DETERMINANTS OF CREDIT COLLECTION PERIOD IN LISTED NON FINANCIAL FIRMS IN THE NAIROBI SECURITIES EXCHANGE

BY

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UNITED STATED INTERNATIONAL UNIVERSITY-AFRICA

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STUDENT’S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: __________________________ Date: __________________________

Rahul K. Sasidharan (ID 647842)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: __________________________ Date: __________________________

Dr. Elizabeth Kalunda

Signed: __________________________ Date: __________________________

Dean, Chandaria School of Business
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ABSTRACT

The general objective of this study was to determine the effect of various firm specific determinants on the Average Collection Period (ACP) of non-financial firms listed in the Nairobi Securities Exchange (NSE). More specifically, the study was conducted to determine the effect of profitability on the ACP of non-financial firms listed in the NSE, establish the effect of liquidity on the ACP of non-financial firms listed in the NSE and to find the effect of firm size on the ACP of non-financial firms listed in the NSE.

The study design used was descriptive. From a total of thirty nine non-financial firms listed in the NSE as of 5th April 2018, thirty one firms were selected for this study based on the availability of the required data. Using secondary data obtained from the consolidated financial statements of these firms over a five year period from 2013 to 2017, the research was purely quantitative in nature using the measures of central tendency and fixed panel data regression to arrive at the results.

The results revealed that listed non-financial firms in the NSE took an average of over ninety days to collect their trade receivables. A slight increase in the ACP from year to year was observed, with the overall profitability of the firms declining over the years. In general, the liquidity positions of the chosen firms were poor over the study period, while the firm size was increasing over the years. Fixed panel data regression revealed that the profitability and liquidity of a firm were negatively correlated with the ACP with correlation coefficients of negative 19.55 and negative 31.73 respectively, whereas firm size showed a positive correlation of 5.49 with the ACP.

The study concluded that non-financial firms in the NSE that are more profitable will collect their trade receivables faster and thereby are likely to have better credit management processes and policies. However, as listed non-financial firms took an average of over ninety days to collect their receivables, good credit management practices and policies may not hold a good foundation for most of the non-financial firms listed in the NSE. Non-financial firms in the NSE with greater liquidity will collect their trade receivables faster as well.
As the firms took an average of over ninety days to collect their receivables coupled with the fact that they held poor liquidity positions on a negative scale, this implied that the firms were more willing to take on risks involved with the supply of trade credit. The study also concluded that larger non-financial firms listed in the NSE will collect their receivables slower than the smaller sized firms as they may have fewer growth opportunities and thereby allow longer periods to increase sales. Larger firms in Kenya may not hold a greater advantage in comparison with smaller sized firms in regard to the trade relationship with their customers and thereby may not be able to enforce strict payment conditions as well.

The study recommends that non-financial firms listed in the NSE should strive to implement good credit management processes and policies to reduce the long delays before collection of their receivables, and by doing so can improve the profitability of the firm. These firms should also re-evaluate the risks of supplying larger amounts of trade credit and extending credit terms to their customers. If the additional risk is not justified, these firms should concentrate more on the collection of their receivables in order to improve their liquidity for the benefit of their shareholders. Larger listed non-financial firms in the NSE should keenly explore investment opportunities other than investment in receivables as they may not be able to enforce strict payment conditions towards their customers. Monitoring their growth and accounting for an expected increase in the collection period by injecting more working capital into the firm can avoid any detrimental effect on their operations.

Further research should have a larger sample size that can yield more conclusive results by focusing on private institutions as the target population in the NSE is minimal for such research. Classification of firms into different sub-categories based on their similarity may pick up better patterns and provide better results. This study assumed that all the sales of a firm were on credit terms. Results can be more accurate if the proportion of credit sales to a firms total sales can be established and incorporated into the study. Additional variables may also be considered to improve the predictive power of the regression model. Studies may also use a longer period, but must do so with caution as longer periods may reflect characteristics that do not prevail in the current time frame.
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I would also like to acknowledge the faculty and staff of United States International University-Africa in their continued endeavor to create a world class institution with an environment that has greatly aided my studies and progressed the development of my knowledge and skills in various management related issues.
DEDICATION

I dedicate this study towards my parents who have continuously supported me throughout my life. Their patience, guidance and support is the reason for all my achievements.
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LIST OF ABBREVIATIONS

ACP   Average Collection Period
CR    Current Ratio
GPM   Gross Profit Margin
NPM   Net Profit Margin
NSE   Nairobi Securities Exchange
NWC   Net Working Capital
OLS   Ordinary Least Squares
OPM   Operating Profit Margin
QR    Quick Ratio
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Problem

Trade credit is the practice that allows suppliers to offer credit terms towards buyers, thereby allowing delayed payment for the delivery of goods or services rendered (Cuñat and Garcia-Appendini, 2012). As such, trade credit that is also known as vendor financing can be regarded as a form of financial support given to a customer by a supplier, that acts as an alternative to credit from financial intermediaries. In the balance sheet of a firm, trade credit is represented on both sides as accounts receivable that falls under current assets and accounts payable that belongs to current liabilities. Trade credit is an important element in the working capital management and cash conversion cycle of a firm.

Megginson, Smart and Graham (2010) define the cash conversion cycle of a firm as the elapsed time from the point of purchase of raw materials and the point at which it receives payment for finished goods. It represents the interaction of a firms working capital and flow of cash and can be used to determine the amount of cash needed for any level of sales. Accounts receivable is one of three variables in a cash conversion cycle. It is represented by the Average Collection Period (ACP). This period is the average length of time taken from a sale on credit until the payment is once again usable funds for a firm. The management of the collection period involves managing the credit available to the firm’s customers and also receiving, processing and collecting payments. Setting credit standards such as allowable credit limits and payment terms may simplify the process of managing trade credit. Relaxed credit standards will yield increased sales and profits whereas stringent standards reduce the investment in accounts receivable and thus lower sales and profits (Kumaraswamy, 2016).

However, the recurring and widespread practice of late collection of trade credit can deteriorate the financial position of the supplier. Coupled with the risk of default, the losses created can cripple the supplier’s available resources and negatively affect the operations and survival of the firm. Slow collection can deny the firm the ability to reinvest capital whereas prompt collections will reduce the collection period and enable the firm to increase its frequency of reinvestment of capital. In addition, costs of administrating the accounts receivable of a firm


can be a costly affair. It involves keeping track of what is owed and chasing the buyers once the due date has passed. Late payments will result in an increased collection cost, whereas non-payment will end up as a bad debt expense (Zainuddin & Regupathy, 2010).

Several theories have been put forward as to why firms provide trade credit to their customers. Petersen and Rajan (1997) did a comprehensive overview on the leading theories that explained the use of trade credit. They defined three categories for the use of trade credit. The first category was financial advantage, whereby suppliers have an advantage over financial institutions by being able to monitor and obtain information about their customers that banks and other lending institutions may not be able to easily obtain. Besides the monitoring advantage, suppliers can repossess and sell the goods in case of a default. The second category was price discrimination, where a supplier with relatively high profits can make additional sales if direct altering of prices is not allowed or is not desirable. The last category was transaction costs. This can result into two advantages. On one hand, the separation of payment and delivery allows a firm to hold less cash balances. On the other hand, depending on seasonality, sales can be stimulated in periods of low demand to reduce inventory management costs.

Financial advantage assumes that the supplier has an advantage over traditional financial institutions in regard to the supply of trade credit towards their customers. This theory was discussed by Schwartz (1974) in his work titled An Economic Model of Trade Credit. A financial advantage over banks and other intermediaries can occur in three different ways. Firstly, an advantage in the acquisition of information can be a reason for suppliers to grant trade credit. Suppliers are able to visit their customers more often than banks. Moreover, the timing and size of new orders from customers can reveal or signal more accurate information about their operational performance. Financial institutions would be forced to pay separately to obtain similar information. Secondly, a supplier has the advantage to control the buyer. This is noted when a customer has few alternative sources to buy their goods. The supplier may threaten to cut supply in case of non-payment. Banks may in respect, have little power if they threaten to cut off future debts as such a threat does not immediately affect the customers operations. In legal terms, due to bankruptcy laws, financial institutions cannot withdraw the provision of finance on previously granted debts (Grave, 2011). The last financial advantage
is the advantage in salvaging value from existing assets. If the goods delivered by the supplier are more valuable to the supplier than other parties, the supplier has less need or requires less effort to obtain these goods back (Mian & Smith, 1992). The supplier can thereby repossess goods at lower costs.

Price discrimination can be observed when a supplier has higher margins over their product, and therefore has an incentive to increase sales by incurring extra costs. Risky customers can obtain highly priced trade credit in place of unavailable financing options from banks. A creditworthy customer on the other hand, will pay back quickly and can thus obtain lower priced trade credit. The principle however remains the same, trade credit allows the alteration of the price of goods and services without changing the original price of the goods (Petersen & Rajan, 1997). They further mention that the reason for investing in risky customers other than the additional sales volumes that a supplier can obtain is due to the fact that the customer may be a future strategic partner. Providing them trade credit acts as an investment that secures an equity stake in the customer.

Ferris (1981) developed the transaction costs theories which can be viewed as the most practical reason for extending trade credit. The separation of the delivery of goods and payment, and allowing payment on regular intervals makes cash flows more predictable. Buyers do not need to hold large amounts of cash which results in lower cash balances. During seasons of low demand, the supplier may sell goods on credit to reduce their inventory holding costs. Another advantage of trade credit is implicit quality guarantees (Long, Malitz & Ravid, 1993). The authors viewed trade credit as a length of time that customers can evaluate the quality of the delivered goods or services rendered while reducing financing frictions and information asymmetry between the customer and supplier as well. New suppliers are expected to extend trade credit for this reason to assure the customers of the quality of their goods or services.

