

**EFFECT OF TRADE CREDIT ON FINANCIAL PERFORMANCE  
OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI  
SECURITIES EXCHANGE**

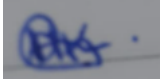
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## DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed:  Date: 29 Nov 2021

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**D61/9798/2018**

This research project has been submitted for examination with my approval as the University Supervisor.

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## **DEDICATION**

This research project is dedicated to my family, who have always believed in me and supporting me throughout my life, as well as throughout the duration of my studies and completion of this course successfully.

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## **LIST OF ABBREVIATIONS**

|              |   |
|--------------|---|
| <b>ANOVA</b> | Analysis of Variance                    |
| <b>CMA</b>   | Capital Markets Authority               |
| <b>DEA</b>   | Data Envelopment Analysis               |
| <b>NSE</b>   | Nairobi Security Exchange               |
| <b>ROA</b>   | Return on Assets                        |
| <b>ROE</b>   | Return on Equity                        |
| <b>ROS</b>   | Return on Sales                         |
| <b>SME</b>   | Small and Medium Enterprises            |
| <b>SPSS</b>  | Statistical Package for Social Sciences |
| <b>VIF</b>   | Variance Inflation Factors              |

## ABSTRACT

In the fields of marketing as well as financial management, business firms are increasingly relying on trade credit. Trade credit is useful in business because it can be used instead of bank credit. Firms may use trade credit to help them forecast demand for their products or services. Trade credit assists businesses in developing client relationships, thereby increasing their sales capacity and profitability; nevertheless, if not properly handled, trade credit can result in a liquidity crisis. Trade credit investments can determine credit management practices which have significant impact on a company's financial performance. The goal of the study was to see how trade credit affected the performance of NSE-listed non-financial companies. The study's population included all 42 NSE-listed non-financial companies. Trade credit, defined as net sales to average receivables ratio in a particular year, was used as a predictor variable in this study. The control variables were liquidity assessed by the current ratio, total assets natural log measuring company size, and management efficiency measured by the ratio of total revenue to total assets per year. Return on assets served as the response variable for financial performance. Secondary data was collected on a yearly basis for five years (January 2016 to December 2020). The research variables were analyzed using a descriptive design. SPSS software being utilized to conduct the analysis. The conclusions yielded a 0.333 R-square value, indicating that variations in the chosen independent variables account for 33.3 percent of changes in financial performance amongst non-financial firms, whereas other factors accounting for 66.7% of variance in financial performance amongst NSE listed non-financial firms. Independent variables had a good relationship with company performance ( $R=0.577$ ) in this study. The F statistic was significant at 5% with  $p<0.05$ , according to the ANOVA results. This demonstrated that the overall model was effective in establishing the variables' relationships. Trade credit had a positive as well as statistically significant impact on financial performance. Liquidity and management efficiency also had a positive as well as statistically significant impact on the performance of the NSE listed non-financial companies. In this research, the size of the firm had no statistical significance. This suggestion is that NSE-listed non-financial companies should continue offering trade credit, improve liquidity positions, and improve management efficiency, as the three factors has a substantial influence on their financial performance.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Study

Trade credit aids business companies in rising revenues and profits, thus having an influence on the firm's financial performance. Companies utilize trade credit to increase revenue as well as retaining existing clients. (Dina, 2007). Relaxed credit standards will yield increased revenue and profitability while stringent standards decrease accounts receivable investments thus lower revenues and profits (Kumaraswamy, 2016). Late trade credit collection, on the other hand, is a common and widespread practice that can damage a supplier's financial position. Coupled with the risk of default, the losses created can cripple the supplier's available resources and negatively affect the operations and financial performance of the firm (Zainuddin & Regupathy, 2010).

On a theoretical perspective, this study was based on three theories namely agency, trade off as well as asymmetric information theory. Jensen and Meckling (1976) agency theory signals that the success of trade credit requires that goals of lenders and those of borrowers are well aligned and that they are focused towards wealth creation and maximization. "Trade off theory by Modigliani and Miller (1958) describes the concept that a company makes a choice on how much debt and how much equity to use by weighing the costs and benefits and balancing them out. The important part of this theory is to explain the fact that business units are usually financed partly with debt and partly with equity." Asymmetric information theory by Akerlof (1970) states that imperfections in financial markets are impediments to the micro- and small enterprises with minimal security, poor history of credit, and connections, hence

lowering their chances and causing a sustained inequality and slowing financial performance.

In developed economies, financial disintermediation has been fully achieved but this cannot be said to be the case in developing economies such as Kenya in spite of the regulatory policy in capital markets growth driver (Institute of Economic Affairs, 2012). The improved trade credit use in Kenya is explained by the fact that banks continue to play a significant role in institutional financing. Kenya has a reasonably established banking and formal financial system, as per (Kadet, 2015). According to Maksimovic (2012), firms in nations with more advanced banking systems offer more trade credit to their clients, as evidenced by a case study in Kenya. Due to pressure of globalization and competition among the firms, trade credit has become part of strategy in growing their market share and sales revenue. Business firms extend trade credits to other firms in order to help them regulate their cash flows, extending trade credit results to trade credit receivables (Pike & Cheng, 2019).

### **1.1.1 Trade Credit**

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 & 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, which acts as an alternative to credit from financial intermediaries (Mathuva, 2013). Trade credit, according to Ferris (2011), is a loan whose value and timing are linked to the goods exchange. Long-term financing as well as short-term financing are the two types of capital available; trade credit is one of the short-term financing options. According to Lee and Stowe (2013), trade credit is a powerful marketing tool

that helps companies develop consumer relationships while also shielding profits from competition.

Trade credit helps in maximizing sales by tapping more customers than can be realized on cash sales. The credit policy outlines how to choose which consumers can be offered products or services on an open account, as well as the thresholds for unpaid balances as well as payment terms (Krueger, 2015). Credit standards, credit duration, collection period, cash terms, and cash discounts are all part of trade credit policy (Atkinson, Kaplan & Young 2007). Trade credit policies aid in the prevention of bad debts as well as the improvement of cash flow. Credit policy establishes a common set of objectives or priorities for the company, acknowledging the credit and collection department as an important contributor to the company's strategies (Scheufler, 2002).

Accounts receivable (AR) as well as accounts payable (AP) are commonly used to determine trade credit levels. Accounts receivable is utilized to measure the outstanding debts firms claim from their clients at a specified time period, and thus proving the company offers trade credit. Accounts payable is a metric for a company's trade credit utilization (Nzotta, 2004). The account receivable turnover ratio which is calculated as the ratio of net sales to total account receivables outstanding has been widely used as a measure of trade credit (Pandey, 2007). The current study used account receivable turnover ratio as a measure of trade credit.

### **1.1.2 Financial Performance**

Almajali et al. (2012) referred to this as a measurement of a firm's ability to achieve set out objectives like profitability. It is the intensity with which the financial criterion has been met or exceeded. It shows how the firm's objectives have been met. As

explained by Baba and Nasieku (2016) it indicates the utilization of company assets to earn revenues thereby giving stakeholders a guide to making decisions. Nzuve (2016) states that, the firm's health is significantly dependent on its financial performance which is an indicator of the firm's strengths and weaknesses. Additionally, the government and regulatory authorities are concerned with bank performance for regulatory purposes.

Financial performance mainly focuses on items with a direct impact on the financial statements (Omondi & Muturi, 2013). It is the measure used by external stakeholders in appraising the firm (Bonn, 2000). This is why firms use it in gauging performance. Another measure of firm performance is its ability to meet its main objectives. The results obtained in attaining internal as well as external firm objectives is the FP (Lin, 2008). Performance is denoted by several measures such as growth, competitiveness and survival (Nyamita, 2014).

FP measures include but are not limited to the following ratios: Return on Assets (ROA) as well as Net Interest Margin (NIM). ROA measures the capability of the bank to derive profits from utilization of assets (Milinović, 2014). It is derived using the operating profit and the total assets. NIM is a measure of the interest spread paid to lenders like banks, and that which is earned that is related to the value of assets they own. It is given by the net interest income and total earnings assets quotient (Crook, 2008). Ngatia (2012) mentioned that the ROA, firm size, ROE and ROS were measures of FP. Carter (2010) used Tobin's Q as well as ROA to denote FP, while Wang & Clift (2009) used ROA as well as ROE. The three mostly preferred measures include ROA, ROE and Tobin Q. ROA shows the profitability as related to total assets while ROE shows profitability in relation to equity contribution. Tobin Q

indicates the equity market value to equity book value ratio (Mwangi & Murigu, 2015). The current study used ROA to measure financial performance.

### **1.1.3 Trade Credit and Financial Performance**

An equilibrium between profitability and liquidity must be struck, and this is a crucial problem in both trade credit and working capital management. According to Raheman and Nasr (2007), companies exist to optimize profits, and in doing so, efforts should be made to preserve liquidity. If a firm seeks making huge profits, trade credit should be maximized; if liquidity is the objective, trade credit should be reduced; however, this would decrease revenue and profitability. Excess liquidity refers to assets that are either unused or idle and do not produce any revenue. The presence of surplus capital is detrimental to the business because idle funds do not produce sales, resulting in a drop in share prices (Smith, 1980).

The financial objective of a corporate entity is maximization the firm's value as well as wealth of its shareholders (Berle & Means, 1932). Trade credit (debtors) assists companies in achieving this goal or aim by increasing the amount of accounts receivables, which affects the firm's sales, profitability, and liquidity. As a result, the market value of the firm's equity and assets is affected. According to Dina (2007), effective credit management is critical to a firm's cash flow and safeguards business operations. Good credit management involves maximizing cash flow to ensure stability and optimize the profitability growth prospects of the company, thus raising the equity and asset market value. Reliable credit management involves optimizing cash flow to warranty stability as well as maximize.

According to Nadiri (1969), trade credit is expensive in terms of opportunity cost and also carries credit risk due to the payment default risk. As a result of debt defaults,

providing trade credit can have a negative impact on profitability as well as liquidity. Due to credit management events, trade credit subjects the trader to additional operating costs (Mian & Smith, 1992). Companies aim to strike a balance between the trade credit value and the costs of keeping large accounts receivables. This lowers costs while increasing sales, profitability, as well as liquidity. Emery (1984) found that there was an optimal accounts receivables level when the marginal income connected with trade credit loaning match with the marginal cost. After trade receivables are at a lower-level owing to well-structured trade credit policy as well as trade credit management, financial, operational, and commercial rewards from trade credit are realized.

