adjapong Afrifa, HND, BSc, MBA, ACCA

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***** gafrifa@bournemouth.ac.uk

APPENDIX 12 – MAIN QUESTINNAIRE

WORKING CAPITAL MANAGEMENT PRACTICES

SECTION A

1. What is your position in the company?.....
2. What is your highest educational qualification or nearest equivalent?
   1. High school ☐ 2. Bachelor ☐ 3. Masters degree ☐ 4. Professional qualification ☐ 5. PhD ☐
3. How many years of experience do you have in your current position?.....
4. How many years of general experience do you have?.....
5. What is the age of your company? ☐
6. Which industry does your company operates in?
   7. Retail/Wholesale ☐ 2. Manufacturing/Construction ☐ 3. Service ☐
   4 Agriculture/Mining ☐ 6. Others (Please specify) _____

SECTION B

7 Do you sometimes have to prioritise which component of WCM you manage because of resources constraint? Yes ☐ No ☐

8 Please indicate in a ranking order which of the following WCM components your company gives much priority in cases of limited resources (please give each of them a number where 4 means highest priority…. and 1 means lowest priority)

   1 Inventory holding ☐ 2. Accounts receivable ☐ 3. Accounts payable ☐
   4. Cash conversion cycle ☐

9 Please indicate the extent to which the following act as a constraint to an effective WCM

   a. Technology 1☐ 2☐ 3☐ 4☐ 5☐
   b. Expertise 1☐ 2☐ 3☐ 4☐ 5☐

c. Money 1☐ 2☐ 3☐ 4☐ 5☐

d. Time 1☐ 2☐ 3☐ 4☐ 5☐

SECTION C

Please indicate the extent of your disagreement or agreement with the following statements by ticking one of the boxes from (1) to (5) where (1) = strongly disagree (2) = disagree (3) = neither agree or disagree (4) = agree (5) = strongly agree

INVENTORY HOLDING PERIOD

10 Management of inventory is important for increasing the company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

11 The company sets a specific level of inventory to be maintained

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

12 The company alters its inventory level frequently

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

13 Increase in inventory improves our company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ACCOUNTS RECEIVABLE PERIOD

14 Management of accounts receivable is important for increasing the company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

15 The company sets a specific level of accounts receivable

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

16 The company alters its accounts receivable period frequently

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

17 Increase in accounts receivable improves our company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

ACCOUNTS PAYABLE PERIOD

18 Management of accounts payable is important for increasing the company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

19 The company set a specific level of accounts payable

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

20 The company alters its accounts payable period frequently

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

21 Increase in accounts payable improves our company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

CASH CONVERSION CYCLE

22 Management of Cash Conversion Cycle is important for increasing the company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

23 The company sets a target Cash Conversion Cycle

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

24 The company alters its Cash Conversion Cycle frequently

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

25 Increase in Cash Conversion Cycle improves our company's profitability

1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

26 Please give any reason as to why you think the management of inventory affects or does not affect your company's profitability

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27 Please give any reason as to why you think the management of accounts receivable affects or does not affect your company's profitability

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28 Please give any reason as to why you think the management of accounts payable affects or does not affect your company's profitability

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29 Please give any reason as to why you think the management of cash conversion cycle affects or does not affect your company's profitability

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Thank you for your help and participation

APPENDIX 13

Item-Total reliability test – Cronbach's Alpha for variables

Variables	**Cronbach Alpha**
Qualification	0.7512
Work experience	0.7532
WCM priority	0.7492
WCM component ranking	0.7486
Technology Constraint to WCM	0.7358
Expertise Constraint to WCM	0.7454
Money Constraint to WCM	0.7632
Time Constraint to WCM	0.7482
WCM components importance to profitability	0.6479
WCM components target	0.6665
WCM components alteration	0.7015
WCM components strategy	0.6792