Earlier studies that have focused on the working capital management of firms have revealed numerous empirical evidence on credit management issues. Kumaraswamy (2016) in the study titled Impact of Working Capital on Financial Performance of Gulf Cooperation Council Firms, used linear regression to test four hypotheses that pertained to working capital components. Their study was based on cement manufacturing firms between the years 2008
and 2014. The results revealed a negative relationship between ACP and firm profitability with the regression model indicating that the ACP was one of the most significant factors affecting the financial performance of the firms. Another study titled The Effect of Working Capital Management on Profitability: A case of Listed Manufacturing Firms in South Africa by Kasozi (2017) used a panel data methodology with different regression estimators and found out that the ACP is negatively related to profitability and that it was statistically significant for profitability. His findings suggest that firms that manage their accounts receivable efficiently, perform better than firms who do not. The study was based on manufacturing firms listed in the Johannesburg Securities Exchange during the period 2007 to 2016.

Trade credit is affected by firm specific characteristics, macroeconomic conditions as well as other external factors such as buyer attributes. This study however focused on the credit collection period by analyzing the ACP and its firm specific determinants. The study was based on listed non-financial firms in the Nairobi Securities Exchange (NSE) that fall under various sectors such agriculture, automobile and accessories, commercial and services, construction, energy and petroleum and manufacturing.

1.2 Statement of the Problem

The pressing issue in relation to the credit collection period of a firm is that it widely varies among different customers. This is true even for customers transacting with the same supplier (Wilson, 2008). He further argued that credit periods vary across industries and countries raising the question as to why collection periods differ. The collection of trade debt is the concluding stage of a sales transaction. Without collection, a credit sale transaction cannot be regarded as complete. Regrettably, despite the clear importance of managing accounts receivable or trade credit to ensure profitability and survivability of the firm, trade credit and its collection has not been widely studied, particularly in developing countries (Zainuddin, 2008).

Some of the available studies that have investigated the determinants of credit collection period include Regupathy & Zainuddin (2003) titled The Credit Collection Period of KLSE Listed Companies. The study focused on 196 listed companies in the Kuala Lumpur Stock Exchange between 1990 and 2000. This study investigated the impact of industry sector, economic
condition and firm size on the credit collection period of the firms and concluded that different industry sectors have different ACP levels. The relationship between ACP and firm size was dependent on industry sector but not the economic condition. In some sectors, the ACP was independent of company size, but other sectors showed either a positive or negative correlation. They also concluded that the prevailing economic conditions did indeed have an effect on the ACP. In poor economic conditions, they observed that the ACP was generally longer.

Zainuddin & Regupathy (2010) in their study titled Manufacturing SME's Credit Collection Period and it's Determinants: Some Evidence from Malaysia, focused on 214 small and medium enterprises in Malaysia from 2001 to 2004. They concluded that liquidity, efficiency, profitability, industry sub-sector and firm size have some influence over the credit collection period. They also concluded that firms having more liquid assets and those that are more efficient, generally collected their receivables faster. They mentioned that the industry sub-sector seemed to have either no influence ACP or either a positive or negative correlation for some sub-sectors. They further concluded that in most sub-sectors, more profitable companies collect their receivables faster and that larger firms collected their receivables faster in some sub-sectors while others collected it much later in other sectors.

A study titled Trade Credit in the Tanzanian Rice Market by Kihanga (2010), revealed that customers who belonged to the same tribe as the suppliers selling rice, received a longer credit period. This suggests that the identity of the customers had an influence on the credit collection period of firms. Secondly, the study revealed that the volume of purchase by each customer had an influence on the credit collection period. A customer that bought in larger quantities generally got a longer credit period. Thirdly, the trade credit period in the Tanzanian market was influenced by the experience of both the buyer and seller. Experience is a reflection of the age of the firm. They mentioned that older customers received longer credit periods due to their reputation and bargaining power. Finally, older suppliers on the other hand had more bargaining power than younger buyers and thereby offered shorter credit periods. This study was however more focused on the characteristics of the buyer rather than firm specific characteristics. From the studies above, it is clear that factors affecting the collection period of a firm differ within the industry sector and country.
The NSE was founded in 1954 and is based in Nairobi-Kenya. The exchange operates under the Capital Markets Authority of Kenya and is a member of the World Federation of Exchange (NSE Website, 2018). The annual reports of the selected firms for this study between 2013 to 2017 revealed that majority of the firms were under performing over the years. Out of the thirty one firms that were selected for this study, ten firms were under loss in the year of 2017 alone, which amounts to approximately a third of the sample. Approximately two thirds of the sample were on a downward trajectory with reducing sales and profits. Eight of the thirty one firms selected for the study had built up a tremendous amount of losses over the years. In the context of this study, this raised a serious question. Were good credit collection practices employed in these firms?

At present, there were no retrievable studies that investigated the determinants of credit collection period in Kenya. Due to the important role that trade credit occupies, researchers such as Paul & Boden (2008) had suggested that more research needs to be conducted to understand the relationship between trade credit and it's determinants. Research in this area by focusing on the collection period of trade credit increases our understanding of trade credit and may further help to improve the collection processes of various firms.

1.3 General Objective

The general objective of this study was to determine the effect of firm specific determinants on the credit collection period of a firm, on non-financial listed companies in the NSE, Kenya.

1.4 Specific Objectives

The specific objectives of study were as follows:

1.4.1 To determine the effect of profitability on the ACP of non-financial listed firms in the NSE, Kenya.

1.4.2 To establish the effect of liquidity on the ACP of non-financial listed firms in the NSE, Kenya.

1.4.3 To find the effect of firm size on the ACP of non-financial listed firms in the NSE, Kenya.
1.5 Significance of the Study

This study is of significance to various distinct groups as follows:

1.5.1 Non-Financial Firms

The results obtained in this study enables various firms to understand the relationship between trade credit collection and its determinants. This can enable these firms to gain a deeper insight into the management of their accounts receivables. Subsequently, these firms can use this knowledge to improve their collection processes.

1.5.2 Shareholders in the NSE

Shareholders in any securities exchange are exposed to the risks of the firms they invest in. The results from this study enables shareholders to understand credit management and collection practices of the firms they invest in and thereby be able to make better informed investment decisions.

1.5.3 Academicians

Research and literature on credit collection and it's determinants in Kenya was non-existent. This study hoped to bridge this gap by shedding light on the credit collection of listed non-financial firms in the NSE. By doing so, the study aimed to provide empirical evidence on the effect of firm specific determinants on the credit collection period of a firm. Using this knowledge, further research can be undertaken to gain a deeper understanding on this subject.

1.6 Scope of the Study

The study focused on listed non-financial firms in the NSE. These firms fall under agricultural, automobiles and accessories, commercial and services, construction and allied, energy and petroleum and the manufacturing and allied sectors. In total, there were thirty nine non-financial firms listed in the NSE as of 5th April, 2018. Secondary data collected from their consolidated financial statements of selected firms over a five year period from 2013 to 2017 was used in this study.
1.7 Definition of Terms

1.7.1 Trade Credit

A delay in the payment after the delivery of goods or services is a widely observed phenomenon of inter-firm credit. Delayed payments that are granted are referred to as trade credit (Daripa & Nilsen, 2011).

1.7.2 Cash Conversion Cycle

Akinsulire (2011) defines the cash conversion cycle as the length of time from the actual outlay of cash for purchases until the collection of receivables resulting from the sale of goods and services.

1.7.3 Average Collection Period

The ACP is also referred to as the Days Sales Outstanding ratio. This period is the average length of time taken from a sale on credit until the payment is once again usable funds for a firm. (Kumaraswamy, 2016).

1.7.4 Profitability

Profitability can be defined as the ability of a business entity to earn profits. It can be further defined as the ability of an investment to earn a return from its use (Tulsian, 2014).

1.7.5 Liquidity

Wild, Subramanyam and Halsey (2007) define the liquidity of a firm as the ability to convert assets into cash or obtain cash to meet short term obligations. It can also be defined as the capability of a firm to obtain cash from other sources easily to meet its short term obligations.

1.7.6 Firm Size

The natural log of a firm's total assets can be considered as a proxy of the firm's size (Hallajian & Tilehnouei, 2016). The larger the value of a firm's total assets, the larger its size is said to be.
1.8 Chapter Summary

The practice allowing suppliers to offer credit terms towards buyers, resulting in the delayed payments of goods and services rendered is referred to as trade credit. The frequent and widespread practice of late collection of trade credit can cripple the financial position of the supplier, negatively affecting business operations. The ACP reflects the length of time taken from a sale on credit until the payment is usable funds for a firm once again. The general objective of this study was to determine the effect of profitability, liquidity and firm size on the ACP using secondary data that was obtained from the consolidated financial statements of listed non-financial firms in the NSE over the five year period from 2013 to 2017. Research in this area increases our understanding on the credit collection period and its determinants in Kenya and subsequently enable various firms to improve their collection processes.

Chapter two is a literature review that explores the relationship between the dependent and independent variables in this study. Chapter three discusses in detail the general methodology used in this study. The chapter clarifies the research design, population and sampling design, data collection methods, research procedures and the data analysis methods utilized in this study. Chapter four presents the analysis and findings of the research. Chapter five provides a summary of the study and encompasses a discussion of the findings, conclusions drawn from the findings, recommendations for improvement of the collection period for listed non-financial firms in the NSE and finally the practice and improvement of further studies on this topic.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter provides an explanation on the relationship between profitability, liquidity and firm size with the credit collection period of a firm from a number of previous studies and theories that have explained the impact of various determinants on the ACP directly or indirectly. The chapter also highlights commonly used financial ratios that are used to measure the firm's profitability, liquidity and firm size.

2.2 Profitability and the Credit Collection Period

Trade credit is a transaction between a supplier and buyer that allows the delay of payment for goods or services that have been supplied. But if the payment is not received as per the agreed date, this gives rise to late payment. Thus late payment will occur when the credit collection period exceeds the allowed or agreed period that was granted to the customer. Summers and Wilson (2000) state that longer periods of debt collection can increase the costs of granting credit towards buyers thus reducing the firm's profits. In developed countries, trade credit exceeds short term bank credit (Blasio, 2003). In the United Kingdom for example, more than eighty percent of the business to business transactions take place on credit (Paul & Wilson, 2006). They further mentioned that the average ratio of trade credit to the total assets of a business in the United Kingdom amounts to approximately thirty seven percent. This extensive use of trade credit can however bring with it serious risks of late payment and default that can affect a firm's cash flow and profits.