#### **1.1.4 Non-financial Firms Listed at the Nairobi Securities Exchange**

The Nairobi Securities Exchange is the company that has the power to list Kenyan firms on the stock exchange. The institution was established in 1954 and is now East and Central Africa's largest exchange. The most commonly traded instruments are shares (equity) and bonds (debt/leverage instruments), which are financial instruments known as securities. By allowing borrowers and lenders to connect, the institution promotes investment as well as savings. At the moment, a total of sixty-three firms have obtained a listing with the firm spread among different market segments (NSE, 2020).

The NSE had 42 non-financial companies in ten separate industries as of December 2020. Agriculture (6 firms), Real estate investments trust (1 corporation), commercial and services (12 firms), telecommunication and technology (1 firm), automobiles and accessories (1 corporation), investment Services (1 firm), manufacturing and allied (9 firms), construction and allied (5 firms), and energy and petroleum (6 firms) are



among these sectors (NSE, 2020). Majority of these firms offer trade credit and there is therefore need to establish how this influences their financial performance. Determining the optimal composition and level of trade credit and specific trade credit relative to trade payables can enable a non-financial firm to gain competitive advantages over its rivals (Haq & Zaheer, 2011).

Non-financial companies listed on the NSE have had a different performance. Although some companies, such as Safaricom, EABL, BAT, Standard Group, and Nation Media Group, have done well, others, such as Kenya Airways, Uchumi, as well as Sameer Africa, have done poorly (Njoroge, 2019). Although some firms' poor performance may be because of the nature of the market they operate in, which is beyond the control of management or the board of directors, researches have shown a significant correlation between trade credit and the performance of these firms.

## **1.2 Research Problem**

In the fields of marketing as well as financial management, business firms are increasingly relying on trade credit. Trade credit is useful in business because it can be used instead of bank credit (Garriga, 2013). Firms may use trade credit to help them forecast demand for their products or services. As per Wilner (2000), trade credit assists businesses in developing client relationships, thereby increasing their sales capacity and profitability; nevertheless, if not properly handled, trade credit can result in a liquidity crisis. Trade credit investments can determine credit management practices which have significant impact on a company's financial performance (Pike & Cheng, 2011).

The focus of the current study will be on the non-financial companies listed at the NSE. The financial firms such as banks as well as insurance companies have been

excluded as they do not normally offer trade credit. A review of the annual reports for the selected firms for this study between 2016 and 2020 revealed that majority of the firms were under performing over the years. Out of the 42 firms that have been selected for this study, 15 firms were under loss in the year 2019 alone, which amounts to approximately a third of the sample. Approximately another a third of the sample were on a downward trajectory with reducing sales and profits. Eight of the 46 firms selected for the study had built up a tremendous amount of losses over the years. In the context of this study, this raises a serious question; does trade credit provided by these firms influence their financial performance?

Various empirical research on the impact of trade credit on financial performance have been conducted, but the results have been inconsistent. Hill et al. (2010) explored the correlation between shareholder wealth and accounts receivables in New York and discovered that there was a positive correlation. Cristine and Pedro (2007) looked at the association between trade credit and firm valuation in Spanish manufacturing SMEs between 2000 and 2007. They discovered that increasing trade receivables expenditure would increase firm profitability. Kumaraswamy (2016) in the study titled working capital impact on financial performance of firms in Gulf Cooperation Council, used linear regression to test four hypotheses that pertained to working capital components. The results revealed a negative correlation between trade credit and firm profitability with the regression model indicating that the trade credit was one of the most significant factors affecting the financial performance of the firms.

Locally, Mwololo (2011) studied the association existing between credit policy and liquidity Kenyan oil firms and found a linear relationship. Kapkiyai and Mugo (2015)

conducted research in Eldoret, Kenya, to examine the effect of trade credit on the financial performance of small-scale companies. They discovered a positive relationship between trade credit and the firm's liquidity, profit margin, as well as return on assets. Several trade credit researches looked into the association between trade credit management and profitability, as well as credit policy and company profitability. Limited international research examining the relationship between trade credit and firm financial results have been conducted. Because little research has carried out in Kenya on the effects of trade credit on firm financial performance, this research filled that gap. The research question of this study is: What is the effect of trade credit on the financial performance of NSE listed non-financial firms?

### **1.3 Research Objective**

The objective of this research was to assess how trade credit influence financial performance of non-financial firms listed at the NSE.

### **1.4 Value of the Study**

The research conclusions will add to theories on trade credit as well as financial performance. Findings will be beneficial to future research work in working capital management and provide the relevant literature that will build the course. It will be helpful to students in finance that will use it for academic prospects.

The study will help investors and practitioners understand the relationship between the two variables, that is vital for providing a strong management team with a variety of viewpoints and capabilities for trade credit management and operations streamlining, which will ultimately optimize firm performance.

This study will assist the government as well as other policymakers in policy formulation as well as coming up with measures that will guide listed firms on the

NSE in implementing trade credit practices that will boost their performance and firm value. The regulators can also come up with rules relating to the terms of credit that are permitted.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter explains the theories on which credit risk management and financial performance is based. It further discusses the previous empirical studies, knowledge gaps identified and summarizes with a conceptual framework and hypotheses showing the expected relationship among the research variables.

### **2.2 Theoretical Framework**

The main theories that describe the phenomenon under investigation are discussed. The agency theory, information asymmetry theory, and trade-off theory are among the theoretical reviews addressed.

#### **2.2.1 Agency Theory**

This is the present study's main theory. Advanced by Jensen and Meckling (1976), this theory seeks to explain the relationship between principals and agents within the context of agency costs that are typified by moral hazard problems, adverse selection problems and information asymmetry problems. Moral hazards arise from management selfish interests, adverse selection problems arise from empire building tendencies and information asymmetry on the other hand arise from information gap between managers and investors. The theory hypothesizes a positive correlation between agency costs of moral hazards, adverse selection and information asymmetry. Firms with high moral hazards and high adverse selection issues tend to invest inefficiently for selfish reasons and tend to hide this behavior from investors by manipulating their performance.

The main criticism of this theory is that it only focuses on equity holder's goals hence locking out other stakeholders involved in firm operations and management. Asher et al. (2005) also critiques the theory by suggesting that it is very optimistic to have a thought that companies can voluntarily recognize all parts of the agency dilemma that optimize their NPV and that the theory overemphasizes the agent at the detriment of other institutions. Subsequent modifications that addressed the theory's shortfalls included shareholder theory, socioemotional wealth theory, stewardship theory, stakeholder theory and behavioral agency theory. These alterations were premised on the hypothesis of goal similarity between agents and principals.

The agency theory is thus applicable to the research as it tries to align the interests of lenders and those of borrowers. Engaging borrowers whose personal wealth is closely linked to those of the lender lead to better performance of the borrower. To increase investors returns and ensure better financial performance for these companies, trade discounts can be given for timely payments as well having close monitoring and where necessary, intervention by the lenders. The theory states that by aligning the goals of borrowers and trade credit providers, trade credit will have a positive influence on financial performance.

### **2.2.2 Trade-off Theory**

Myers' (1984) theory describes in what way a company decides its optimal level of holding cash by weighing the cash holding benefits against marginal costs. A high level of investment in current assets would yield a lesser ROA of the company since these assets would not generate enough revenue if they are overinvested. The firm's most critical objective is to maintain positive liquidity at all times, in addition to

profit maximization. Attempts to increase profitability through liquidity reduction is likely to be detrimental to the business (Shin & Soenen, 1998).

Imperfect market existence characterized by information asymmetry to a great extent has been backed up by proponents of the theory. They also emphasize the theory's ability to justify the presence of an optimal target level of liquidity that reduces borrowing costs while maximizing firm benefits (Leary & Roberts, 2010; Hennessy & Whited, 2005; Strebulaev, 2007; Sheikh & Wang, 2011). On the other hand, critics of the theory claim that the concept of a positive relationship between liquidity and performance is an insufficient static model (Awan & Amin, 2014; Chen & Chen, 2011; Frank & Goyal, 2003). It is worth noting, nevertheless, that this theory expands and expounds the popular finance risk and return doctrine through implying companies fix their ideal liquidity level through marginal costs and benefits comparison.

Based on entire factors relating to the entity's daily activities, the company should settle on the amount of assets to be retained. In this scenario, a cautious risk-return trade-off (less risk for lower returns) or an active working capital approach (higher risk for high returns) may be used (Carpenter & Johnson, 1983). Being aware profit possess an inverse relationship with liquidity, the inference is that liquidity increase can result in less profitability (Pandey, 2010). This model is helpful in recognizing and describing why listed non-financial companies need to strike an equilibrium between liquidity and profitability in this research. Making good trade credit decisions requires managing this trade-off.

### **2.2.3 Asymmetric Information Theory**

This idea was proposed by Akerlof (1970), who stated that distinguishing between good and poor borrowers in financial service marketing can be difficult. When one party in a financial debt contract appears to be more competent or educated about the subject matter than the other, this is known as information asymmetry. Asymmetric information, according to Richard (2011), can lead to adverse selection and a moral hazard issue. It goes on to say that when making a financial deal, the person who has more knowledge about the item being transacted is in a better position to negotiate better terms for the agreement than the counterpart. As a result, the person with less knowledge less about the item being traded is at a disadvantage when it comes to making contract decisions.

The characteristics of trade credit include the arrival of new, and numerous customers (Hansen & Jansen, 2010). This presents a challenge to the debt providers since they find difficulties in determining if customers are good risk; this causes an impediment to financial performance and their stability. Thus, becoming problematic for firms to determine if inclusion is a profit-making investment or not (Bloem & Gorte, 2001). According to Bofondi and Gobbi (2003), information asymmetry yields moral hazard as well as adverse selection among borrowers as well as lenders can cause credit reductions thereby influencing performance and stability. Moral hazard is the probability that one party in an exchange may falsify information concerning its assets, liabilities or credit status.

Adverse selection makes the assumption lenders are not able differentiate varying magnitudes of risk of borrowers and limitations associated with the loan agreements (Bloem & Gorte, 2001). This is appropriate in this research because it maintains that



borrowers as well as lenders falsify key facts related to lending and borrowing contracts. Trade credit is dependent on correct information concerning borrowers and their ability to pay the debt as and when it falls due.

