

# Trade Credit Uncertainty and Financial Performance of Manufacturing Firms in Kenya

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## Abstract

The main objective of this study was to find out if uncertainty in trade credit of manufacturing firm in Kenya affects their financial performance. Manufacturing firms in Kenya have not been performing to their expectation. They are expected to contribute to economic growth of the country through GDP increment, market share, attract largest strategic investments in Key processing industry, increase sales both locally and international and employ at least 20% of Kenya Population. It was noted that the manufacturing firms have been facing various challenges both financial and non-financial. Contribution to GDP has staggered at an average of 10%, profit and sales have been declining and some firms have completely moved out of market. Many factors have been cited to be contributing below expectation performance. However, the influence of trade credit uncertainty on financial performance of manufacturing firms in Kenya is not conclusive. Hence, necessitating the current study to examine the influence of trade credit uncertainty on financial performance of manufacturing firms in Kenya. The study anchored its variable on credit risk theory. Indicators of trade credit uncertainty were credit exposure rate and default rate, and proxy of performance were ROS and ROE. The study adopted positivism Philosophy and correlation design. Target population was 856 manufacturing firms registered with KAM. A sample of 90 firms was selected using Stratified random sampling technique for 14 sectors and each sample picked by random sampling. The study covered a period of 12 years starting from 2009 to 2020 all years inclusive. Panel data was collected from audited financial statements and annual reports published using data collection instrument. Pre and post diagnostic tests were carried out on collect data to test assumption of linear regression using E-view 11.8. Tests done were Normality test, Hausman test, Unit root test, Heteroskedastic test, autocorrelation, and multicollinearity test. Results showed that trade credit uncertainty had positive and significant impact on financial performance of manufacturing firms in Kenya. The study recommends having credit policy in place that will help to reduce losses because of high exposure rate.

**Keywords:** Trade credit uncertainty, credit exposure rate, default rate and Financial Performance.

**DOI:** 10.7176/RJFA/13-10-08

**Publication date:** May 31<sup>st</sup> 2022

## 1. Introduction

Manufacturing firms carry out their daily business by selling goods on cash or on credit. This makes trade credit an important part of receivable that is necessary for firm's operation and growth. Firms are expected to collect these funds in future depending on their credit terms and policy (Kungu, Wanjau, Waititu & Gekara, 2014). Volatility in trade credit during seasons of financial uncertainty and other related uncertainty is what leads to uncertainty in trade credit. Trends in trade credit are used by firms to show variation in firm trade credit. Trade credit provided to customers may vary from firm to firm. Firms that are risk averse will reduce production of goods and also reduce sales on credit (Athanasoglou et al., 2014). During uncertainty moments in the economy, most firms put measures in place to increase their recovery of funds from customers that have defaulted and reduce further default. Several firms take advance of information asymmetry and tighten their credit policy and recovery period (Kimathi, Mugo, Njeje, & Otieno, 2015).

Trade credit uncertainty becomes the biggest opportunity and sometimes threat to financial performance of manufacturing firms and at large its growth especially during economic crisis (Babalola, 2013). Trade credit if well managed can be a source of firm's financial growth through increased production and sales (Dogan 2013). When uncertainty is high, trade credit is expected to be low and vice versa (Baum et al., 2018). Most Manufacturing firms extend credit facility only to their customers that have a good reputation. This may have significant effect on performance of the firm and its liquidity as well as its solvency in both short and long run (Florian & Belke, 2014).

### 1.2 Statement of the problem

The government of Kenya expects manufacturing firms to contribute 20% to GDP annually, 15% to market share of the region, attract largest strategic investments in the country like 10 of them in the key processing industry, have sales increased by 4% in the international and local Market (Kungu, Wanjau, Waititu, & Gekara, 2014; Gitau & Gathiaga, 2017). Kenya expects manufacturing firms to provide employment to 20% of its population

(KAM 2019). However, in the past ten years, manufacturing firms reported profit and sales decline, GDP stagnation at 10% and deploying of workers. Some firms have moved out of the country and completely closed their branches (Word Bank, 2019; United Nation International Development Organization, 2014; KAM 2017).

Many factors have been stated to have led to manufacturing firms not performing to their expectation. Both financial and non-financial factors have been cited, high cost of operation of business in Kenya and cheap importation of related products into the country. Many studies have been carried out to examination influence of trade credit on performance of different firms in Kenya and other countries. Mixed findings have been found with different proxy of trade credit and performance. Some studies have found negative impact, others positive impact as well as no influence of trade credit on performance of firms.