Chittendran and Bragg (1997) suggest that an increase in working capital is required if a firm suffers from late payment by their customers. To finance this working capital requirement, a firm could raise funds in a number of ways. A firm can increase their debt by borrowing funds from financial intermediaries such as banks. This will reduce their profits due to the higher interest payments that they will incur. A firm can also opt to increase their equity although this would lead to a dilution of existing investor stakes if returns remain unchanged. The firm may also reduce their capital investment in the future, but this would ultimately limit the firm's long
term business performance. Finally the firm can also increase the length and amount of the trade credit they receive from their own suppliers, thereby essentially delaying payments to their suppliers and demanding a higher volume of purchase on credit. This however may negatively affect the relation between the firm and its suppliers. In a situation where an increase in debt or equity becomes a constraint and reducing the investment for the future constrains long term performance, the only way out is to improve the trade credit collection period of a firm (Zainuddin, 2008). The collection period is therefore an important factor influencing the firm's overall performance.

The use of trade credit will result in carrying costs and opportunity costs (Ross, Westerfield & Jaffe, 2015). Carrying costs are costs such as the losses from bad debt and costs of monitoring the receivables. These costs increase with the volume of trade credit that a firm grants to their customers. Opportunity costs on the other hand represent foregone sales as a result of not offering trade credit towards customers. Opportunity costs reduce with the volume of trade credit extended. The sum of carrying costs and opportunity costs of a credit policy will help establish the optimal level of sales for maximum profitability. Although trade credit can theoretically lead to many competitive advantages for a supplier such as increased sales volumes, only the judicial use of trade credit can lead to additional profits. The profit from credit sales can only materialize when cash is collected. Any late payments would increase the costs of administering trade credit by increasing the carrying costs and thereby decrease the profits of a firm.

In order to reduce the risk of late payment and possible non-payment by customers, a firm should strive to implement and adhere to a credit management process (Gorczynska, 2011). The firm should begin by defining their credit goals and ultimately their credit policy. The management process will then constitute the decisions to grant trade credit by applying risk reduction methods and credit screening, monitoring the level of receivables, collection of due debts and finally reporting the whole process. The figure on the next page depicts the process.
Figure 2.1: The Credit Management Process

Source: Gorczynska (2011)

Theoretical models argue that there exists an optimal trade credit policy. Hill, Kelly & Lockhart (2012) in their study titled Shareholders Return from Supplying Trade Credit, examined the wealth implications of supplying trade credit to customers in the United States. Their study utilized a regression model. The study concluded that an optimal credit policy does exist where a firm can maximize its value and profits. They also mentioned that although a firm should seek to minimize financing costs associated with carrying receivables on a balance sheet, the firm should be cautious when trying to do so as the firm can lose its competitive edge in the market.

A study by Paul, Devi and Teh (2012) titled Impact of Late Payment on Firm's Profitability: Empirical Evidence from Malaysia, used multivariate Ordinary Least Squares (OLS) regression on 287 Malaysian listed firms considering the financial year of 2007 alone. They concluded that late payment is a huge problem in Malaysia and that generally, a longer collection period would signal lower profits for a firm. They stated that firms with shorter credit terms and collection periods performed better than firms with a longer credit terms and collection periods. Their study also revealed that firms with longer credit collection periods and lowered profitability were the firms that were having poor credit management practices.
and policies. This study however considered the ACP of a firm to influence its profitability rather than the opposite.

Zainuddin and Regupathy (2010) in their study titled Manufacturing SME’s Credit Collection Period and its Determinants: Some Evidence from Malaysia, used pooled OLS regression to determine whether profitability can influence the ACP of a firm. Their study focused on 214 small and medium sized firms in Malaysia. They highlighted that credit management is unlikely to be a firm’s mainstream activity as it will obtain only a marginal profit from extending credit to their customers. Due to this, only more profitable companies would extend longer credit to their customers. They however also argued that more profitable companies would collect their trade credit faster, reducing their financing costs and bad debts. This highlighted the need to determine this relationship empirically and the latter argument implied that credit collection influences profitability rather than the opposite. The results from the study concluded that profitability has an influence over the credit collection period of firms. However, their study considered four sub-sectors into which the 214 firms were divided based on similarities. The results showed that profitability influenced firms negatively in three sub-sectors while another sub-sector showed a positive correlation. This essentially meant that in three sub-sectors, more profitable companies collected their receivables sooner while in the other sub-sector, more profitable companies collected their receivables later.

Pike and Cheng (2001) in their study titled Credit Management: An Examination of Policy Choices, Practices and Late Payment in UK Companies, used a survey to find out that the most common performance measure used by firms to measure their credit collection period was the days sales outstanding ratio. Their results confirmed that over eighty four percent of the firms involved in the study used this measure. The ACP ratio is also referred to as the days sales outstanding ratio. It is a ratio of a firms sales or revenue to its sales on credit. If this ratio is evaluated considering one financial year, it can be multiplied by 365 to get the answer in days. In general, the higher the ratio is, the less efficient the receivables management and collection is said to be. If the ACP is long, it sends a signal to the firm to investigate and refine its credit policy, especially if the ratio exceeds the company's credit terms by a large margin. A firm should always monitor their ACP with regards to the industry standards to which they belong (Gorczynska, 2011).
The profitability of a firm can be measured in many ways. Profit margins are expressed as a ratio, specifically earnings as a percentage of sales. By expressing margins as a percentage, the profitability of different firms can be compared with ease (Fabozzi, Drake & Polimeni, 2015). The three key profit margin ratios are the Gross Profit Margin (GPM), Operating Profit Margin (OPM) and the Net Profit Margin (NPM). The GPM is a ratio of the gross profit of a firm to its net sales. It measures the profit that a company makes relative to its cost of sales. The gross profit of a firm is regarded as the total sales of a firm minus the cost of the goods sold. The cost of goods sold involves expenses related to labor, raw materials and manufacturing overheads in the production process among others. All firms however do not disclose their cost of goods sold on their income statements. In such instances, it may not be possible to calculate the firms GPM from their financial statements. The OPM is the ratio of the operating profit of a firm to its net sales. It compares the company's earnings before interest and taxes or EBIT to the firm's sales. It indicates how successful a firm is in generating income from operating the business. The operating profit of a firm can be calculated by reducing the summation of cost of goods sold and selling, general and administrative costs from the firm's total sales. Selling, general and administrative costs are represented as SG&A costs. Using this ratio may not be possible as well because it needs the cost of goods sold. NPM is the ratio of net income after taxes divided by the firm's total annual sales. This is the bottom line that garners the most attention for discussions related to a company's profitability. For the purpose of this study, profitability was measured using the NPM ratio as this ratio can be calculated with ease from the income statement of any firm.

2.3 Liquidity and the Credit Collection Period

Large organizations have a variety of investment opportunities instead of holding cash that will have no returns. One of these avenues for investment is offering trade credit to customers. Corporate cash holdings can play a prominent role in the firms liquidity management by ensuring the funding for future investments (Acharya, Davydenko & Strebulaev, 2012). It is thus possible that trade credit can function as a reserve of liquidity. A firm can generate more liquidity by collecting receivables when needed and reduce their liquidity positions by offering more trade credit. Through price discrimination, it is possible that offering trade credit to customers can yield very high returns. Firms with high liquidity are thus better off converting
their liquidity to investments in their receivables as one of their investment options. From this, we can see that there exists a relationship between liquidity and the credit collection period of a firm.

Listed organizations are imposed by their creditors requirements to maintain financial solvency. Solvency can be defined as the ability of a firm to have assets in excess of their liabilities such that the firm is able to pay back their creditors irrespective of the performance of the firm at any point of time (Fabozzi et al., 2015). A more liquid company can thus be able to assure the creditors that their liabilities will be met in full, even in case of any unexpected outcomes that the firm may face in the future that could close the operations of the firm. These organizations should thereby hold a strict amount of liquidity reserves for the long term benefit of their shareholders who stand to lose a lot if a firm does not maintain financial solvency (Dencic-Mihajlov & Malenovic, 2015).

The existence of financial market imperfections allow vendor firms advantages with respect to information and collection costs over financial intermediaries (Fabbri & Menichini, 2010). In addition to the returns on trade credit, firms with higher liquidity can optimize their own sales by financing less liquid customers with limited access to financial intermediaries such as banks and other lending institutions (Shwartz, 1974). Thus, Firms with higher liquidity would grant more trade credit to firms with lower liquidity as an alternative to investing in marketable securities (Petersen & Rajan, 1997). Doing so by converting their own liquidity to investments in receivables by providing trade credit could yield higher volumes of sales and also reduce the inventory holding costs of a firm.

On the other hand, Marotta (2000) mentions that firms with higher liquidity have less incentives to promote sales via trade credit due to potential overtrading and thereby are unlikely to extend trade credit. There is a tradeoff between opportunity costs and financing costs involved whereby the financing of high risk accounts receivable with low financial return would increase the credit risk of a firm more than investing in other short term instruments with lower risk. Overtrading is a term that is used in financial statement analysis. Overtrading occurs when firms expand their own operations too quickly or aggressively and enter a negative cycle, where an increase in interest expenses negatively impacts the net profits of a firm, which leads to lesser working capital, and that leads to increased borrowings, which in
turn leads to more interest expenses and the cycle continues (Bregu, 2016). Overtraded companies eventually face liquidity problems or run out of working capital.

During period of monetary tightening, Meltzer (1960) in his classical work titled Mercantile Credit, Monetary Policy & Size of Firms, found that large liquid firms increased the amount of trade credit extended towards their customers. He developed a hypothesis that trade credit can act as a substitute to bank loans. The simultaneous decrease in bank loans and increase in trade credit volumes that were offered by the firms showed that customers who were unable to access funds from financial intermediaries resort to accessing credit from their suppliers. The author explicitly mentioned that in times of financial downturn, creditworthy liquid firms extend payment terms to their customers so as to consolidate future sales, and in that regard will redistribute their obtained funds through trade credit to less credit worthy firms. This view is widely known as the redistribution view.