### **2.3 Determinants of Financial Performance**

There are several FP determinants of a firm; these factors are found either within or outside the firm. Internal factors are firm-specific and can be manipulated internally. They are credit risk management, asset base, and credit portfolio, interest rate, capital adequacy, ownership and liquidity. Factors outside a firm that influence performance include inflation, GDP, political stability and interest (Athanasoglou et al., 2005).

#### **2.3.1 Trade Credit**

The financial goal of a business entity is to maximize the firm's value as well as the wealth of its shareholders (Berle & Means, 1932). Trade credit (accounts receivable) assists companies in achieving this goal or aim by increasing the amount of accounts receivables, which affects the firm's sales, profitability, and liquidity. As a result, the market value of the firm's equity and assets is affected. Dina (2007) indicated that good credit management is vital to cash flow of a firm as well as guaranteeing business operations.

Firms aim to strike a balance between the trade credit value and the costs of keeping large accounts receivables. This lowers costs while increasing sales, profitability, as well as liquidity. Emery (1984) found that the optimal amount of accounts receivables is reached when the marginal income from trade credit loans equals the marginal expense. When debtors are at a lower-level owing to well-structured trade credit policy and trade credit management, financial, operational, and commercial benefits from trade credit are realized.

### **2.3.2 Firm Size**

The economies of scale value a company earns is proportional to its size. The larger the business, the lower the average producing size and the higher the productivity in operation actions emanating from huge economies of scale. Regardless of the size, huge corporations can lose focus of their strategy as well as operations, resulting in a decrease in productivity (Burca & Batrinca, 2015).

Big companies have more market leverage and can diversify their portfolios more. They are extra probable to suffer from operational slack as the company grows rapidly. The size of the company has a significant impact on the amount of cash flow that can be invested. The employees number, property owned, as well as sales volume are all important factors to consider when deciding the firm's size (Almajali, 2012).

### **2.3.3 Firm Liquidity**

This is the degree to which a company can pay off its unpaid debts in a year's time using cash and its alternatives, such as short-term assets that may be quickly transformed to cash. This consideration is based on management's capacity to meet financial and other creditors' obligations without earning increase from actions like underwriting and acquisitions, as well as financial assets disposal ability (Adam & Buckle, 2003).

In the event that external funding is inaccessible, companies may use liquid assets to finance operations and acquisitions, according to Liargovas and Skandalis (2008). Highly liquid firms are better in dealing with unanticipated events and fulfill commitments when they become due, even when earnings are poor. In a study of insurance companies, Almajali et al. (2012) discovered liquidity is a critical aspect influencing their productivity; the study's key suggestion being businesses ought to

accumulate extra current assets and reduce their current liabilities. Excess liquidity, according to Jovanic (1982), can cause even more harm to businesses. The study concluded that the impact of liquidity on firm value was ambiguous.

#### **2.3.4 Management Efficiency**

It is an important internal qualitative measure useful in determining and analyze a company's operational performance. Management performance can be measured in a variety of ways, including effective ability of management to utilize resources, optimize funding, as well as effectively use funds (Kusa & Ongore, 2013).

Employee quality, the efficacy and performance of internal control systems, organizational-wide discipline, and management systems effectiveness all contribute to organizational productivity as a determinant of operational efficiency (Athanasoglou, Sophocles & Matthaios, 2009). Management quality has an impact on operational costs, which in turn has an impact on the company's bottom line. As a result, management productivity has a significant impact on firm efficiency (Kusa & Ongore, 2013).

### **2.4 Empirical Review**

Locally as well as globally researches have been conducted in support of the relationship between trade credit and financial performance, the objectives, methodology and findings of these studies have been discussed in this section.

#### **2.4.1 Global Studies**

Tang (2014) investigated how trade credit, both the supply as well as demand sides, affects the profit of SMEs in the Netherlands in a survey conducted between 2009 and 2013. The research included 71 SMEs in the Netherlands and used descriptive statistics. The study discovered that trade credits (creditors) are positively correlated

with profitability, and that SMEs must build long-term relationships with suppliers in order to obtain trade credit in a more convenient and timely manner.

Nsikan, Etim, and Uduak (2015) investigated impact of trade credit practices on firm performance. Their objective was to learn more about the trade credit practices used by flour milling manufacturing companies and the manner in which those practices affected operative efficiency. Five firms in total were selected for the study, with 150 respondents being chosen to respond to the study's questions. The study found that, aside from large assembly companies, numerous medium-sized flour milling businesses use technical trade credit models. The majority of trade credit approaches, on the other hand, were focused on evolving consumer demands, existing industrial practices, forecasted forecasts, and production capability. The research too revealed that companies that use scientific trade credit methods are more effective at enabling superior production through capacity reduction, improved service, and shorter lead times.

Muhayimana (2015) investigated the role of trade credit methods in the proper management of manufacturing companies. Sulfo Rwanda Ltd, a Kigali City-based consumer goods manufacturer, was chosen as the study's preferred company. Only those with appropriate knowledge about the research study were included in the survey using the purposive sampling methodology. The sampling approach was used to select a total of fourteen respondents. According to the findings of the report, trade credit practices have a significant impact on a firm's profitability, especially in terms of cost reduction. The research also revealed that trade credit aids businesses in meeting consumer demands more effectively by reducing instances of failure to meet customer demands.

Vipulesh (2015) investigated the effect of trade credit on firm performance. The study's aim was to figure out how trade credit affects firm output in India. The research was based on secondary data gathered from a various source. Using the correlation principle, stock turnover was compared to the company's profit based on the data collected. According to the study's results, manufacturing companies should implement the best inventory management strategies or make efforts to increase stock turnover. Furthermore, it was determined by a separate study that the stock turnover rate has a link with the firms' net profit. As a result, it was determined that trade credit has an effect on a company's financial position.

Altaf and Ahmad (2019) investigated the association between working capital funding and firm efficiency sampling 437 Indian non-financial companies. The research also looked into the effect of financial restrictions on working capital financing and efficiency. The research used secondary data from the capitaline database for a total of 437 non-financial firms in India over a 10-year period (2007 to 2016). The data was analyzed using a two-step simplified moments technique scheme. Working capital funding was found to have an inverse relationship with firm efficiency. Furthermore, the researchers discovered that businesses with adequate resources may use short-term debt to fund their working capital needs.

#### **2.4.2 Local Studies**

Kang'ethe and Kalio (2012) carried a research to ascertain the determinants of trade credit in SMEs firms in Nakuru sub county, Kenya. The research made use of a descriptive survey. The 6624 registered Small and Medium Enterprises (SMEs) in Nakuru town served as the study's population. Simple random sampling was used to pick a sample of 197 SMEs. The research used descriptive statistics to verify the

collected data for normality. Inferential statistics were used to outline the effects of the data obtained in relation to the regression model. Profitability, liquidity, leverage, and inventory all have a positive and substantial impact on SME trade credit, according to the research.

Mwangangi (2013) investigated the correlation between trade credit and the valuation of NSE listed companies. For the period 2009 to 2012, this analysis used secondary data from NSE as well as CMA published financial statements. 39 NSE listed non-financial companies were sampled using a descriptive correlation research design. The correlation between trade credit and firm value was explored using regression analysis. This research discovered a weak, inverse relationship between trade credit and firm value. The research found that a rise in earnings as a result of trade credit is negatively impacted by trade credit risks and costs, resulting in a negative impact on the firm's valuation.

According to Kapkiyai and Mugo (2015) conducted research in Eldoret, Kenya, to examine trade credit effect on the financial performance of small businesses. Using a descriptive research design, this research surveyed 50 audited Small and Medium Enterprise company's sample. The research discovered a connection between trade credit and a company's liquidity, profit margin, and return on assets.

Oduori (2017) examined the impact of level of working capital on the firm's value of Kenyan agricultural manufacturing companies that are publicly traded. The study used a descriptive research design with a population of concern of seven publicly traded agricultural manufacturing firms operational between 2012 to 2016. The research discovered the three working capital level determinants variance clarified 69.3 percent of the changes in the firms' value, indicating that the model was

statistically significant. As a result, the study determined that there was a significant relationship between level of working capital and the value of listed agricultural manufacturing firms in Kenya. In the agricultural manufacturing sector, scope of working capital has had a positive as well as significant impact on the firm's value.

To determine in what way working capital management tactics affect value of market (Tobins Q), Awuondo (2018) investigated the working capital management strategies utilized by NSE listed companies in the building and allied segment. The research used a correlation design and a secondary quantitative panel data collection from five publicly traded companies in the sector from 2010 to 2016. The research found that listed firms within the segment utilized a variety of working capital investment as well as funding approaches, which had a significant effect on market value as assessed via Tobin's Q. Tobin's Q as well as the degree of active working capital investment method were found to have a significant negative relationship in the first model. The second model revealed a connection between Tobin's Q as well as aggressive working capital financing use.

## **2.5 Summary of Literature Review and Research Gaps**

A number of theoretical models have been proposed in an effort to understand the anticipated relationship between trade credit and financial performance. Agency theory, asymmetric information theory, as well as trade-off theory are among the theories explored. Various primary financial performance influencers have also been investigated. Various studies on trade credit and efficiency have been conducted both globally and locally, with the results reviewed in this chapter.

The majority of investigators have concentrated on the impact of working capital management on accountancy profit metrics, according to the study. The few

researches that have been done on the relationship between trade credit and efficiency have come up with conflicting results. Kapkiyai and Mugo (2015) conducted research in Eldoret, Kenya, to examine the effect of trade credit on the financial performance of small businesses. The research discovered a connection between trade credit and a company's liquidity, profit margin, as well as return on assets. Mwangangi (2013), who performed a study to determine the association between trade credit and the value of NSE listed companies, came to the opposite conclusion. This research discovered a weak, inverse correlation between trade credit and firm value.