### 1.3 Objectives of the Study:

The main objective of this study was to examine the influence of Trade credit uncertainty on financial performance of manufacturing firms in Kenya.

#### 1.3.1 Specific Objectives Of the study

To find the influence of uncertainty of trade credit on financial performance of manufacturing firms in Kenya

## Literature Review

### 2.0 Credit Risk Theory

This theory was introduced by Melton (1974) where traditional actuarial methods were used to value trade credit and related uncertainty. Structural model that used variables related to a given specific issuer of trade credit rating were introduced (Longstaff & Schwartz, 1995). Three quantitative approaches of analyzing trade credit: structural approach, reduced form appraisal and incomplete information approach. Financial crisis of 2007 – 2008 that was accompanied with high financial uncertainty led to more attention being given to balance sheet items (Bloom, 2018).

There was monitoring activities of customers (Achaya, 2008) and screening them before issuing them with credit (Fees & Hege, 2013). However, this method had major difficulty which was related to dependence on historical data and difficult of predicting future (Moles, 2016). Credit portfolio Modelling for organizations was introduced (Vaa, 2017). Advanced credit management and credit value adjusting, though this is likely to lead to extra cost (Kajirus & Kithere, 2019).

Credit risk theory helps organizations know their exposure to trade credit default and likelihood to recovery. As such firms need to put measure in place to increase their recovery rate and reduces their trade credit losses (Peter & Brown, 2016). Models in credit risk theory can help estimate non-recovery of debts to customers and diversify portfolio since this theory help in quantifying credit default rates and their marginal contribution to portfolio (Jureviciene & Skirkaite, 2011).

The theory was appropriate for the study since it explains that during uncertainties, trade credits go down while default rates go high. The theory assumed macroeconomic factors during calculation of trade credit default and estimates of recovery rate. Also, information on the default rate is not easily available thus an organization has to incur extra cost in monitoring and assessment of their trade credit defaults. There is need for manufacturing companies to manage their credit sales, raw materials purchases and processed goods to optimize on benefits achieved from credit sales and credit acquisition of raw materials. During this study trade credit is expected to go down during uncertainty periods and it will be high during moments of low financial uncertainties.

### 2.1 Empirical Literature

Huan, Qin, Saeed (2018) Carried out an investigation study to find out how trade credit influences firm profitability for firms that are under financial constraint in East Asia and The Pacific. Target firms were 1,504 non-financial SME from nine countries (China, Vietman, Malaysia, Thailand, Japan, South Korea, Taiwan, Singapore, and Hong Kong for a period covering 6 years from 2010 to 2016. Panel data methodology was employed to analys relation that exist between Trade credit and firm profitability square of trade credit receivable and square of trade credit Payable. Proxy of profit were Gross operating profit and Net operating profit, and control variables were Liquidity ratio, leverage ratio, cash ratio, Sales growth, firm size, industry deviation and Tangible Assets. Findings showed Inverted U-shaped relationship between trade credit and firm profitability meaning there exist optimal trade credit level beyond which firm use of credit has negative effect on profitability.

Tadesse (2014) had a research study which was carried out to observe effect that Trade credit had on performance (Financial) for Ethiopian commercial banks taking into consideration 5 years starting from 2008 to 2012. Indicator used for financial performance was ROA and ROE. Dependent variables of the study were total provisions for loans, total assets, and cost of credit administration. Multiple linear regression model was used during analysis for investigating the relationship that exist between variables under the study. Trend analysis was done by help of basic descriptive statistics. Judgmental sampling techniques were adopted in sample selection

for eight banks included in study. Data was extracted from annual bank reports. It was found that provision for loan, loan to total assets and total loan to cost and bank size had impact that was negative and significant on financial outcomes (ROA) of banks operating in Ethiopia. The study recommended need to boost credit management department for banks and have controls over their cost of administration which are related to lending and borrowing to realize some growth in profits.

Alshatti (2015) Carried out a study which was aimed at investigating the impact managing trade credit had on returns of (Nigeria) Jordanian Commercial banks by use of ROA and ROE indicators. The study employed data which was secondary: it was collected from audited annual financial reports for 8 years (2005 to 2013). Panel data regression model was employed using the following indicators: Capital adequacy ratio, credit interest and facility ratio, leverage ratio and non-performing loans ratio. Descriptive, quantitative ratio and econometric analysis approach was used on cross sectional data. Correlation matrix was obtained to test multicollinearity using Pearson correlation. Suitability of the model was tested by use of F statistic. Result showed that management of trade credit generally had an overall significant positive effect on returns of commercial banks of Nigeria.