Boissay and Gropp (2007) in their study titled Trade Credit Defaults and Liquidity Provision by Firms, investigated trade credit defaults among French firms and how trade credit is used to relax financial constraints. They used a firm level panel-data set containing quarterly information on inter-firm trade credit defaults over a six year period from 1998 to 2003. Using panel data regression, the study concluded that larger more creditworthy liquid firms with better access to finance, act as a shock absorber towards credit constrained firms by the extension of trade credit volumes and credit terms. The study also found that although larger more liquid firms face the bulk amount of defaults, they do not pass these on to other firms. Their work lend credence to the liquidity insurance theory and the existence of shared rents between customers and suppliers who accommodate defaults (Cuñat, 2007). The liquidity insurance theory states that investors will demand a higher interest rate or premium on the goods and services offered that carry greater risk. This is because, all other factors held equal, suppliers prefer cash or highly liquid holdings.

Love, Preve and Sarria-Allende (2007) in their study titled Trade Credit and Bank Credit: Evidence from recent Financial Crises, analyzed the impact of financial crises and the use of trade credit, taking into account the financial health of a firm. Their study was mainly based on the redistribution view of trade credit. They studied the effects of the 1997 Asian financial crisis on firms operating in Indonesia, South Korea, Philippines and Thailand. The study also
considered the impact of the 1994 Peso devaluation on Mexican firms. Using panel data from 890 large publicly traded firms, the study analyzed the trade credit behavior of these firms around the crisis time using panel data regression. The study found that financially strong firms with high liquidity redistribute bank credit to weaker firms through trade credit. The study also revealed that directly after a financial shock, trade credit volumes increased but shrunk rapidly once the shocks had alleviated. The sudden increase observed in the volumes of trade credit could also imply an extension of the terms of credit such as the credit period extended towards customers. Cuñat (2007) argued that suppliers are obligated to maintain relationships with their customers and thus would allow customers experiencing low liquidity or a crisis to postpone payments. This can be viewed as a temporary default or allowance to increase the maturity of existing credit contracts.

A study titled Delaying Payments after the Financial Crisis: Evidence from EU Companies by Obeng (2017), also used panel data regression to investigate the impact of delayed payment caused by the liquidity crisis in the European Union using micro data sets from the financial statements of 54277 firms from 2005 to 2014. The study measured the liquidity of the firms using the Current Ratio (CR) and concluded that firms having low liquidity had their credit collection period reduced during the crisis whereas firms having higher liquidity had their credit collection period increased.

The study by Zainuddin and Regupathy (2010) also investigated the influence of liquidity on the credit collection period of a firm. This study was however not conducted during an economic crisis. The study found that liquidity influenced the collection period of a firm negatively for all the four sub-sectors considered in the study. This meant that companies with greater liquidity collected their trade credit faster. They concluded that this result was rather surprising as firms with higher liquidity were expected to offer more trade credit to their customers and thus collect their trade credit slower. They further mention that this result would indicate that in practice, trade credit and liquidity policies may be complimentary rather than substitutes and may reflect a firm's inclination towards managing its working capital. As an example, a risk averse firm would be more likely to maintain a higher amount of liquidity and collect its trade credit faster, whereas a less risk averse firm would have lower liquidity and allow a longer trade credit period to their customers. In other words, they concluded that
liquidity may be more reflective of a firm's risk aversion in managing its working capital rather than its willingness to offer a longer trade credit period to towards customers.

Fabozzi et al. (2015) mention that there are a variety of ways to measure the liquidity of a firm using liquidity ratios. Liquidity ratios can be calculated using data obtained from the financial statements of a firm. Three main liquidity ratios are the Current Ratio (CR), Quick Ratio (QR) and the Net Working Capital ratio (NWC). The CR can be obtained by dividing the current assets of a firm by its current liabilities. This ratio measures the firm's ability to pay its short term and long term obligations. It is also known as the working capital ratio. The QR is also referred to as the acid test ratio and is a modification of the CR. It can be determined by dividing the current assets minus the inventories divided by the current liabilities. The QR is a measure of how well a firm can meet its short term financial liabilities. The NWC ratio is simply the net working capital of a firm divided by the total assets of a firm. The working capital is the current assets minus the current liabilities of a firm. This ratio shows a firm's short term liquidity as well as the firm's ability to use its assets efficiently. For the purpose of this study, the NWC ratio was used as the measure of a firm's liquidity.

2.4 Firm Size and the Credit Collection Period

Delannay and Weill (2004) mentioned that the larger a firm is, the more likely that the firm is in a position to grant trade credit to their customers. They mentioned that the size of the firm may have a significant relationship to the creditworthiness of a firm. Larger organizations have a much higher tendency to grant trade credit towards customers as they are more creditworthy and have fewer opportunities for growth and thereby need less funds for such activities. Thereby utilizing their excess funds by investing it in their receivables becomes a viable possibility in their financing decisions. They further stated that the price discrimination theory and the transaction costs theory are the main theories behind firm size as a determinant of trade credit extension.

Although trade credit collection may be influenced by the industry norms in general, the bargaining power of some customers could have a disproportionate effect on the credit terms offered (Paul & Wilson, 2007). Suppliers may vary their terms to attract specific customers in order to achieve a certain level of market share and thus may purposely use trade credit as a
medium to capture business, support sales and ultimately their growth (Summers & Wilson, 1999). Large firms could however hold a relatively higher bargaining power in the trade relationship between suppliers and their customers. Due to this, large firms may be reluctant to hold large amounts of costly accounts receivable and could impose strict conditions for payments by their customers. They are especially able to do this if their products or services are superior in nature compared to their smaller rivals and thereby their customers may have no options but to seek their products or services in particular.

Wilson and Summers (2002) suggest that younger and smaller firms use trade credit as a means to assure their quality and in doing so build a reputation among potential customers in order to increase their market share over time. Younger firms are thereby expected to do this in order to eventually build a strong foundation based on the positive experiences of their customers. If customers have a negative experience, young firms can spoil their reputation and fail to grow. Larger firms that have already built a foundation and reputation in the market with a customer base that is well aware and satisfied with their quality generally offer less trade credit to their customers (Long et al., 1993). Larger firms have already passed their growth phase and thereby are likely to have a large number of customers who find the establishment reputable and worthy of conducting repeated business.

Kling, Paul, and Gonis (2014) found that firms in the United Kingdom have had to invest in their accounts receivable to maintain their sales levels and ultimately their competitiveness. Breza and Liberman (2017) mentioned that when trade credit is restricted, the trade between buyers and sellers may decrease. This decrease can be attributed to rivals offering longer credit periods to the customers. Customers would always prefer purchasing where they can acquire larger and longer credit volumes and terms. This could be a reason why larger firms despite having good reputation and a firm foundation may still opt to maintain higher levels of trade credit offering to their customers. Doing so may keep sales steady and on the rise.

The helping hand theory suggests that trade credit allows funds to be channeled from cash rich larger firms to those with limited borrowing potential in the supply chain (Petersen & Rajan, 1997). As an example, in Europe, small and medium enterprises that were unable to obtain finance from banks relied heavily on trade credit offered by their larger and more cash rich suppliers (Carbo-Valverde, Rodriguez-Fernandez and Udell, 2016).
Ferrando and Mulier (2013) in their work titled Do Firms Use the Trade Credit Channel to Manage Growth?, suggested that firms will actively use trade credit as a means to finance their growth. They mentioned that firms that are more vulnerable to financial market imperfections are more likely to be financially constrained and will rely more on trade credit obtained from their larger suppliers to finance their own growth. For this reason larger firms could have a longer collection period to help sustain this. For the larger firms, the benefit gained is that of building their customer relationships and thereby gaining a competitive advantage over their rivals by acquiring repeated business. The authors further mentioned that in the presence of financial market imperfections, it becomes crucial for firms to receive trade credit in order to pre-finance production, but also important to extend trade credit in order to sell goods to constrained customers. For that reason, they also argued that it is not just the accounts payable or the accounts receivable that matters, but rather the sum of the two which works as a credit channel of trade. The authors also mentioned that in order for a firm to protect their accounts receivable from credit risks related to losses, firms can purchase credit insurance. Firms with insured receivables would be more likely to obtain a bank contract that allows the firm to draw on short term liabilities with their receivables as pledged collateral.

Bărbuţă-Mişu and Deari (2016) in their study titled Determinants of Trade Credit in European Construction Firms: A Preliminary Study, aimed to present a comparative study of trade credit indicators and the possible determinants of trade credit for firms in the European construction sector. The study used a sample of 958 medium and large sized firms over a period from 2004 to 2013. Panel data regression analysis was the methodology used in this study. The study revealed that larger firms provided and similarly obtained more trade credit than medium sized firms and small sized firms. Their study thereby also implied that larger firms could have a longer credit collection period and also take a longer period to pay their own suppliers as well. The size of the firm in this study was taken as the number of employees. A small firm consisted of 0 to 49 employees, medium sized firms had between 50 to 249 employees and large firms had 250 employees or more.

Ahmed, Xiaofeng and Khalid (2014) in their study titled Determinants of Trade Credit: A Case of a Developing Economy, investigated the effect of firm size on trade credit levels using data over a seven year period from 2005 to 2011 from non-financial firms in Pakistan. The study
utilized panel data regression as well and concluded that larger firms to do not carry out credit sale transactions. The study confirmed a negative correlation between firm size and credit supply indicating that the larger a firm is, the lower its probability of conducting sales on credit and so the firms are likely to have a shorter collection period as well.

The study by Zainuddin and Regupathy (2010) also investigated the effect of firm size on the credit collection period of a firm. The study found that the firm size was positively correlated with the ACP of a firm in three of the four subsectors that were created in their study. Only one sub-sector seemed to be out of the norm having a negative correlation with the ACP of a firm. The study mentioned that the sub-sector showing a negative correlation between the firm size and the ACP was expected as larger companies have access to greater resources that can be channeled towards more efficient collection of their receivables or directed towards improvement of their credit management processes. Thus larger firms should ideally have shorter collection periods. However, the positive correlation obtained between the firm size and the ACP of a firm for all the other sub-sectors was unexpected. This meant that most of the larger firms would take a longer time to collect their trade receivables than smaller sized firms. The study concluded that firm size has an influence on the credit collection period of a firm, but the nature of its influence will depend on the industry sector or rather the characteristics of the firm and its activities.