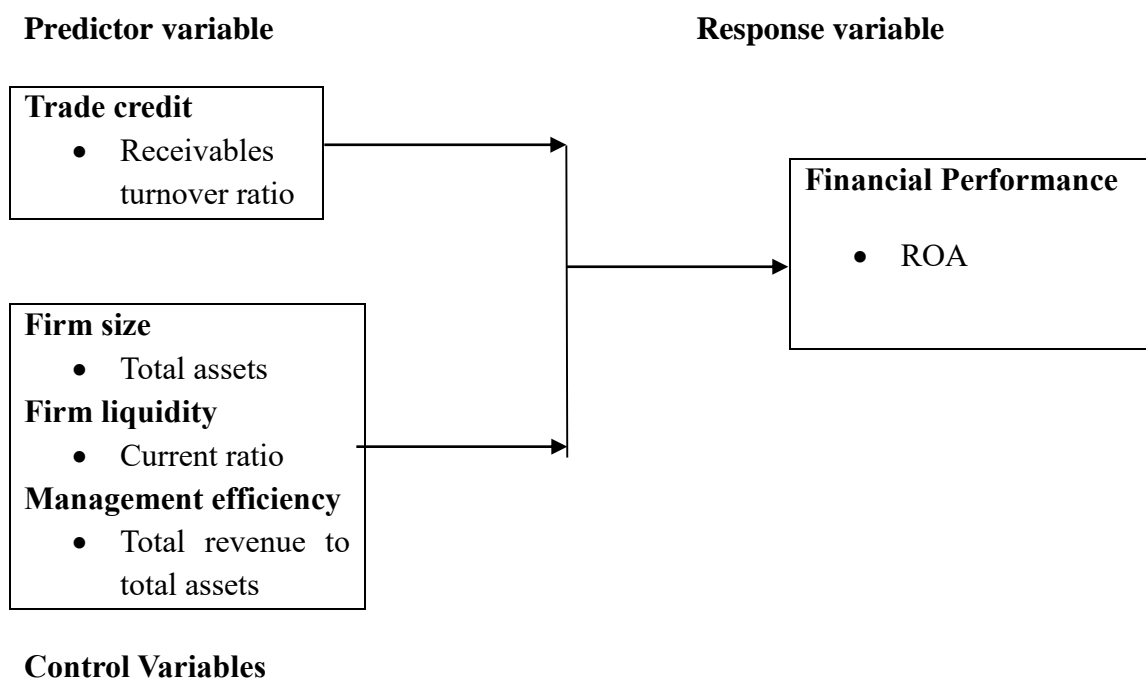
Furthermore, the majority of these studies were conducted in various countries and sectors. Because the current study is interested in the interaction between trade credit and financial performance among non-financial firms listed on the NSE, this creates a larger gap in the context of non-financial NSE listed firms.



## 2.6 Conceptual Framework

The following model depicts the predicted relationship between the variables. Trade credit, as determined by the annual receivables' turnover ratio, were the study's predictor component. Firm size, liquidity, and management efficiency were the control variables. The financial output as measured by ROA was the dependent variable.

**Figure 2.1: The Conceptual Model**



Source: Researcher (2021)

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

A research methodology was needed in determining impact of trade credit on financial performance. The methodology explains how the study was carried out. Research design, population, data collection, data analysis, diagnostic tests as well as analysis method are all contained in this chapter.

### **3.2 Research Design**

A descriptive design was adopted to determine how trade credit and financial performance relate. This design was appropriate since the nature of the phenomena was of key interest to the researcher (Khan, 2008). It was also sufficient in defining the interrelationships of the phenomena. This design also validly and accurately represented the variables thereby giving sufficient responses to the research queries (Cooper & Schindler, 2008).

### **3.3 Population**

According to Burns and Burns (2008), population refers to the total observations number of interests inside a collection, like persons or events, as defined by a researcher. The population was made up of all 42 non-financial companies listed as of December 31, 2020 (Appendix I). There was no sampling since the population was small.

### **3.4 Data Collection**

Published statements of commercial as well as service companies listed at NSE between January 2016 and December 2020 was taken from the Capital Markets

Authority (CMA) as well as specific company yearly statements, providing secondary data that was reported in a data collection sheet. Receivables, net revenues, total assets, current assets value, figure of current liabilities, total expenditures and net profits, total revenue, as well as gross operating expenses were among the relevant data collected.

### **3.5 Data Analysis**

SPSS software version 24 was utilized to analyze the data. Tables and graphs presented the findings quantitatively. Descriptive statistics were employed in the calculation of measures of central tendency and dispersion and combined with each variable standard deviation. Inferential statistics relied on correlation and regression. Correlation determined the extent of the relation between the research variables and a regression determined cause and effect among variables. A multivariate regression linearly determined the relation between dependent and independent variables.

#### **3.5.1 Diagnostic Tests**

To ascertain model viability, a number of diagnostic tests were done, like normality, stationarity, multicollinearity, homogeneity and autocorrelation. The assumption of normality was that the dependent variable's residual was normally distributed and closer to the mean. This was accomplished by use of the Shapiro-wilk test or Kolmogorov-Smirnov test. If a variable had no normal distribution, it was adjusted using the logarithmic adjustment methodology. Stationarity test was utilized in determining if the statistical properties such as variance, mean, as well as autocorrelation change with the passage of time. This property was ascertained using the augmented Dickey Fuller test. In the event the data does not meet this property, the robust standard errors were utilized (Khan, 2008).

Autocorrelation is a measure of how similar one time series is when compared to its lagged value across successive timings. The measure of this test was done using the Wooldridge test and in the event that the presumption was breached the robust standard errors were used in the model. Multicollinearity exists when a perfect or near perfect linear relation is made between a number of independent variables. Variance Inflation Factors (VIF) and tolerance levels were utilized. Any multicollinear variable was eliminated and a new measurement used in place of the variable that has co-linearity. If the variance errors in a regression are distributed among the independent variables, heteroskedasticity confirms this. This was tested using the Breuch Pagan test and if data does not meet the homogeneity of variances assumption, robust standard errors were employed (Burns & Burns, 2008).

### **3.5.2 Analytical Model**

The regression model below was used:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon.$$

Where: Y = Financial performance given by annual return on assets given by net income divided by total assets

$\alpha$  = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4$  = are the regression coefficients

$X_1$  = Trade credit given by quotient of net sales and average receivables

$X_2$  = Firm size given by natural log of total assets

$X_3$  = Firm liquidity given by current assets divided by current liabilities

$X_4$  = Management efficiency measured as the ratio of total revenue to total assets

$\varepsilon$  =error term

### **3.5.3 Significance Tests**

Parametric tests were used in determining the models' statistical significance and its parameters. Using the ANOVA model, the F-test was utilized in evaluating the significance of the overall model, and a t-test was used in determining the individual variable significance.

## CHAPTER FOUR: DATA ANALYSIS, RESULTS AND FINDINGS

### 4.1 Introduction

This chapter looks into CMA data to see how trade credit affects the financial performance of listed non-financial firms. Correlation and regression data were represented in tables utilizing descriptive statistics, as indicated in the segments below.

### 4.2 Descriptive Analysis

This study presents the average, maximum, minimum, and standard variables. Table 4.1 displays the variable statistics. For all 42 non-financial firms whose data was gathered, SPSS was utilized in the analysis from 2016 to 2020. The figures are listed below.

**Table 4.1: Descriptive Statistics**

|                       | N   | Minimum | Maximum | Mean     | Std. Deviation |
|-----------------------|-----|---------|---------|----------|----------------|
| ROA                   | 210 | -.5700  | .3900   | .040666  | .1218198       |
| Trade Credit          | 210 | .705    | 40.606  | 3.10937  | 3.632037       |
| Firm size             | 210 | 7.654   | 11.577  | 9.72299  | .903608        |
| Liquidity             | 210 | .3431   | 10.0893 | 2.210831 | 1.5149257      |
| Management efficiency | 210 | .343    | 11.648  | 2.13803  | 1.859024       |
| Valid N (listwise)    | 210 |         |         |          |                |

**Source: Research Findings (2021)**

### 4.3 Diagnostic Tests

On the data gathered, diagnostic tests were run. The research utilized a 95% confidence interval or a 5% significance threshold to obtain variable information. Diagnostic tests were helpful in determining if the data was false or true. As a result, the closer the confidence interval is to 100 percent, the more correct the data

utilized is assumed to be. The tests performed in this example were normality, multicollinearity, heteroskedasticity, as well as autocorrelation.

#### 4.3.1 Normality Test

This study included the Shapiro-Wilk and Kolmogorov-Smirnov tests. This criteria stated that data was considered normal if the probability was higher than 0.05.

**Table 4.2: Normality Test**

|                       | Kolmogorov-Smirnov <sup>a</sup> |     |      | Shapiro-Wilk |     |      |
|-----------------------|---------------------------------|-----|------|--------------|-----|------|
|                       | Statistic                       | Df  | Sig. | Statistic    | Df  | Sig. |
| ROA                   | .161                            | 210 | .455 | .869         | 210 | .853 |
| Trade credit          | .173                            | 210 | .455 | .918         | 210 | .822 |
| Firm size             | .178                            | 210 | .455 | .881         | 210 | .723 |
| Liquidity             | .175                            | 210 | .455 | .874         | 210 | .812 |
| Management efficiency | .179                            | 210 | .455 | .882         | 210 | .724 |

a. Lilliefors Significance Correction

**Source: Research Findings (2021)**

Since the p values are above 0.05, the aforementioned findings indicate that the data was regularly distributed. As a result, the normal distribution null hypothesis was accepted, indicating that the researcher fails to reject the null hypotheses.

#### 4.3.2 Multicollinearity Test

William et al (2013) defined this characteristic as correlations between the predictor variables. This attribute was tested using VIF. Field (2009) says that VIF values over 10 suggest that this feature exists.

**Table 4.3: Multicollinearity Test**

| Variable              | VIF   | 1/VIF |
|-----------------------|-------|-------|
| Trade credit          | 2.435 | 0.411 |
| Firm size             | 2.866 | 0.349 |
| Liquidity             | 2.111 | 0.474 |
| Management efficiency | 3.024 | 0.331 |

**Source: Research Findings (2021)**

Table 4.3 shows the VIF values that were discovered to be less than ten, indicating that Multicollinearity was not present, as per Field (2009).

### 4.3.3 Heteroskedasticity Test

The error process in cross-sectional units may be homoscedastic, yet vary across units called groupwise Heteroskedasticity. Breuch Pagan is calculated for each group using the hetttest program. Heteroskedasticity is a term used to describe the heteroskedasticity of residuals. According to the null hypothesis;  $\sigma^2_i = \sigma^2$  for  $i = 1 \dots Ng$ , where Ng is the cross-sectional units.