Kungu et al. (2014) carried out an investigation study to find out effect of Credit policy on financial performance of manufacturing firms in Kenya. Data was collected from 81 manufacturing firms registered in Kenya using Stratified random sampling on registered firms. Primary data was collected using Linkert Scale to find out how credit sales affect total sales and profit. Descriptive design and inferential analysis were carried out on collected data. Variables under the study were Credit sales and total sales and profit. ANOVA and regression analysis were used to test hypothesis. SPSS program was used to carry out analysis of relation that exist between variables under the study. Finding showed that credit sales (Trade Credit) had positive relationship with firm sales and profit.

#### Conceptual Framework

The study conceptualized that financial performance of manufacturing companies was dependent on default rate and credit risk exposure. Conceptualized effect is as shown in Figure 2.1.

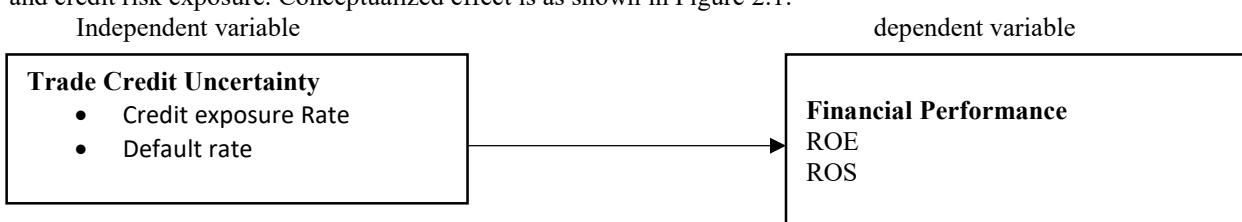


Figure 1 Conceptual Framework

#### Trade Credit Uncertainty

Trade credit was incorporated as independent variable during this study. There was need for firms to carry out assessment of their customers (firms or individuals) through information gathering to increase debt collection or reduce bad debts (Doron et al., 2014). Manufacturing firms extended credit facility to their customers specially to firms they have a good reputation with this may have significant effect on performance and liquidity of a firm as well as its solvency in the long run (Florian & Belke, 2014).

According to Chee and Smith as quoted by Kungu et al., (2014) trade credit terms can either be lenient or stringent. Lenient trade credit terms tend to have liberal terms and standards and the give their customers longer period to pay. A stringent credit policy has terms that are very restrictive and has trade credit with customers that meet their terms and conditions, and the firm can ascertain their credit worthiness. Stringent credit terms may require customer to give deposit with firms which cushion firm against default.

Most firms have adapted either of the two forms of known trade credit: the first simpler form, net terms, gives specific information that payment should be done in fully within a certain period once delivery has been done. Once the stated period elapses, the customer who received goods becomes defaulter. The second form of trade credit seems more complex and has two parts of terms, the basic part that states period within which payment should be done, gives discount for payment within shorted period and interest rate for defaulters with different rates for different period (Kalunda et al., 2012).

Trade credit to any Manufacturing firm is very important since it helps in protecting its sales from competitor's erosion and in most cases attracts new customers by offering them favorable terms. If affirm has strict credit policies in place, they are likely to lose their customers to other competitors in the market. This makes accounts receivables to be inevitable item on the balance sheet may not be a matter of choice but a matter of survival (Kakuru, 2001). Given that most firms investment in trade receivables, trade credit is known to have both cost and benefits depending on firm level of risk appetite. Trade receivable volatility affect both liquidity and profitability of firm manufacturing firms.

Domestic trade credit provided to customers is likely to be affected during moments of financial uncertainty since firms that are risk averse will reduce production and reduce sales on credit (Athanasoglou et al., 2014).

During such moment's firms put measures in place to increase their recovery of funds from customers that have defaulted. Firms take advantage of information asymmetry and tighten their credit policy and recovery period (Beck et al., 2010; Kimathi, Mugo, Njeje, & Otieno, 2015).

Trade credit becomes the biggest opportunity and sometimes threat to financial performance of manufacturing firms and at large its growth especially during economic crisis (Babalola, 2013). Under competitive Environment for business firm's survival in most cases depends on its volume of sales whether on cash or credit. This leads to high performance when sales go high as such management needs to have credit management policies in place to ensure that sales on credit don't go above certain levels. If a firm has un-effective credit policies in place, then firm's growth will be brought down and declination in profit will be realized leading to losses at bottom line. Every financial firm manager needs to aim at ensuring maximum collection of trade receivables to maximize firms cash inflows and improve firm liquidity (Ojeka, 2012).