Zainuddin (2008) in a study titled Tracking the Credit Collection Period of Malaysian Small and Medium Sized Enterprises, explored the collection period of 279 small and medium sized firms in Malaysia using their financial statements from 1999 to 2002. A correlational study using pooled panel data was used, which found a low degree of negative correlation between the ACP and the company size. The study concluded that smaller firms in contrast to larger firms were more likely to experience longer collection periods. Though not conclusive, the study concluded that this may be as a result of the smaller firms being at the mercy of large and dominant customers with the ability to dictate payment terms to their suppliers.

A study by Regupathy and Zainuddin (2003) titled The Credit Collection Period of KLSE Listed Companies, used pooled OLS to determine whether there was any relationship between company size and the ACP using the data obtained from the financial statements of 196 listed non-financial firms in the Kuala Lumpur Stock Exchange. The study found that the firm size
had either no correlation, a positive correlation or a negative correlation depending on the firm sector. In other words, the influence of the company size on the collection period of a firm will depend on the nature of the firm and the business that they conduct.

Empirical studies require that the size of a firm is measured by considering various proxies such as the number of employees within an organization, the firm's total assets, total sales or the market capitalization of the firm (Fabozzi et al., 2015). This study used the total assets as a measure of the firm's size as the number of employees and market capitalization are difficult to obtain from financial statements. Although a firm's total sales is available in their financial statements, it was already used to derive the ACP of a firm in this study and thereby was not suitable as a measure of the firm's size.

2.5 Chapter Summary

Theories and previous empirical studies on this subject revealed that firms which enjoy higher profits were more likely to have good credit management policies in place and thereby have a shorter collection period. Theoretical models argue that there exists an optimal credit policy where the profits and value of a firm can be maximized. The liquidity of a firm is observed to have an effect on the collection period. The reviewed literature suggests that more liquid firms will grant more trade credit and thus have longer collection periods. This however, was found to be true only in times of an economic crisis. The same could not be confirmed from periods that did not suffer from any economic downturn as empirical studies revealed that firms having higher liquidity had shorter collection periods. Theory is quite unclear on the influence of firm size on the collection period of a firm. Generally speaking, larger firms in contrast to smaller firms in developing countries seemed to have a shorter collection period, whereas the opposite was observed in developed countries. All the required variables in this study were determined using well known financial ratios. Chapter three elaborates on the research methodology that was used in this study to determine the effect of profitability, liquidity and firm size on the ACP of non-financial listed firms in the NSE. The chapter discusses the research design, population and sample used, methods for data collection, research procedure and data analysis methods used, in that order.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter elaborates on the research design utilized in this study. The chapter will also encompass the population and sampling design, the data collection methods used, the research procedure and the data analysis methods used, in that order.

3.2 Research Design

The research design used in this study was descriptive in nature. A descriptive research involves identifying the characteristics of an observed phenomenon or exploring the possible associations that may exist between two or more phenomena (Lee & Ormrod, 2016). In short, a descriptive study can describe the interaction of two or more variables. As the study was primarily interested in the discovery of associations among the ACP and the profitability, liquidity, and firm size, a correlational study was used. A correlational study can be viewed as a subset of descriptive studies (Cooper & Schindler, 2014).

The research philosophy used in this study was positivism that originates in the works of Francis Bacon, Auguste Comte and the early twentieth century group of philosophers and scientists known as the Vienna Circle. Positivism embraces a strictly scientific empiricist method that yields pure data and facts without bias or influence from human interpretation. The research thus incorporated objectivism where the researcher is detached, neutral and independent of the study (Saunders, Lewis & Thornhill, 2016).

3.3 Population and Sampling Design

3.3.1 Population

A population refers to people, objects, entities or organizations that form the subject of a study and are similar in one or more ways (Leedy & Ormrod, 2016). A target population can be described as a specific group of people, objects, entities or organizations for which data can be gathered or observations can be made to develop the required data structure and information (Cooper & Schindler, 2014). The target population for this study was the non-financial firms
listed in the NSE. There were a total of 39 firms that were non-financial firms as of 5th April, 2018.

3.3.2 Sampling Design

3.3.2.1 Sampling Frame

A sampling frame encompasses and identifies all the elements of a population available to the researcher for any stage of sampling (Leedy & Ormrod, 2016). The sampling frame considered for this study was the non-financial firms listed in the NSE. The NSE is one of the leading African Exchange, based in Nairobi-Kenya which has been hailed as one of the most fastest growing economies in Sub-Saharan Africa. It was founded in 1954 and has a six decade heritage in listing equity and debt securities. It operates under the jurisdiction of the Capital Markets Authority of Kenya and is a full member of the World Federation of Exchange (NSE Website, 2018).

3.3.2.2 Sampling Technique

Sampling technique is a process of selecting an adequate number of elements from a population such that the study helps to understand the characteristics of the target population and generalize the results (Cooper & Schindler, 2014). Broadly, sampling methods are classified into two groups namely probability and non-probability sampling. However, as the target population was small for non-financial firms listed in the NSE, the sampling technique involved identifying all the firms within the target population that had a complete data set.

3.3.2.3 Sample Size

A sample is considered as a subset of the target population (Cooper & Schindler, 2014). It is a part of the total population that is selected for further research. As the firms that qualified for this study were evaluated on the basis of availability of sufficient data, eight of the thirty nine non-financial firms were excluded from the study as the required data for these firms were not retrievable. The sample size thus consisted of thirty one of the thirty nine non-financial firms listed in the NSE. This sample size represented 79.5 percent of the entire target population. See Appendix I for the firms that were selected for the study.
3.4 Data Collection Methods

This study used secondary data obtained from the consolidated financial statements of the selected firms through their annual reports. The data collection for the purpose of this study used a checklist. See Appendix II for the checklist that was utilized in this study. A five year period from 2013 to 2017 was considered sufficient as financial figures tend to fluctuate from year to year due to temporary or extraordinary circumstances. Using a longer period for the study may not have represented the true characteristics of the firms that prevail in the current time (Zainuddin & Regupathy, 2010). The annual reports for the firms that were selected for this study were freely available for public viewing through their company website.

Secondary data is the data that a researcher has not collected directly from any of the respondents or subjects of a study. This essentially means that the data was not collected with the researcher's purpose in mind (Leedy & Ormrod, 2016). The advantage with secondary data however, is that a complicated design for the collection method for acquiring primary data is avoided. Moreover, secondary data is most often cost free and quick to find especially if it is available online. Since the researcher is also not in contact with the data respondents in comparison to primary data collection, the respondents are not overloaded with subsequent research questions. Also the researcher is not able to affect any responses from the respondents, which is a possibility in the collection of primary data.

3.5 Research Procedures

The research began by collecting the annual reports of the selected non-financial firms listed in the NSE over the five year period from 2013 to 2017. Using the checklist provided in Appendix II, the required numerical data to calculate the dependent and independent variables for each financial year was tabulated for each individual firm. This numerical data was then transformed to the required dependent and independent variables for this study.

Once the required dependent and independent variables were calculated, the data was arranged in long form based on the firm and year for further analysis through panel data regression to determine the effect of profitability, liquidity and firm size on the ACP of a firm. This data also served to obtain various descriptive statistics for the variables selected for this study taking
into account each year. The data also enabled the study to provide trends about the chosen variables.

Ethics relate to moral choices affecting decisions, standards and behavior (Saunders et al., 2016). For this study, the access to the information contained in the annual reports were released to the public and thereby, any use of this information was not considered to infringe on the rights of the firms involved in the study. Neither did this study aim to highlight any firm in particular. The data used from the financial statements have not been altered in any way shape or form to suit the study. The results from the analysis explores the relationships between the dependent and independent variables considering all firms involved in the study and does not highlight any firm in particular as well.

3.6 Data Analysis Methods

The dependent variable for this study was the ACP. It was empirically determined by dividing the accounts receivable by the total annual sales on credit and multiplying the result by 365 to get the answer in days. Larger firms may have too high of a transaction volume to conduct sales on cash basis (Boden & Paul, 2014). Thus, for this study, all sales were assumed to be on credit terms. The formula used for calculating the ACP is as follows:

\[ ACP = \frac{AR}{S} \times 365 \text{ days} \]

Where;

\( AR = \) Accounts Receivable
\( S = \) Total Annual Sales/ Revenue

Profitability, liquidity and size of the firm were the independent variables for this study. The measure of profitability considered for this study was the NPM. Note that the total annual sales was used to compute the ACP, however the NPM formula was not modified as there are no alternative measures of profitability without involving sales. The formula used for computing profitability through NPM is as follows:

\[ NPM = \frac{NP}{S} \]
Where;

NP= Net Annual Profit

S= Total Annual Sales/ Revenue

Liquidity of the firm was measured using the NWC ratio. The ratio was slightly modified by removing accounts receivable from both the numerator and denominator, as accounts receivable was used to derive the ACP. Liquidity was thereby calculated using the following formula:

\[ \frac{CA - CL - AR}{TA - AR} \]

Where;

CA= Current Assets

CL= Current Liabilities

AR= Accounts Receivable

TA= Total Assets

The size of a firm was measured using the total assets of the firm. A modified measure was used as the total assets of a firm also comprises the accounts receivable of the firm. Thus, accounts receivable was deducted from the total assets. Furthermore, as the data was heavily skewed for the sizes of various firms, the natural log was considered. Thus the formula used for measuring size of the firm is as follows:

\[ \ln (TA - AR) \]

Where;

TA= Total Assets

AR= Accounts Receivable
Using the long form panel data, descriptive statistics using the measures of central tendency namely minimum, maximum, mean and standard deviation were tabulated taking each individual year into account for all the variables involved in this study. The tabulated mean enabled the study to provide trends on how each variable varied within the five year period, considering all the firms involved. Charts and graphs were used to have a clear visual representation of these statistics. This enabled the study to describe the dependent and independent variables in detail and make inferences about the data. Descriptive statistics using dispersion measures is suitable for numerical data (Saunders et al., 2016).