**Table 4.4: Heteroskedasticity Test**

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**Modified Wald test for group wise heteroskedasticity  
in regression model**

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H0:  $\sigma(i)^2 = \sigma^2$  for all i

chi2 (210) = 382.66

Prob>chi2 = 0.4273

---

**Source: Research Findings (2021)**

The null hypothesis of Homoskedastic error terms is not rejected, according to the results in Table 4.4, which are supported by a 0.4273 p-value

### 4.3.4 Autocorrelation Test

The Breusch-Godfrey autocorrelations test was employed to detect serial correlations in a model's idiosyncratic term since typical serial correlation biases make the results more efficient.

**Table 4.5: Autocorrelation Test**

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**Wooldridge test for autocorrelation in panel data**

**H0: no first-order autocorrelation**

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$$F(1, 210) = 0.524$$

$$\text{Prob} > F = 0.4112$$


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**Source: Research Findings (2021)**

Table 4.5 shows that the null hypothesis of no serial connection is not rejected since the p-value of 0.4112 is significant.

**4.4 Correlation Analysis**

To identify the connection between variables, correlation analysis is employed. The Pearson correlation was utilized to investigate the connection between non-financial sector performance and variables (trade credit, firm size, liquidity, and managerial efficiency).

**Table 4.7: Correlation Analysis**

|                       |                     | ROA    | Trade Credit | Firm size | Liquidity | Management efficiency |
|-----------------------|---------------------|--------|--------------|-----------|-----------|-----------------------|
| ROA                   | Pearson Correlation | 1      |              |           |           |                       |
|                       | Sig. (2-tailed)     |        |              |           |           |                       |
| Trade Credit          | Pearson Correlation | .275** | 1            |           |           |                       |
|                       | Sig. (2-tailed)     | .000   |              |           |           |                       |
| Firm size             | Pearson Correlation | .133   | .060         | 1         |           |                       |
|                       | Sig. (2-tailed)     | .054   | .385         |           |           |                       |
| Liquidity             | Pearson Correlation | .642** | .107         | .028      | 1         |                       |
|                       | Sig. (2-tailed)     | .000   | .123         | .689      |           |                       |
| Management efficiency | Pearson Correlation | .212** | .096         | .000      | .205**    | 1                     |
|                       | Sig. (2-tailed)     | .001   | .164         | .995      | .003      |                       |

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

b. Listwise N=210

---

**Source: Research Findings (2021)**

The correlation results reveal that trade credit has a positive and significant association with ROA ( $r = .275$ ,  $p = .000$ ). Liquidity and management efficiency also showed positive and significant relationship with non-financial company financial

success ( $r = .642$ ,  $p = .000$ ;  $r = .212$ ,  $p = .001$ ) according to the findings. Firm size showed positive but not statistically significant influence on ROA ( $r = .133$ ,  $p = .054$ ).

#### 4.5 Regression Analysis

Trade credit, liquidity, firm size, and managerial efficiency were the variables upon which performance was modeled. The significance level for the analysis was set at 5%. The regression result was contrasted to the crucial value from the F – table. The results are listed below.

**Table 4.8: Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .577 <sup>a</sup> | .333     | .324              | .4964932                   |

a. Predictors: (Constant), Management efficiency, Firm size, Trade Credit, Liquidity

**Source: Research Findings (2021)**

The R square depicts the variables of the response variable because of the predictor variables changes. R square was 0.333, showing that differing trade credit, liquidity, size and managerial effectiveness represent 33.3% of the variability in non-financial companies' financial performance. 67.7% of the financial performance variation may be ascribed to factors outside the model. Furthermore, as demonstrated by a 0.577 correlation coefficient(R), the independent factors had a high link with financial performance.

**Table 4.9: Analysis of Variance**

| Model |            | Sum of Squares | df  | Mean Square | F     | Sig.              |
|-------|------------|----------------|-----|-------------|-------|-------------------|
| 1     | Regression | .320           | 4   | .080        | 5.892 | .000 <sup>b</sup> |
|       | Residual   | 2.782          | 205 | .014        |       |                   |
|       | Total      | 3.102          | 209 |             |       |                   |

a. Dependent Variable: ROA  
b. Predictors: (Constant), Management efficiency, Firm size, Trade Credit, Liquidity

**Source: Research Findings (2021)**

The significance level is set at 0.000, which is below  $p=0.05$ . This means that the model was satisfactory to assess the trade credit, liquidity, firm size and managerial efficiencies of NSE-listed businesses in non-financial sector.

The R-square indicated the way the variables were connected. The significance of the link between responder and predictor factors was shown by the p-value of the sig. column. The confidence interval of 95% indicates a p-value of less than 0.05. As a consequence, a p-value above 0.05 indicates that the predictor and response variable are unrelated. The results are listed below.

**Table 4.10: Model Coefficients**

| Model |                       | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. |
|-------|-----------------------|-----------------------------|------------|---------------------------|--------|------|
|       |                       | B                           | Std. Error | Beta                      |        |      |
| 1     | (Constant)            | -.176                       | .089       |                           | -1.976 | .049 |
|       | Trade Credit          | .309                        | .002       | .277                      | 4.147  | .000 |
|       | Firm size             | .006                        | .005       | .075                      | 1.099  | .273 |
|       | Liquidity             | .220                        | .009       | .152                      | 2.289  | .023 |
|       | Management efficiency | .179                        | .037       | .138                      | 2.112  | .036 |

a. Dependent Variable: ROA

**Source: Research Findings (2020)**

All other factors, except for company size, have generated significant positive findings (high t-value,  $p < 0.05$ ). Because a p value greater than 0.05 is displayed, the business size generated a positive but modest result.

The following equation was created:

$$Y = -0.176 + 0.309X_1 + 0.220X_2 + 0.179X_3$$

Where,

Y = Financial performance

X<sub>1</sub> = Trade credit

X<sub>2</sub> = Liquidity

X<sub>3</sub> = Management efficiency

The constant = -0.176 in the model indicates that performance would be -0.176 if the variables (trade credit, liquidity, company size, as well as management efficiency) were all zero. While firm size was insignificant, a unit rise in trade credit resulted in a 0.309 increase in performance, while a unit rise in liquidity or managerial efficiency resulted in 0.220 and 0.179 increases in financial performance, respectively.

#### **4.7 Discussion of Research Findings**

The research examined how trade credit impacts NSE non-financial firms' performance. The independent variable was the trade credit operationalized as the ratio of net sales to average account receivables. The control variables were liquidity measured by current ratio, firm size as natural log of total assets and management efficiency measured by total sales to the overall assets. ROA was used to measure financial performance which was the response variable.

The correlation coefficient of Pearson showed that trade credit has a significant positive association with performance measured by ROA. NSE Non-financial

businesses' performance also showed a positive but not substantial connection to firm size. The research too exhibited that the correlation between liquidity and managerial efficiency with the success of NSE non-financial companies has been positive and substantial.

The result shows that 33.3% of changes in the response variable according to  $R^2$ , which implies other factors other than the model explain 33.3% of performance changes. The predictor variables of trade credit, liquidity, size of a business and efficiency explained 33.3% of changes in ROA. With an F-value of 5.892, the model was significant at 95% confidence interval. This shows that the connections between the variables were represented by a sufficient model.

The findings are consistent with Nsikan, Etim, and Uduak (2015) who investigated impact of trade credit practices on firm performance. Their objective was to learn more about the trade credit practices used by flour milling manufacturing companies and the manner in which those practices affected operative efficiency. Five firms in total were selected for the study, with 150 respondents being chosen to respond to the study's questions. The study found that, aside from large assembly companies, numerous medium-sized flour milling businesses use technical trade credit models. The majority of trade credit approaches, on the other hand, were focused on evolving consumer demands, existing industrial practices, forecasted forecasts, and production capability. The research too revealed that companies that use scientific trade credit methods are more effective at enabling superior production through capacity reduction, improved service, and shorter lead times.

The study also concurs with Kapkiyai and Mugo (2015) who conducted research in Eldoret, Kenya, to examine trade credit effect on the financial performance of small

businesses. Using a descriptive research design, this research surveyed 50 audited Small and Medium Enterprise company's sample. The research discovered a connection between trade credit and a company's liquidity, profit margin, and return on assets.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

The findings, conclusions, as well as limitations discovered during the research are summarized in this chapter. It also makes policy recommendations that will help policymakers raise the expectations of publicly traded non-financial companies in order to attain better results. The findings of the research too include future research suggestions.

### **5.2 Summary of Findings**

The research's goal was to see how NSE's financial performance is affected by trade credit. Trade credit, liquidity, business size, and managerial efficiency were among the variables studied. This was accomplished using a descriptive cross-section design. SPSS has been used to analyze secondary CMA data. Annual data for 42 non-financial corporations has been obtained during a 5-year period from their annual reports.

The correlation coefficient of Pearson showed that trade credit has a significant positive association with performance measured by ROA. NSE Non-financial businesses' performance showed a positive but not substantial connection to firm size. The research too depicted that the correlation between liquidity and managerial efficiency with the success of NSE non-financial companies has been positive and substantial.

As depicted by 0.333 R square, indicating that changes in trade credit, liquidity, business size, and management efficiency account for 33.3 % of the variance in NSE

listed non-financial enterprises performance. 66.7% of financial performance variation is attributable to variables outside the model. The results showed that the predictor parameters selected were significantly linked with the business results of non-financial companies ( $R=0.577$ ). The F value was calculated as 5% above the crucial value whereas the p value was 0.000 and showed that the model included data on the effects of the four independent variables on NSE power and animals.

The regression outcomes suggest that performance would be -0.176 if the variables (trade credit, liquidity, company size, as well as management efficiency) were all zero. While firm size was insignificant, a unit rise in trade credit resulted in a 0.309 increase in performance, while a unit rise in liquidity or managerial efficiency resulted in 0.220 and 0.179 increases in financial performance, respectively.

### **5.3 Conclusion**

The financial performance of publicly traded non-financial businesses is affected significantly by trade credit. The conclusions designate that a one-unit increase in that variable has a substantial positive effect on non-financial business performance. Company liquidity has a strong positive performance connection and therefore greatly improves liquidity performance. The survey also showed a statistically significant impact on management efficiency on financial performance and suggested that management efficiency is significantly affecting the performance of the companies examined. Furthermore, business size has a favorable but modest financial impact, meaning that corporate size is not a substantial predictor of ROA.