From above discussion, it's clear that trade credit if well managed can be a source of firm's financial growth through increased production and sales (Dongya 2011). When uncertainty is high, trade credit is expected to be low and vice versa. Most firms review their credit terms and are not willing to extend credit to new customers and those who default on terms of credit don't benefit on trade credits (Baum et al., 2018). This study used trade credit exposure rate and default rate as a proxy for trade credit. The information on credit advanced and net sales was obtained from audited financial records of manufacturing firms.

#### Financial performance

Total sales both locally and exported by manufacturing firms in Kenya declined by 1.1% (3.3 % from 4.4 % in the year 2018 and 2017 respectively). This was attributed to uncertainties in commodity prices, fuel cost and depreciation in financial assets (Kenya shilling). Cost of imported inputs went up, local products markets demand went low when some firms closed their operations and moved to other countries due to high operation costs (Memba & Nyanumba, 2013). World Bank report (2016) showed that manufacturers in Kenyan have reported declining profits for the last 10 years. Manufacturing firms are under intense adaptive pressure due to financial uncertainty because of changes in technological, production and market demands. Global market policies, financial policies, political and environmental uncertainties that have resulted to instability in commodity price and rates of foreign exchange (African Development Bank Group, 2018).

Performance can be measured using profitability ratios like ROE, ROA, ROS, profit margin and change in sales growth among others. ROE is used to measures return received by the owner of the business because of capital investment while ROS shows how sales are efficiently utilized in relation to returns and how efficient is the firm in relation to profits. The study used ROE and ROS which had been used by other studies (Githaiga et al., 2021; Cheptum et al., 2019; Adekunle & Sunday, 2010; Vijayakumar & Tamizhselvan, 2010).

### Research Methodology

#### 3.1 Introduction

This chapter discussed design of research, methodology that was used during sampling, how sample size was determined and the target population, collection of data, data analysis and diagnostic tests.

#### 3.2 Research Philosophy

The anchoring paradigm in this research study was positivism for the reason being it sort to objectively determine facts by empirically describing relationship between trade credit uncertainty and financial performance of manufacturing firms (ROE and ROS). Positivism seeks and finds facts or causes of business or social phenomena, with little or no attention to the individual subjective state. From the objective of this study, considering the investigation that was conducted, extent of involvement of the researcher, duration for data collection and method adopted for analysis. Positivism was fit for this study because the researcher was independent from the observations that were made (Bryman & Bell, 2015). Among the studies in Kenya that have adopted positivism view includes Githaiga et al., (2021), Muriithi (2016) and Muiruri (2015).

#### 3.3 Research Design

This research study adopted Correlation research design which build a profile of study problem by collecting data for research variables and then carried out analysis on data to reveal the nature of relationship that existed between variables (Cooper & Schindler, 2013). According to Kothari (2014) research that is correlation in nature is normally used to acquire data and information pertaining phenomena's' relationship status as at time of study. It also describes characteristics or behavior of a given population in a systematic and accurate version (Sekaran, 2010). Correlation research design was used in other studies (Okechukwu et al., 2018; Baum et al., 2018).

The study used data that was Time Series and Cross Sectional (TSCS). Published work done by Limpet (1966) and study by Olweny and Shipho (2010) stated that TSCS have unrivalled ability to detect relationships that are causal.

### 3.4 Target Population

The target population upon which this study was based was 856 manufacturing firms that were registered with KAM as at end of 2019. Manufacturing firms' KAM membership is 40% of large manufacturing firms which are operating in Kenya (Anzetse, 2014)

Table 3.1 Target Population

Sector Members	No.	%
Service & Consultancy	104	12%
Building, Mining & Construction	29	3%
Chemical & Allied Sectors	79	9%
Energy, Electrical & Electronics	45	5%
Food & Beverages	187	22%
Leather & Footwear	9	1%
Metal & Allied Sector	83	10%
Motor Vehicle & Accessories	51	6%
Paper & Board	74	9%
Pharmaceutical & Medical Equipment	24	3%
Plastics & Rubber	77	9%
Fresh Produce	11	1%
Textiles & Apparels	64	8%
Timber, Wood & Furniture	19	2%
	856	100%

Source: KAM 2019

### 3.5 Sampling Procedure and Size of Sample

Sample of the study was selected from firms that are registered with KAM using stratified random sampling technique from each sector depending on number of firms per sector. Stratified sampling technique was appropriate for this study since Manufacturing firms have 14 sectors with different population and percentage. Number of firms sampled was randomly selected to have a good representative of the population. An appropriate random sample was picked from each sector to form a sample size of 90 manufacturing firms. Sample size was drawn using Nasurima (2000) formula as shown below:

$$\text{Sample size} = NCV^2 / (CV^2 + (N-1) \varepsilon^2)$$

Where N is the population Targeted; CV2 is co-efficient of variation normally given at 0.5%;  $\varepsilon$  is the desired tolerance level of confidence usually given as 95% therefore taken at 0.05%. This formula was used by other researchers (Richard et al., 2007; Nyabwanga et al., 2012; Mogere et al., 2013).