Furthermore, inferential statistics using fixed panel data regression was used in the study to establish the effect of profitability, liquidity and firm size on the ACP of a firm using the following model:

\[
(ACP)_{it} = \alpha + \beta_1(NPM)_{it} + \beta_2(NWC)_{it} + \beta_3(LnSIZE)_{it} + U_{it}
\]

Where;

\( \alpha \) = Unknown Y intercept for each firm

\( \beta_1 \) = Regression coefficient for profitability

\( \beta_2 \) = Regression coefficient for liquidity

\( \beta_3 \) = Regression coefficient for firm size

\( U \) = Error term reflecting the difference between observed and fitted linear relationship due to variables that were not included in the study

\( i \) = Firm

\( t \) = Time

Panel data contains information spanning both time and subjects in a cross section. As it contains more information compared to simple cross sectional data, it is able to provide more efficient estimates. Fixed effects are used when a study is only interested in analyzing the impact of variables that vary over time to assess the net effect of the predictors on the outcome variable. A negative correlation coefficient from the regression would indicate that the
dependent and independent variable do not move together, that is when one increases, the other decreases and vice versa. A positive correlation coefficient would indicate that both the dependent and independent variables move together, that is, when one increases, so does the other and vice versa. The calculated regression coefficient enables us to see if the degree of change in the chosen independent variables can explain the change on the dependent variable.

The study made use of Microsoft Excel to transform the collected data into the required variables for this study as well as create the long form data set. The required descriptive statistics, charts and graphs were also generated using Microsoft Excel. A statistical analysis tool called STATA was then used for the fixed panel data regression to determine the effect of profitability, liquidity and firm size on the ACP. STATA was used as it incorporates a thorough design to evaluate panel data efficiently.

3.7 Chapter Summary

The research design used in this study was descriptive. The target population was the non-financial firms listed in the NSE of which thirty one out of thirty nine firms were selected for the study. This amounts to 79.5 percent of the entire target population. The study utilized secondary data from the consolidated financial statements found from the annual report of each firm over a five year period from 2013 to 2017. The annual report was obtained through the company's website. The study utilized descriptive and inferential statistics to answer the research objectives. Descriptive statistics allowed a detailed description of the transformed data collected for this study. Fixed panel data regression was used to determine the relationship between the dependent and independent variables. The software packages used for the computation and generation of results is Microsoft Excel and STATA. Chapter four presents the analysis and findings of the research. Both descriptive and panel data regression results obtained will be presented and interpreted in detail.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter presents the analysis and findings of the research. The objectives of the study were to determine the effect of profitability, liquidity and firm size on the ACP of listed non-financial firms in the NSE considering a five year period from 2013 to 2017. Descriptive statistics and trends on the main research variables, as well as the panel data regression results are presented.

4.2 Descriptive Statistics and Trends on the Main Research Variables

4.2.1 Descriptive Statistics and Trend on the ACP

Table 4.1: Descriptive Statistics on ACP

<table>
<thead>
<tr>
<th>Year</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>16</td>
<td>694</td>
<td>87</td>
<td>116</td>
</tr>
<tr>
<td>2014</td>
<td>16</td>
<td>482</td>
<td>85</td>
<td>81</td>
</tr>
<tr>
<td>2015</td>
<td>25</td>
<td>398</td>
<td>89</td>
<td>68</td>
</tr>
<tr>
<td>2016</td>
<td>22</td>
<td>478</td>
<td>93</td>
<td>81</td>
</tr>
<tr>
<td>2017</td>
<td>20</td>
<td>576</td>
<td>108</td>
<td>102</td>
</tr>
</tbody>
</table>

From the results in table 4.1, it can be seen that the year of 2017 recorded the highest ACP with a mean value of 108 days. The lowest ACP was recorded in the year 2014 with a mean of 85 days. Additionally, the values for standard deviation depict variability in the ACP over the five year period with the highest deviation of 116 days in the year 2013 and lowest deviation of 68 days in the year of 2015. It can be also be noted that the collection period of the firms involved in the study is quite high. The firms took up to three months to collect their debt.
Figure 4.1: Trend for ACP

The trend shown in Figure 4.1 reveals that in general, a slight increase in the ACP exists from year to year for the firms that were involved in this study with a steeper increase noted between the years of 2016 and 2017. Between the years of 2013 and 2014, the collection period showed a slight improvement.

4.2.2 Descriptive Statistics and Trend on Profitability

Table 4.2: Descriptive Statistics on Profitability

<table>
<thead>
<tr>
<th>Year</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>-0.139</td>
<td>0.499</td>
<td>0.103</td>
<td>0.119</td>
</tr>
<tr>
<td>2014</td>
<td>-0.447</td>
<td>0.594</td>
<td>0.057</td>
<td>0.161</td>
</tr>
<tr>
<td>2015</td>
<td>-0.840</td>
<td>0.850</td>
<td>0.059</td>
<td>0.295</td>
</tr>
<tr>
<td>2016</td>
<td>-1.543</td>
<td>0.467</td>
<td>-0.005</td>
<td>0.371</td>
</tr>
<tr>
<td>2017</td>
<td>-3.238</td>
<td>0.788</td>
<td>-0.116</td>
<td>0.716</td>
</tr>
</tbody>
</table>

From the results in table 4.2, we can observe that the year of 2013 recorded the highest profitability for firms with a mean value of 0.103 whereas the year of 2017 recorded the lowest profitability with a mean of -0.116. The highest standard deviation was recorded in the year of
2017 with a value of 0.716 and the lowest standard deviation was recorded in the year 2013 with a value of 0.119.

![Profitability Trend](image)

**Figure 4.2: Trend for Profitability**

In general, the profitability of the firms involved in the study seem to be on a downward trajectory with an overall loss after the year of 2016 as revealed by the trend analysis in figure 4.2.

### 4.2.3 Descriptive Statistics and Trend on Liquidity

**Table 4.3: Descriptive Statistics on Liquidity**

<table>
<thead>
<tr>
<th>Year</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>-1.207</td>
<td>0.434</td>
<td>-0.085</td>
<td>0.323</td>
</tr>
<tr>
<td>2014</td>
<td>-0.772</td>
<td>0.371</td>
<td>-0.092</td>
<td>0.283</td>
</tr>
<tr>
<td>2015</td>
<td>-0.664</td>
<td>0.530</td>
<td>-0.074</td>
<td>0.291</td>
</tr>
<tr>
<td>2016</td>
<td>-0.587</td>
<td>0.412</td>
<td>-0.072</td>
<td>0.256</td>
</tr>
<tr>
<td>2017</td>
<td>-0.714</td>
<td>0.424</td>
<td>-0.118</td>
<td>0.275</td>
</tr>
</tbody>
</table>

Table 4.3 shows that the year of 2016 recorded the highest liquidity for the firms with a mean value of -0.072 for all the firms involved. The lowest liquidity was observed in the year of
2017 with a mean value of -0.118. The highest standard deviation was observed in the year 2013 with a value of 0.323 while the lowest standard deviation was observed in the year 2016 with a value of 0.256.

![Liquidity Trend Chart](chart.png)

**Figure 4.3: Trend for Liquidity**

The trend shown in figure 4.3 reveals that the firms involved in the study have poor liquidity positions on a negative scale. Although liquidity seemed to be improving for the firms between the years 2014 and 2016, it rapidly became worse towards the year of 2017.

### 4.2.4 Descriptive Statistics and Trend on Firm Size

**Table 4.4: Descriptive Statistics on Firm Size**

<table>
<thead>
<tr>
<th>Year</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>16.003</td>
<td>27.213</td>
<td>22.381</td>
<td>2.272</td>
</tr>
<tr>
<td>2014</td>
<td>16.023</td>
<td>27.557</td>
<td>22.458</td>
<td>2.299</td>
</tr>
<tr>
<td>2015</td>
<td>16.094</td>
<td>27.994</td>
<td>22.571</td>
<td>2.333</td>
</tr>
<tr>
<td>2016</td>
<td>16.087</td>
<td>28.239</td>
<td>22.650</td>
<td>2.343</td>
</tr>
<tr>
<td>2017</td>
<td>16.019</td>
<td>28.334</td>
<td>22.632</td>
<td>2.384</td>
</tr>
</tbody>
</table>
Table 4.4 shows that the year of 2016 recorded the highest firm size with a mean value of 22.650 while the lowest firm size was recorded in the year 2013 with a mean value of 22.381. The highest standard deviation was recorded in the year 2017 with a value of 2.384 while the lowest standard deviation was recorded in the year of 2013 with a value of 2.272.

**Figure 4.4: Trend for Firm Size**

The trend from Figure 4.4 shows that the firm size has been increasing over the years, although it seems to have stagnated after the year of 2016.

4.3 Inferential Statistics

4.3.1 Fixed Panel Data Regression Analysis

After the regression analysis, as the observations span both time and firms in a cross section, the study conducted a fixed panel data regression analysis to determine the effect of the independent variables on the dependent variable. The regression determines the strength of association in the model, and also explains the relationship between profitability, liquidity and firm size with the ACP for the chosen firms. The results are shown in table 4.5 on the next page.
A total of 155 observations were analyzed for the 31 firms selected for the study. Each firm had 5 observations, with an observation for each year containing cross sectional data of the required variables in this study. From the panel data regression results in Table 4.5, The F test indicates if all the coefficients in the model are different from zero. If this value is less than 0.05, it indicates that the regression model is okay. As the F test value is 0.0306, this implied that the fixed effects model is fit to determine the relationships among the chosen independent variables with the dependent variable.

The t values test if the independent variable has a significant influence on the dependent variable. The t value has to be higher than 1.96 for a 95 percent confidence level. As none of the t values were above 1.96, this implied that none of the independent variables have a significant influence over the dependent variable. The chosen firm specific characteristics thereby have no significant influence over the credit collection period of a firm.