The results indicate that the selected factors, such as trade credit, liquidity, size, and managerial efficiency, significantly affected businesses' success. These factors influence significantly on non-financial companies' financial performance, since



ANOVA's p value is below 0.05. The finding that the chosen variables account for 33.3% of variance in performance indicates that other non-model factors account for 66.7% of variance in non-financial companies' financial performance.

This study concurs with Muhayimana (2015) who investigated the role of trade credit methods in the proper management of manufacturing companies. Sulfo Rwanda Ltd, a Kigali City-based consumer goods manufacturer, was chosen as the study's preferred company. Only those with appropriate knowledge about the research study were included in the survey using the purposive sampling methodology. The sampling approach was used to select a total of fourteen respondents. According to the findings of the report, trade credit practices have a significant impact on a firm's profitability, especially in terms of cost reduction. The research also revealed that trade credit aids businesses in meeting consumer demands more effectively by reducing instances of failure to meet customer demands.

This study also agrees with Vipulesh (2015) who investigated the effect of trade credit on firm performance. The study's aim was to figure out how trade credit affects firm output in India. The research was based on secondary data gathered from a various source. Using the correlation principle, stock turnover was compared to the company's profit based on the data collected. According to the study's results, manufacturing companies should implement the best inventory management strategies or make efforts to increase stock turnover. Furthermore, it was determined by a separate study that the stock turnover rate has a link with the firms' net profit. As a result, it was determined that trade credit has an effect on a company's financial position.

#### **5.4 Recommendations for Policy and Practice**

The study results revealed that trade credit has a positive impact on financial performance. Policy reforms include: non-financial companies listed in NSE should continue offering trade credit as this enhances their performance. This will also assist in achieving the objective of enhancing shareholder value. Trade credit terms should however be structured well to avoid bad debts as this would decrease financial performance.

Financial performance and liquidity were found to have a positive relationship in the research. The suggestion is that a detailed examination of the liquidity condition of publicly traded non-financial firms be performed to ensure that the firms are functioning at adequate levels of liquidity, consequently boosting financial performance. The rationale for this is that liquidity is extremely vital since it has an impact on how a company operates.

The NSE's non-financial operations performed much better as a result of improved management efficiency. The proposal is that non-financial companies establish optimal personnel management methods to ensure that skilled and devoted employees be attracted and retained, since this would help improve financial performance. Talent management methods such as staff planning, recruiting, learning and development should be given special consideration as should employee perks and payments.

#### **5.5 Limitations of the Study**

The research looked at some of the elements thought to affect the NSE-listed non-financial companies' performance. The research focused on four explanatory variables in particular. Nevertheless, additional factors, some of which are internal, like the firm's age and corporate governance, though others which lack management's

regulation, like rate of exchange, economic growth, balance of trade, as well as rate of unemployment, are influential in determining financial performance of companies.

The research used quantitative secondary data. The research also overlooked qualitative data that may explain additional variables influencing the connection between trade credit and non-financial company performance. Qualitative techniques like focus groups, open surveys and interviews may help to provide more definitive results.

The research focused on a span of 5 years (2016 to 2020). It is not clear whether the outcomes will last longer. It is also uncertain if same results can be expected beyond 2020. A multivariate linear regression model for data analysis was used. The investigator cannot correctly extrapolate results due to the model's shortcomings, such as misleading conclusions from a change in variable financial performance. When data is added into the model, conflicting outcomes may occur.

### **5.6 Suggestions for Further Research**

The research uses secondary data to examine at the impact of the trade credit on NSE non-financial firms' performance. In order to complement this research, same survey on the basis of primary data obtained through thorough surveys as well as interviews on all 42 NSE listed non-financial corporations might suffice.

Further research on variables such as growth prospects, industrial practices, business age, political stability, and other macroeconomic variables is required since the study did not cover all of the elements that affect the financial performance of NSE non-financial companies. Policymakers may use a tool that evaluates the influence of different factors on performance to help them make decisions.

The research was restricted to NSE-listed non-financial businesses. Other corporations operational in Kenya should be investigated further, according to the study's recommendations. Future research should look into how trade credit affects characteristics other than financial performance, such as business value, operational efficiency, and dividend payment, to name a few.

The focus of this research was drawn to the last five years. Future studies may span a lengthy period of time, such as thirty or twenty years, and may have a major effect on this study by confirming or refuting its findings. A longer research has the benefit of allowing the researcher to catch the effects of business cycles like booms as well as recessions.

Lastly, this research relied on model of multiple linear regression, that has its own set of drawbacks, including the possibility of erroneous and misleading conclusions due to changes in variable financial performance. To explore the many connections to financial success, future research should use alternative models, such as the Vector Error Correction Model.

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## APPENDICES

### Appendix I: Non-financial Firms Listed at the NSE

#### AGRICULTURAL

Eagads Ltd  
Kapchorua Tea Co. Ltd  
Kakuzi  
Rea Vipingo Plantations Ltd  
Limuru Tea Co. Ltd  
Williamson Tea Kenya Ltd  
Sasini Ltd

#### AUTOMOBILES AND ACCESSORIES

Car and General (K) Ltd

#### COMMERCIAL AND SERVICES

Express Ltd  
Kenya Airways Ltd  
Nation Media Group  
Sameer Africa PLC  
Standard Group Ltd  
Scangroup Ltd  
Uchumi Supermarket Ltd  
TPS Eastern Africa (Serena) Ltd  
Longhorn Publishers Ltd  
Deacons (East Africa) Plc  
Nairobi Business Ventures Ltd

#### CONSTRUCTION AND ALLIED

Athi River Mining  
Bamburi Cement Ltd  
Crown Paints Kenya PLC  
E.A.Cables Ltd  
E.A.Portland Cement Ltd

#### ENERGY AND PETROLEUM

KenolKobil Ltd  
Total Kenya Ltd  
KenGen Ltd  
Kenya Power & Lighting Co Ltd  
Umeme Ltd

#### INVESTMENT SERVICES

Nairobi Securities Exchange Ltd

#### MANUFACTURING AND ALLIED

B.O.C Kenya Ltd  
British American Tobacco Kenya Ltd  
Carbacid Investments Ltd  
East African Breweries Ltd  
Mumias Sugar Co. Ltd  
Unga Group Ltd  
Eveready East Africa Ltd  
Kenya Orchards Ltd

Flame Tree Group Holdings Ltd  
**TELECOMMUNICATION AND TECHNOLOGY**  
Safaricom PLC  
**REAL ESTATE INVESTMENT TRUST**  
Stanlib Fahari I-REIT  
**EXCHANGE TRADED FUND**  
New Gold Issuer (RP) Ltd

## Appendix II: Research Data

| Company ID | Year | ROA     | Trade Credit | Firm size | Liquidity | Management efficiency |
|------------|------|---------|--------------|-----------|-----------|-----------------------|
| 1          | 2016 | -0.1600 | 1.951        | 10.630    | 3.9703    | 1.766                 |
| 1          | 2017 | -0.0600 | 2.195        | 10.708    | 3.9512    | 2.909                 |
| 1          | 2018 | 0.1500  | 1.480        | 10.715    | 3.9318    | 5.958                 |
| 1          | 2019 | 0.0400  | 1.343        | 10.567    | 3.9120    | 11.648                |
| 1          | 2020 | 0.0500  | 1.383        | 10.473    | 3.8918    | 7.503                 |
| 2          | 2016 | 0.1400  | 3.647        | 10.660    | 3.9120    | 2.123                 |
| 2          | 2017 | 0.1500  | 3.073        | 10.528    | 3.8918    | 3.237                 |
| 2          | 2018 | 0.1200  | 3.464        | 10.622    | 3.8712    | 1.082                 |
| 2          | 2019 | 0.0900  | 3.386        | 10.603    | 3.8501    | 2.279                 |
| 2          | 2020 | 0.1100  | 3.631        | 10.634    | 3.8286    | 1.303                 |
| 3          | 2016 | 0.0100  | 1.556        | 9.973     | 4.3944    | 1.594                 |
| 3          | 2017 | 0.0200  | 1.501        | 9.987     | 4.3820    | 1.438                 |
| 3          | 2018 | 0.0200  | 1.506        | 9.954     | 4.3694    | 1.013                 |
| 3          | 2019 | 0.0400  | 1.532        | 9.911     | 4.3567    | 0.911                 |
| 3          | 2020 | 0.0600  | 1.569        | 9.839     | 4.3438    | 2.355                 |
| 4          | 2016 | 0.1300  | 8.637        | 9.519     | 3.1781    | 3.047                 |
| 4          | 2017 | 0.1200  | 7.561        | 9.489     | 3.1355    | 3.001                 |
| 4          | 2018 | 0.1300  | 6.038        | 9.473     | 3.0910    | 2.807                 |
| 4          | 2019 | 0.1700  | 6.791        | 9.404     | 3.0445    | 2.973                 |
| 4          | 2020 | 0.2200  | 7.874        | 9.343     | 2.9957    | 2.834                 |
| 5          | 2016 | 0.0400  | 1.427        | 9.769     | 2.0794    | 3.249                 |
| 5          | 2017 | 0.0500  | 1.447        | 9.704     | 1.9459    | 6.252                 |
| 5          | 2018 | 0.0100  | 1.425        | 9.657     | 1.7918    | 2.076                 |
| 5          | 2019 | 0.0100  | 1.538        | 9.586     | 1.6094    | 2.051                 |
| 5          | 2020 | 0.0700  | 1.860        | 9.469     | 1.3863    | 2.674                 |
| 6          | 2016 | -0.1000 | 1.364        | 9.847     | 3.5835    | 1.940                 |
| 6          | 2017 | -0.0800 | 1.512        | 9.878     | 3.5553    | 1.022                 |
| 6          | 2018 | 0.0200  | 1.680        | 9.923     | 3.5264    | 0.721                 |
| 6          | 2019 | 0.3900  | 1.644        | 9.897     | 3.4965    | 0.699                 |
| 6          | 2020 | 0.0600  | 1.819        | 9.833     | 3.4657    | 0.803                 |
| 7          | 2016 | -0.0400 | 2.614        | 10.437    | 3.9703    | 1.052                 |
| 7          | 2017 | 0.1500  | 2.814        | 10.445    | 3.9512    | 2.357                 |
| 7          | 2018 | 0.3100  | 2.484        | 10.364    | 3.9318    | 2.297                 |
| 7          | 2019 | -0.0200 | 1.744        | 10.196    | 3.9120    | 2.681                 |
| 7          | 2020 | 0.1100  | 1.784        | 10.208    | 3.8918    | 2.348                 |
| 8          | 2016 | 0.3500  | 3.460        | 8.888     | 3.9120    | 2.620                 |
| 8          | 2017 | -0.1800 | 1.816        | 9.035     | 3.8918    | 1.316                 |
| 8          | 2018 | 0.3900  | 2.321        | 9.179     | 3.8712    | 1.196                 |
| 8          | 2019 | -0.1900 | 1.307        | 8.969     | 3.8501    | 1.174                 |

| <b>Company ID</b> | <b>Year</b> | <b>ROA</b> | <b>Trade Credit</b> | <b>Firm size</b> | <b>Liquidity</b> | <b>Management efficiency</b> |
|-------------------|-------------|------------|---------------------|------------------|------------------|------------------------------|
| 8                 | 2020        | 0.0500     | 1.723               | 8.973            | 3.8286           | 1.206                        |
| 9                 | 2016        | 0.1000     | 4.035               | 9.759            | 4.3944           | 1.228                        |
| 9                 | 2017        | 0.1100     | 4.157               | 9.705            | 4.3820           | 1.056                        |
| 9                 | 2018        | 0.1200     | 2.795               | 9.481            | 4.3694           | 1.096                        |
| 9                 | 2019        | 0.0400     | 4.378               | 9.586            | 4.3567           | 1.112                        |
| 9                 | 2020        | 0.0500     | 4.523               | 9.570            | 4.3438           | 1.160                        |
| 10                | 2016        | 0.0200     | 1.944               | 11.577           | 3.1781           | 1.123                        |
| 10                | 2017        | 0.0200     | 1.888               | 11.565           | 3.1355           | 4.511                        |
| 10                | 2018        | 0.1900     | 1.705               | 11.535           | 3.0910           | 6.296                        |
| 10                | 2019        | 0.0200     | 1.442               | 11.398           | 3.0445           | 10.089                       |
| 10                | 2020        | 0.0300     | 1.647               | 11.276           | 2.9957           | 4.258                        |
| 11                | 2016        | 0.0900     | 1.870               | 10.382           | 2.0794           | 8.843                        |
| 11                | 2017        | 0.0900     | 1.688               | 10.384           | 1.9459           | 1.107                        |
| 11                | 2018        | 0.1000     | 1.970               | 10.240           | 1.7918           | 1.146                        |
| 11                | 2019        | 0.0400     | 1.442               | 10.379           | 1.6094           | 1.382                        |
| 11                | 2020        | 0.0200     | 1.311               | 10.449           | 1.3863           | 1.536                        |
| 12                | 2016        | 0.0200     | 1.258               | 11.534           | 2.3571           | 1.464                        |
| 12                | 2017        | 0.0200     | 1.274               | 11.474           | 2.2968           | 1.283                        |
| 12                | 2018        | 0.0300     | 1.435               | 11.440           | 2.6813           | 1.168                        |
| 12                | 2019        | 0.0400     | 1.498               | 11.344           | 2.3480           | 1.305                        |
| 12                | 2020        | 0.0300     | 1.464               | 11.248           | 2.6204           | 1.197                        |
| 13                | 2016        | -0.0600    | 0.765               | 11.165           | 1.3164           | 1.161                        |
| 13                | 2017        | -0.1900    | 0.814               | 11.192           | 1.1960           | 1.585                        |
| 13                | 2018        | -0.1900    | 0.968               | 11.260           | 1.1739           | 0.946                        |
| 13                | 2019        | -0.0200    | 1.234               | 11.172           | 1.2056           | 1.085                        |
| 13                | 2020        | -0.0400    | 1.341               | 11.089           | 1.2276           | 1.024                        |
| 14                | 2016        | 0.3000     | 6.426               | 11.209           | 1.0562           | 1.469                        |
| 14                | 2017        | 0.2400     | 5.755               | 11.202           | 1.0962           | 0.984                        |
| 14                | 2018        | 0.2000     | 2.979               | 11.196           | 1.1120           | 1.334                        |
| 14                | 2019        | 0.1700     | 3.104               | 11.129           | 1.1601           | 1.540                        |
| 14                | 2020        | 0.1400     | 2.652               | 11.110           | 1.1233           | 1.259                        |
| 15                | 2016        | 0.0000     | 2.544               | 9.473            | 4.5106           | 1.115                        |
| 15                | 2017        | -0.2000    | 2.251               | 9.517            | 6.2963           | 4.144                        |
| 15                | 2018        | -0.0100    | 2.601               | 9.574            | 10.0893          | 6.657                        |
| 15                | 2019        | -0.0200    | 3.053               | 9.586            | 4.2579           | 7.954                        |
| 15                | 2020        | 0.1200     | 3.710               | 9.564            | 8.8431           | 8.475                        |
| 16                | 2016        | 0.0200     | 7.019               | 10.120           | 1.1065           | 3.345                        |
| 16                | 2017        | 0.0300     | 9.641               | 10.226           | 1.1464           | 0.951                        |
| 16                | 2018        | 0.1300     | 11.056              | 10.205           | 1.3815           | 1.097                        |
| 16                | 2019        | 0.3800     | 5.316               | 10.174           | 1.5359           | 1.422                        |

| <b>Company ID</b> | <b>Year</b> | <b>ROA</b> | <b>Trade Credit</b> | <b>Firm size</b> | <b>Liquidity</b> | <b>Management efficiency</b> |
|-------------------|-------------|------------|---------------------|------------------|------------------|------------------------------|
| 16                | 2020        | 0.0100     | 3.389               | 9.957            | 1.4639           | 1.486                        |
| 17                | 2016        | -0.0500    | 1.718               | 9.649            | 1.2832           | 1.736                        |
| 17                | 2017        | 0.0500     | 1.891               | 9.644            | 1.1679           | 1.237                        |
| 17                | 2018        | -0.0700    | 1.758               | 9.639            | 1.3048           | 0.950                        |
| 17                | 2019        | 0.0500     | 2.165               | 9.613            | 1.1971           | 0.935                        |
| 17                | 2020        | 0.0500     | 1.974               | 9.619            | 1.1606           | 0.968                        |
| 18                | 2016        | 0.0700     | 2.291               | 10.580           | 1.5853           | 1.224                        |
| 18                | 2017        | 0.0600     | 2.149               | 10.559           | 0.9464           | 1.643                        |
| 18                | 2018        | 0.0500     | 2.059               | 10.534           | 1.0851           | 1.032                        |
| 18                | 2019        | 0.0400     | 2.019               | 10.512           | 1.0237           | 0.923                        |
| 18                | 2020        | 0.0300     | 1.625               | 10.602           | 1.4691           | 0.897                        |
| 19                | 2016        | -0.2100    | 0.994               | 10.273           | 0.9836           | 1.157                        |
| 19                | 2017        | -0.0500    | 1.254               | 10.277           | 1.3339           | 0.502                        |
| 19                | 2018        | -0.0500    | 1.035               | 10.277           | 1.5404           | 0.465                        |
| 19                | 2019        | -0.0800    | 2.733               | 10.339           | 1.2591           | 0.563                        |
| 19                | 2020        | 0.0300     | 2.244               | 10.377           | 1.1154           | 1.400                        |
| 20                | 2016        | -0.5700    | 0.705               | 9.699            | 4.1442           | 0.624                        |
| 20                | 2017        | -0.5300    | 1.153               | 9.807            | 7.9538           | 0.740                        |
| 20                | 2018        | 0.0800     | 1.922               | 9.838            | 8.4745           | 0.693                        |
| 20                | 2019        | 0.0600     | 2.105               | 9.746            | 3.3451           | 0.563                        |
| 20                | 2020        | 0.0000     | 2.144               | 10.011           | 0.9506           | 0.636                        |
| 21                | 2016        | 0.0600     | 2.626               | 9.964            | 1.0966           | 2.205                        |
| 21                | 2017        | 0.0700     | 2.614               | 9.938            | 1.4218           | 2.524                        |
| 21                | 2018        | 0.0600     | 2.540               | 9.905            | 1.4858           | 3.374                        |
| 21                | 2019        | 0.0400     | 2.124               | 9.909            | 1.7358           | 2.833                        |
| 21                | 2020        | 0.1200     | 3.589               | 10.054           | 1.2374           | 3.020                        |
| 22                | 2016        | 0.1300     | 3.507               | 10.085           | 0.9502           | 4.402                        |
| 22                | 2017        | 0.1600     | 3.392               | 10.104           | 0.9346           | 2.328                        |
| 22                | 2018        | 0.2000     | 3.761               | 10.077           | 0.9684           | 1.771                        |
| 22                | 2019        | 0.2300     | 3.575               | 10.059           | 1.2242           | 1.895                        |
| 22                | 2020        | 0.0200     | 3.609               | 9.348            | 1.6434           | 2.131                        |
| 23                | 2016        | 0.0600     | 4.161               | 9.347            | 1.0320           | 0.955                        |
| 23                | 2017        | 0.0600     | 3.825               | 9.366            | 0.9226           | 1.219                        |
| 23                | 2018        | 0.1000     | 4.159               | 9.362            | 0.8973           | 1.156                        |
| 23                | 2019        | 0.0800     | 4.619               | 9.420            | 1.1574           | 1.116                        |
| 23                | 2020        | 0.1200     | 1.219               | 10.824           | 0.5021           | 1.078                        |
| 24                | 2016        | 0.1600     | 1.126               | 10.791           | 0.4648           | 1.524                        |
| 24                | 2017        | 0.1400     | 1.249               | 10.826           | 0.5627           | 1.488                        |
| 24                | 2018        | 0.1100     | 1.169               | 10.798           | 1.4005           | 1.277                        |
| 24                | 2019        | 0.1100     | 1.152               | 10.761           | 1.0634           | 1.300                        |