The two tail p values also test whether the independent variables have a significant influence over the dependent variable. If this value is less than 0.05 for a 95% confidence level, then the independent variables have a significant influence over the dependent variable. The two tail p values from the results indicated that only the profitability of a firm has some significant influence over the credit collection period of a firm as it is less than 0.05. As per the two tail p

### Table 4.5: Fixed Panel Data Regression Results

| Coef. | Std. Err. | t | P>|t| | [95% Conf. Interval] |
|-------|-----------|---|-----|------------------|
| npm   | -19.54558 | 9.653739 | -2.02 | 0.045 | -38.65771 | -4.334616 |
| nwc   | -31.72519 | 22.81038 | -1.39 | 0.168 | -77.04867 | 13.59828  |
| size  | 5.492419  | 12.67405 | 0.43  | 0.666 | -19.59921 | 30.58404  |
| _cons | -33.70006 | 285.9383 | -0.12 | 0.906 | -599.7904 | 532.3902  |
| sigma_u | 88.166016 |           |       |       |           |            |
| sigma_e | 30.705818 |           |       |       |           |            |
| rho   | 0.8918206 |           |       |       |           |            |

F test that all u_i=0: F(30, 121) = 40.16 Prob > F = 0.0000
values, liquidity and firm size did not have a significant influence over the collection period of a firm as the values are greater than 0.05.

The overall R square value of 0.0045 indicates that the model had very low predictive power. The model was only able to account for 0.45 percent of the change in the collection period of a firm using the chosen firm specific characteristics as the independent variables. As per the regression output however, the regression equation is as follows:

$$ACP= -33.7-19.55(NPM)-31.73(NWC)+5.49(LnSIZE)+U$$

The correlation coefficient obtained for profitability is -19.55 which implied that, for a unit increase in profitability, the collection period reduced by 19.55 days. The correlation coefficient obtained for liquidity is -31.73, which implied that for a unit increase in liquidity, the collection period reduced by 31.73 days. The correlation coefficient obtained for firm size is 5.49, which implied that for a unit increase in firm size, the collection period of a firm increased by 5.49 days. Profitability and liquidity of a firm were seen to have a negative correlation with the ACP of a firm whereas firm size was positively correlated with the ACP.

The results obtained from the fixed regression results were however inconclusive. In general, it seems that none of the chosen firm specific characteristics had a significant influence over the credit collection period of a firm. This may be due to the fact that the sample size of 31 firms were not enough to generalize the results efficiently.

4.4 Chapter Summary

Descriptive statistics have revealed that in general, non-financial listed firms in the NSE take up to three months to collect their debts. The general trend observed was that the ACP of the selected firms was increasing steadily over the years between 2013 to 2017. The profitability of these firms were on an overall decline over the years with exceptionally poor performance in the time frame between 2016 and 2017, where in general the firms involved deviate towards losses. Overall, throughout the years that were considered for this study, the liquidity positions of the selected firms were on a negative scale, which was progressively worse between the years 2016 and 2017. Despite the poor profits, these firms were steadily increasing in size, although growth was stagnated between the years 2016 and 2017. Inferential statistics using
fixed panel data regression had yielded inconclusive results. The t and two tail p values from the regression results suggested that none of the firm specific characteristics chosen for the study as independent variables had a significant influence over the credit collection period of the firms. The correlation coefficients obtained show that profitability and liquidity had a negative correlation with the ACP of the firms, whereas firm size had a small positive correlation with the ACP. The regression model had low predictive power represented by the overall R square value of 0.0045. This meant that the model was only able to firmly account for 0.45 percent of the change in the collection period using the chosen firm specific characteristics. Chapter five provides a summary highlighting the purpose, objectives, methodology used as well as the major findings. The chapter presents a discussion on the findings by interpreting and comparing the results to the previous studies and theories discussed in the literature review. Conclusions and recommendations for further research are also presented along with their justifications, taking into account the limitations of the study.
CHAPTER FIVE

5.0 DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the study highlighting the general objective, specific objectives, methodology used and the major findings. The chapter encompasses a discussion of the findings by interpreting and comparing it to the previous studies and theories discussed in the literature review. Conclusions drawn from the research findings are also presented. Recommendations for improvement of the collection period of listed non-financial firms in the NSE as well as recommendations for the practice and improvement of further studies on this topic are provided with their justification.

5.2 Summary

The general objective of this study was to determine the effect of various firm specific determinants on the credit collection period of a firm, specifically focusing on non-financial listed firms in the NSE. The study had three specific objectives that were determined empirically using descriptive statistics as well as inferential statistics. The study wished to determine the effect of profitability on the ACP of non-financial listed firms in the NSE, establish the effect of liquidity on the ACP of non-financial listed firms in the NSE and to find the effect of firm size on the ACP of non-financial listed firms in the NSE.

The research design was descriptive in nature. The target population for this study was the non-financial firms listed in the NSE. There were a total of thirty nine firms that were non-financial in nature as of 5th April, 2018. The NSE was the sampling frame utilized for this study which is one of the leading African Exchange based in Nairobi-Kenya. Eight of the thirty nine non-financial firms were excluded from the study as the required data for these firms were not retrievable. The study utilized secondary data obtained from the consolidated financial statements of the firms through their annual reports. The study period considered was five years from 2013 to 2017. The study utilized descriptive statistics namely minimum, maximum, mean and standard deviation as well as inferential statistics in the form of fixed panel data
regression to answer the research objectives. The software packages used for the computation and generation of results were Microsoft Excel and STATA.

Descriptive statistics revealed that in general, the listed non-financial firms in the NSE take up to three months to collect their trade receivables. The ACP for these firms showed an increasing trend overall from year to year implying that the collection of trade receivables is progressively worsening with time. The profitability of the firms were on a decline with exceptionally poor performance between the years of 2016 and 2017 which may be attributed to the political instability experienced in the country during that time frame. Fixed panel data regression revealed inconclusive results. The model could only account for 0.45 percent of the change in the collection period using the chosen firm specific characteristics. The t and two tail p values in general revealed that none of the chosen firm specific characteristics had a significant influence on the collection period of the firms. The regression revealed that profitability was negatively correlated with the ACP. A unit increase in profitability was seen to decrease the ACP by 19.55 days.

Descriptive statistics further revealed that in general, the liquidity positions of these firms have been on a negative scale. This implied that these firms have poor ability to meet current or short term liabilities. It also implied that the firms were not able to generate cash beyond their liabilities. The panel data regression revealed that liquidity was also negatively correlated with the ACP. A unit increase in liquidity lead to a decrease in the ACP by 31.73 days.

Despite the overall poor profitability and liquidity positions, descriptive statistics revealed that firm size showed an upward trend over the considered time period. Unlike profitability and liquidity however, panel data regression revealed that firm size was positively correlated with the ACP. A unit increase in the firm size lead to an increase in the ACP by 5.49 days.

5.3 Discussion

5.3.1 Effect of Profitability on the Credit Collection Period

Comparing the trend of the ACP and profitability of the firms, it can be seen that the ACP was steadily increasing over the years while profitability was on a decline. Although this cannot be considered as sufficient evidence that longer collection periods lead to lower profitability as
profits may be on a decline due to a number of reasons such as macro economic factors among others, the regression results showed that profitability and the ACP of a firm was negatively correlated. Even though the results revealed that profitability did not have a significant influence over the collection period of a firm, possibly due to the fact that the sample size considered may not be sufficient, the negative correlation coefficient obtained agrees with the study by Paul, Devi & Teh (2012), in that a longer collection period would signal lower profits for a firm. Indeed late payment is also a huge problem in Kenya as well due to the fact that the firms show that they take up to three months or ninety days to collect their debts. This long delay could very well signal that the firms in the NSE that were poorly performing have poor credit management practices and policies that ultimately leads to the nullification of their potential profits.

As Chittendran and Bragg (1997) suggests, an increase in the working capital of firms is required if a firm suffers late payment from their customers. In general, as the profitability of the non-financial firms listed in the NSE shows a downwards trajectory, using further debt obtained from financial intermediaries such as banks would not be an ideal way to increase the working capital of a firm as this would further reduce the profitability of the firm due to the higher interest payments that the firm will incur. Although increasing the equity of the firm can be regarded as a viable option, the dilution of existing investors stakes is to be expected as the returns from the operations of the firm are likely to remain unchanged. Reducing capital investment for the future would only limit the long term performance of the business and ultimately also reduce the competitiveness of the firm. Improving the collection period of the firm and at the same time increasing the duration and amount of trade credit that the firm receives is one of the most viable ways of ensuring that the firm performs optimally.

The findings from the study also agrees with the study by Zainuddin & Regupathy (2010) who found a negative correlation between profitability and the ACP of firms in three of the four sub-sectors that they considered in their study conducted on 214 small and medium enterprises based on the manufacturing sector in Malaysia. Their results obtained from pooled OLS regression confirm that the industry sector is a significant variable that can influence the results as inherently, different firms have different characteristics. As the target population was small for non-financial listed firms in the NSE, dividing the firms into sectors could not be
accomplished as doing so would only diminish the quality of the results. Overall however, the negative correlation seems to be dominant among the four sectors considered in their study. Their argument that more profitable companies would collect their trade credit faster, reducing their financing costs and bad debts takes prevalence over the argument that as credit management is unlikely to be a firm's mainstream activity, only more profitable companies would extend longer credit to their customers as only a marginal profit can be obtained from extending the credit. Ultimately, this signals that more profitable companies in the NSE have better credit management processes and thereby are likely collect their receivables sooner as well.

5.3.2 Effect of Liquidity on the Credit Collection Period

The liquidity of the firms considered for this study has seen heavy fluctuations over the time period considered, compared to the ACP that has seen a steady rise. Theory suggests that only firms with high liquidity positions would extend trade credit to their customers (Shwartz, 1974). The negative correlation coefficient found from the panel data regression contradicts this theory. The findings suggested that firms with higher liquidity would collect their trade credit faster. Despite this, the trend for liquidity has shown that in general, the firms considered had poor liquidity positions but allowed very long periods of up to 90 days to collect their receivables. Maintaining certain levels of liquidity thereby do not seem to be a priority for the non-financial firms listed in the NSE as the firms exhibit high risk endeavors by supplying trade credit with long collection periods in order to increase sales despite having poor liquidity positions. It may be possible that the listed non-financial firms in the NSE suffer from problems related to overtrading as in general, the firms seemed to have expanded over the years in terms of their assets while the ACP was increasing as well. Aggressive expansion could have lead to overtrading that has brought liquidity problems for the firms.