| <b>Company ID</b> | <b>Year</b> | <b>ROA</b> | <b>Trade Credit</b> | <b>Firm size</b> | <b>Liquidity</b> | <b>Management efficiency</b> |
|-------------------|-------------|------------|---------------------|------------------|------------------|------------------------------|
| 24                | 2020        | 0.1700     | 12.778              | 8.965            | 0.6245           | 1.100                        |
| 25                | 2016        | 0.0500     | 10.995              | 8.881            | 0.7402           | 0.630                        |
| 25                | 2017        | 0.0100     | 6.764               | 8.633            | 0.6930           | 1.595                        |
| 25                | 2018        | -0.0900    | 5.224               | 8.649            | 0.5634           | 1.487                        |
| 25                | 2019        | 0.1000     | 4.188               | 9.978            | 0.6361           | 1.285                        |
| 25                | 2020        | -0.0300    | 3.773               | 9.922            | 2.2050           | 1.410                        |
| 26                | 2016        | 0.0500     | 4.521               | 9.951            | 2.5238           | 0.343                        |
| 26                | 2017        | 0.0100     | 4.370               | 9.932            | 3.3740           | 0.672                        |
| 26                | 2018        | 0.0900     | 3.945               | 9.931            | 2.8332           | 2.973                        |
| 26                | 2019        | -0.0300    | 3.302               | 9.308            | 3.0200           | 2.834                        |
| 26                | 2020        | 0.0500     | 3.402               | 9.331            | 4.4016           | 3.249                        |
| 27                | 2016        | -0.0100    | 3.570               | 9.297            | 2.3280           | 6.252                        |
| 27                | 2017        | 0.0700     | 3.517               | 9.285            | 1.7710           | 2.076                        |
| 27                | 2018        | 0.0900     | 2.616               | 9.318            | 1.8952           | 2.051                        |
| 27                | 2019        | -0.0700    | 3.530               | 8.418            | 2.1309           | 2.674                        |
| 27                | 2020        | -0.0800    | 3.690               | 8.451            | 0.9554           | 2.828                        |
| 28                | 2016        | 0.0100     | 3.740               | 8.497            | 1.2192           | 2.910                        |
| 28                | 2017        | 0.0000     | 4.241               | 8.530            | 1.1561           | 3.463                        |
| 28                | 2018        | 0.0800     | 4.150               | 8.535            | 1.1158           | 3.601                        |
| 28                | 2019        | -0.0700    | 0.878               | 8.574            | 1.0780           | 4.359                        |
| 28                | 2020        | -0.2500    | 1.065               | 8.579            | 1.5236           | 1.766                        |
| 29                | 2016        | -0.1400    | 1.373               | 8.645            | 1.4882           | 2.909                        |
| 29                | 2017        | -0.1600    | 1.485               | 8.679            | 1.2774           | 5.958                        |
| 29                | 2018        | 0.0000     | 1.704               | 8.682            | 1.2997           | 11.648                       |
| 29                | 2019        | 0.0100     | 2.101               | 10.243           | 1.1003           | 7.503                        |
| 29                | 2020        | 0.0000     | 2.290               | 10.230           | 0.6298           | 2.123                        |
| 30                | 2016        | -0.0300    | 2.580               | 10.199           | 1.5950           | 3.237                        |
| 30                | 2017        | 0.0100     | 2.884               | 10.202           | 1.4871           | 1.082                        |
| 30                | 2018        | 0.0300     | 2.892               | 10.208           | 1.2846           | 2.279                        |
| 30                | 2019        | 0.0400     | 2.870               | 10.139           | 1.4099           | 1.303                        |
| 30                | 2020        | 0.0300     | 2.883               | 10.130           | 0.3431           | 1.594                        |
| 31                | 2016        | 0.0200     | 3.227               | 10.096           | 0.6717           | 1.438                        |
| 31                | 2017        | 0.0400     | 2.802               | 10.123           | 0.7048           | 1.013                        |
| 31                | 2018        | 0.0600     | 2.713               | 10.105           | 1.0983           | 0.911                        |
| 31                | 2019        | -0.2300    | 1.463               | 8.157            | 1.0861           | 2.355                        |
| 31                | 2020        | 0.0300     | 1.472               | 8.191            | 2.3685           | 3.047                        |
| 32                | 2016        | 0.0300     | 1.685               | 8.048            | 2.2713           | 3.001                        |
| 32                | 2017        | 0.1000     | 1.311               | 7.900            | 1.8378           | 2.807                        |
| 32                | 2018        | 0.0300     | 1.327               | 7.654            | 2.3583           | 2.973                        |
| 32                | 2019        | -0.0400    | 0.920               | 9.651            | 2.5221           | 2.834                        |

| <b>Company ID</b> | <b>Year</b> | <b>ROA</b> | <b>Trade Credit</b> | <b>Firm size</b> | <b>Liquidity</b> | <b>Management efficiency</b> |
|-------------------|-------------|------------|---------------------|------------------|------------------|------------------------------|
| 32                | 2020        | -0.0400    | 0.949               | 9.594            | 1.3097           | 3.249                        |
| 33                | 2016        | -0.1000    | 0.989               | 9.587            | 1.1747           | 6.252                        |
| 33                | 2017        | 0.0000     | 1.103               | 9.570            | 1.1699           | 2.076                        |
| 33                | 2018        | 0.0300     | 1.125               | 9.486            | 1.1666           | 2.051                        |
| 33                | 2019        | -0.0800    | 1.886               | 8.147            | 1.1380           | 2.674                        |
| 33                | 2020        | -0.0300    | 1.900               | 8.708            | 0.4479           | 2.271                        |
| 34                | 2016        | 0.0000     | 1.862               | 8.781            | 1.0423           | 1.838                        |
| 34                | 2017        | 0.0000     | 2.211               | 8.712            | 1.0590           | 2.358                        |
| 34                | 2018        | -0.1100    | 2.482               | 8.109            | 1.1121           | 2.522                        |
| 34                | 2019        | 0.1000     | 21.884              | 9.324            | 1.1251           | 1.310                        |
| 34                | 2020        | 0.0900     | 13.371              | 9.304            | 1.0611           | 1.175                        |
| 35                | 2016        | 0.1600     | 13.370              | 9.283            | 1.1587           | 1.170                        |
| 35                | 2017        | 0.1900     | 11.863              | 9.227            | 1.1441           | 1.167                        |
| 35                | 2018        | 0.2300     | 2.747               | 9.060            | 1.1447           | 1.138                        |
| 35                | 2019        | 0.1900     | 1.787               | 10.251           | 1.0939           | 0.448                        |
| 35                | 2020        | 0.2600     | 1.907               | 10.267           | 1.0332           | 1.042                        |
| 36                | 2016        | 0.2700     | 1.901               | 10.271           | 1.2705           | 1.059                        |
| 36                | 2017        | 0.2300     | 1.803               | 10.261           | 1.2776           | 1.112                        |
| 36                | 2018        | 0.2200     | 40.606              | 10.230           | 1.1715           | 1.125                        |
| 36                | 2019        | 0.0600     | 1.393               | 10.428           | 1.1658           | 1.159                        |
| 36                | 2020        | -0.2300    | 1.409               | 10.310           | 1.5334           | 1.144                        |
| 37                | 2016        | -0.1200    | 1.572               | 10.372           | 1.6234           | 1.145                        |
| 37                | 2017        | -0.0500    | 1.764               | 10.436           | 1.6385           | 1.094                        |
| 37                | 2018        | 0.0600     | 2.036               | 9.269            | 1.6048           | 1.033                        |
| 37                | 2019        | 0.0500     | 2.031               | 9.271            | 1.5050           | 1.271                        |
| 37                | 2020        | 0.0900     | 2.231               | 8.838            | 1.2653           | 1.278                        |
| 38                | 2016        | 0.1300     | 2.365               | 8.877            | 1.2875           | 1.172                        |
| 38                | 2017        | 0.1700     | 2.290               | 8.836            | 1.2781           | 1.166                        |
| 38                | 2018        | -0.1200    | 2.057               | 9.358            | 1.2225           | 1.558                        |
| 38                | 2019        | 0.0400     | 2.553               | 9.396            | 1.1691           | 1.623                        |
| 38                | 2020        | 0.0300     | 3.566               | 9.293            | 1.1254           | 1.638                        |
| 39                | 2016        | -0.0400    | 1.888               | 8.741            | 1.0996           | 1.605                        |
| 39                | 2017        | 0.0498     | 2.137               | 8.267            | 1.0417           | 1.505                        |
| 39                | 2018        | 0.0389     | 2.222               | 8.316            | 1.2396           | 1.265                        |
| 39                | 2019        | 0.0387     | 2.262               | 8.354            | 2.2624           | 1.287                        |
| 39                | 2020        | 0.0360     | 2.933               | 8.382            | 2.9326           | 1.278                        |
| 40                | 2016        | 0.0284     | 3.534               | 8.414            | 3.5336           | 1.222                        |
| 40                | 2017        | 0.0498     | 2.500               | 8.267            | 2.5000           | 1.047                        |
| 40                | 2018        | 0.0389     | 3.145               | 8.316            | 3.1447           | 1.169                        |
| 40                | 2019        | 0.0387     | 2.506               | 8.354            | 2.5063           | 1.125                        |



| <b>Company ID</b> | <b>Year</b> | <b>ROA</b> | <b>Trade Credit</b> | <b>Firm size</b> | <b>Liquidity</b> | <b>Management efficiency</b> |
|-------------------|-------------|------------|---------------------|------------------|------------------|------------------------------|
| 40                | 2020        | 0.0360     | 2.500               | 8.382            | 2.5000           | 1.100                        |
| 41                | 2016        | 0.0284     | 2.985               | 8.414            | 2.9851           | 1.042                        |
| 41                | 2017        | 0.0449     | 3.067               | 8.291            | 3.0675           | 1.240                        |
| 41                | 2018        | 0.0446     | 2.959               | 8.343            | 2.9586           | 1.198                        |
| 41                | 2019        | 0.0471     | 2.660               | 8.347            | 2.6596           | 1.159                        |
| 41                | 2020        | 0.0278     | 2.967               | 8.369            | 2.9674           | 1.148                        |
| 42                | 2016        | 0.0374     | 2.174               | 8.399            | 2.1739           | 1.081                        |
| 42                | 2017        | 0.0417     | 1.473               | 8.035            | 1.4728           | 2.095                        |
| 42                | 2018        | 0.0414     | 2.415               | 8.083            | 2.4155           | 2.365                        |
| 42                | 2019        | 0.0427     | 1.357               | 8.164            | 1.3569           | 2.520                        |
| 42                | 2020        | 0.0386     | 1.832               | 8.219            | 1.8315           | 2.253                        |