The results from regression did not agree with the study by Boissay and Gropp (2007) who concluded that larger more liquid and creditworthy firms with better access to finance act as a shock absorber towards credit constrained firms by the extension of credit volumes as well as credit terms. The results obtained also disagree with the study by Love, Preve and Sarria-Allende (2007) who concluded that financially strong firms high liquidity will redistribute bank credit to weaker firms through trade credit. The authors also found that directly after
financial shocks alleviate, the volumes of trade credit shrink rapidly. The results also disagree with the study by Obeng (2017) who concluded similarly that firms having higher liquidity followed the redistribution view. The obtained result did not agree with these studies as the period considered for this study was not undergoing an economic crisis. It is possible that the results obtained in a similar study would be significantly different if the period considered had a severe economic downturn. Under such circumstances, it is quite possible that the creditworthy liquid firms in the NSE would redistribute their funds to less creditworthy firms and thereby, the obtained result from such a study could yield a positive correlation rather than a negative one.

The regression results obtained however agree with the study by Zainuddin & Regupathy (2010) who found that liquidity influenced the credit collection period of a firm negatively for all the four sub-sectors considered in their study, essentially proving that firms with greater liquidity collect their trade credit faster when there is no economic crisis. The findings from the study were due to the fact that firms having higher liquidity positions did not offer longer credit periods as a way to optimize sales. Additionally, the hypothesis that trade credit and liquidity policies may be complimentary rather than substitutes and may reflect a firm's inclination towards managing its working capital, can hold true. From the trend results, it can be observed that in general, the firms that were considered for the study may be less risk averse and thus allow longer credit periods despite the overall poor liquidity positions. As Cuñat (2007) suggests, non-financial firms in the NSE may be obligated to maintain relationships with their customers who have poor liquidity themselves.

5.3.3 Effect of Firm Size on the Credit Collection Period

The firm size showed an upward increasing trend just like the ACP of the firms, although it stagnated between the years of 2016 and 2017 which may be attributed to the political instability experienced in the country during that time frame. The positive correlation coefficient obtained from the regression results agree with the theoretical argument by Delannay & Weill (2004), who posit that the larger a firm is, the more likely it is in a position to grant trade credit or extend its credit terms. It is therefore plausible to say that the size of the firm has a relationship to the creditworthiness of a firm. Larger firms that are considered to be
more stable will grant more trade credit as they may have fewer opportunities for growth and thereby need less funds for such activities.

The positive correlation coefficient obtained suggested that listed non-financial firms in the NSE may also not hold such a large solid foundation and reputation among their potential customers and as such still offer more credit volumes and longer terms to their customers in order to increase their market share and gain repetitive business. Due to this, these firms may be forced to accept the fact that they have to hold larger amounts of costly accounts receivable. The positive correlation coefficient obtained also suggests that the existing customers of these firms may not be highly satisfied with the products that they offer. Many potential customers of these firms may not be made aware in detail of the products or services that these firms offer as well. This may have pushed these firms to rely on trade credit as a competitive tool to advance their sales. As Ferrando and Mulier (2013) suggests, it is possible that larger non-financial firms listed in the NSE purposely allow longer credit collection periods so as to build their customer relationships and gain a competitive advantage over their rivals by acquiring repeated business.

The correlation coefficient obtained agrees with the study by Bărbuţă-Mişu and Deari (2016) whose study based on European construction firms found that larger firms provide more trade credit than smaller sized firms and thereby would have a longer collection period. The correlation coefficient obtained also agrees with the study by Zainuddin and Regupathy (2010) who found a positive correlation in three of the four sub-sectors that was considered in their study based on 214 SME's in Malaysia.

The result obtained however did not agree with the study by Ahmed, Xiaofeng and Khalid (2014) who investigated the same relationship on non-financial firms in Pakistan, which can be regarded as a developing country like Kenya. Their study found a negative correlation contrary to the results that were obtained in this study, which concluded that a larger firm has a lower probability of conducting larger amounts of sales on credit or extending its credit terms. The result obtained also disagree with the study by Zainuddin (2008) who conducted a similar study on SME's in Malaysia. The study found a negative correlation and concluded that larger firms are more likely to have shorter collection periods. As mentioned in the study by Regupathy and Zainuddin (2003), the influence of firm size on the ACP of a firm may heavily
depend on the nature of the firm and the business that they conduct. The nature of the firm and business that it conducts vary heavily from country to country or region to region.

5.4 Conclusions

5.4.1 Profitability and the Credit Collection Period

More profitable non-financial listed firms in the NSE will indeed collect their trade receivables faster. Just like many other developing countries, the collection of trade credit seems to be significantly problematic for the firms, as observed by the long delay before collection with a mean of over ninety days. The long delays observed also suggest that good credit management practices and policies may not hold a good foundation for most of the firms involved. The few firms that do not suffer from long delays are likely to have well established credit management practices and policies that benefit their profitability in the long run.

5.4.2 Liquidity and the Credit Collection Period

Firms in the NSE with higher or greater liquidity tend to collect their trade receivables faster than firms having lower liquidity. However, the long delay before collection despite the overall poor liquidity positions of these firms implied that the non-financial firms in the NSE are more willing to take on risks involved with supplying larger volumes of trade credit or extending longer credit terms towards their customers.

5.4.3 Firm Size and the Credit Collection Period

Larger non-financial listed firms in the NSE tend to collect their trade credit slower than the smaller sized firms. This may possibly be due to the fact that larger firms have lower potential for further growth and thereby allow longer credit periods to increase sales. Larger firms in Kenya may not hold a higher advantage in the trade relationship with their customers compared to smaller firms as they may not hold a higher reputation or hold a more solid foundation compared to smaller sized firms and thereby may not be able to enforce strict payment conditions as well. The degree of positive correlation however suggests that the expected increase in the delay of collecting receivables will not be very large for a unit increase in the firm size.
5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Profitability and the Credit Collection Period

The long delays before collection can be reduced by ensuring that a firm strives to implement good credit management processes and policies that enable better monitoring and collection of their receivables. This may be a tedious task carrying risks if conditions are imposed to suppliers without proper consideration of the carrying costs and opportunity costs involved. Decisions regarding the collection should always be made with caution as a firm may chase away their customers under strict payment conditions or terms. This may negatively affect the relationship between suppliers and buyers and could negate the profits of a firm. Careful monitoring of the receivables can lead to many advantages for a firm. Suppliers can be politely reminded to pay on time with an official mail and payments can be more thoroughly followed up. The firm should also try and establish a safe level of receivables that they hold on their balance sheet to avoid unnecessary risk that may affect their cash flows and working capital. Doing so may improve the profitability of these firms who at present show a steep downward trajectory towards undesirable losses.

5.5.1.2 Liquidity and the Credit Collection Period

Though higher risks lead to higher rewards, they can also lead to catastrophic failure. Non financial firms listed in the NSE should re-evaluate whether the additional risk of supplying larger volumes of trade credit or allowing extended credit terms yield additional returns at a rate that is acceptable to the level of risk they are undertaking. These firms, being listed firms that should maintain good liquidity positions to the benefit of their shareholders should strive to improve their liquidity positions using improved efforts to collect their trade receivables if the risk of supplying trade credit is not worth the expected returns from this endeavor.

5.5.1.3 Size of the Firm and the Credit Collection Period

Non-financial firms listed in the NSE should keenly explore other investment opportunities that can yield higher returns and thereby optimize the use of their excess funds as an alternative to allowing these funds to be retained with customers with little or no returns for the level of
risk that it carries, especially if strict payment conditions cannot be enforced to the benefit of the firm. Firms should also monitor their growth and accordingly account for the expected increase in the collection period with higher amounts of working capital so as to avoid any detrimental effect on their operations. Also, exploring the opportunity of insuring their receivables by pledging it as collateral can release funds for the firm.

5.5.2 Recommendations for Further Research

The sample size of thirty one firms was not sufficient to provide conclusive results on the effect of firm specific characteristics on the collection period of firms as the results of regression indicate the model has low predictive power and the chosen firm specific characteristics had no significant influence on the collection period of the firms. Further research should strive to have a significantly larger sample size that could possibly come up with conclusive regression results. A larger sample size would also enable the classification of the firms into sub-categories based on similarities that may pick up better patterns and therefore provide better results. In order to do this, further research should strive to collect the required information from SME's or large organizations that are not listed in the NSE as the target population available in the NSE is minimal for such research. The reason that this study focused on the non-financial listed firms in the NSE is due to the fact that obtaining the financial statements of SME's or non-listed organizations in Kenya is a monumental task. Further research should however try and convince participants that their study will be conducted ethically and will not disclose any sensitive information that may negatively affect the involved participants. Additionally, the assumption that all sales in a firm are conducted on credit terms may not hold true. Results can be significantly more accurate if the proportion of credit sales to a firm's total sales can be established and incorporated into the study. Further studies should also consider additional variables that can improve the predictive power of the model. Studies may also opt to extend the period considered, however this must be done with caution as longer periods may reflect characteristics that do not prevail in the current time frame. As expected, studies on trade credit, its collection and its determinants are not easy to conduct. The subject however does require attention and researchers should implore to conduct more research on this matter to the benefit of the firms involved in the study.
REFERENCES


Grave, T. (2011). "Trade Credit as a Shock Absorber?: The Effects of Financial Crisis on the Use of Trade Credit by Dutch Manufacturing Firms". University of Twente, School of Management and Governance.


## APPENDICES

**Appendix I: Non-Financial Listed Firms in the NSE Selected for the Study**

<table>
<thead>
<tr>
<th>FIRM SECTOR</th>
<th>FIRM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobiles and Accessories</td>
<td>Car and General (K) Limited.</td>
</tr>
</tbody>
</table>

Source: (NSE Website, 2018)
Appendix II: Checklist used for Data Collection

FIRM NAME: __________________________

<table>
<thead>
<tr>
<th>YEAR</th>
<th>S</th>
<th>NP</th>
<th>AR</th>
<th>CA</th>
<th>TA</th>
<th>CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
<td></td>
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</tr>
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<td>2014</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where;

S= Total annual sales/ Revenue

NP= Net annual Profit/ Loss

AR= Accounts Receivable

CA= Current Assets

TA= Total Assets

CL= Current Liabilities