$$\begin{aligned} \text{Sample size} &= (856 * 0.52) / 0.52 + (856 - 1) * .052 \\ &= 214 / 2.3875 \\ &= 89.633 \\ &= 90 \text{ Manufacturing firms} \end{aligned}$$

Table 3.2 Sample Size

Sector Members	Sample	%
Service & Consultancy	10	12%
Building, Mining & Construction	3	3%
Chemical & Allied Sectors	8	9%
Energy, Electrical & Electronics	5	5%
Food & Beverages	20	22%
Leather & Footwear	2	1%
Metal & Allied Sector	9	10%
Motor Vehicle & Accessories	7	6%
Paper & Board	8	9%
Pharmaceutical & Medical Equipment	3	3%
Plastics & Rubber	8	9%
Fresh Produce	2	1%
Textiles & Apparels	7	8%
Timber, Wood & Furniture	2	2%
	90	100%

### 3.6 Data Collection Instrument

Secondary data was gathered from audited financial statements and published reports. Researcher used data collection instrument (DCI) as guide during data collection from sampled manufacturing firms that are registered under KAM. This technique was more appropriate for this study and has been used during similar studies to collect data (Tarus et al., 2015; Muturi & Muiruri, 2015; Muriithi, 2016; Nyando, 2018; Muriagi, 2018).

### 3.7 Data Processing and Analysis

Panel data collected was analyzed using Eviews 11.8 Version. Both measures of central tendency including standard deviation, median and mean was used during data representation. Multiple Panel regression analysis helped in measuring strength and nature of relationship which exist between variables. The model also helped in explaining magnitude and showing direction of relationship by use of correlation coefficient, determination coefficient and significance level.

### 3.8 Operationalization of Variables

The study adopted financial performance of manufacturing firms as dependent variable. Explanatory variables for this study were firm trade credit uncertainty. Details of how trade credit uncertainty variable was measured and operationalized is shown in the table below:

Table 3.3 Operationalization of Variables

Indicator	Measure	Formula	Nature of relationship
Trade credit	Trade credit Exposure rate	Average Credit advanced/Average Net sales	+ or – Significant or not significant
	Default Rate	Average impaired receivables/Total receivables	+ or – Significant or not significant

Source: (Baum et al., 2018; Multhy et al., 2018; Shimenga & Miroga, 2019; Oluwagbemiga et al., 2014; Kungu et al. 2014; Muniagi, 2019).

### 3.9 Statistical Models Specification

Panel data was used for all objectives which included time effect and control for heterogeneity which was captured by Fixed or random effects. Since the results of the study involved estimates then this study applied panel regression model for analysis. The study applied static run which assumption that current performance was not affected by previous performance.

#### Panel model

The study assumed that independent and dependent variables have general multiplicative function relationship. Influence of trade credit uncertainty on manufacturing firm performance was determined by adapting the following equation:

$$\text{ROS} = f(\text{CER}, \text{DER}) \quad \text{ROE} = f(\text{CER}, \text{DER}) \\ (3.5a)$$

The following model was used for regression:

$$\text{ROS}_{it} = \beta_0 + \beta_1 \text{CER}_{it} + \beta_2 \text{DER}_{it} + \alpha_i + \epsilon_{it} \quad (3.5b)$$

$$\text{ROE}_{it} = \beta_0 + \beta_1 \text{CER}_{it} + \beta_2 \text{DER}_{it} + \alpha_i + \epsilon_{it} \quad (3.5c)$$

Where:

CER = Credit exposure rate, DER = Default Rate  $i = 1 - n, t = 1, 2, \dots, 12$

n = Sample size,  $\alpha_i$  = Manufacturing firm effect specific to a firm and are assumed to be normally distributed and have variance which is constant.  $\epsilon_{it}$  = Error terms assumed to have normal distribution (denotes variables not included in the study).

#### 4.0 Findings and Discussions

**Table 1 Descriptive Statistics**

	Financial performance		Trade uncertainty	
	ROE	ROS	CER	DR
Mean	12.12	6.56	16.57	23.00
Maximum	67.65	97.53	153.49	91.75
Minimum	-53.44	-48.52	-0.05	0.02
Std. Dev.	15.71	12.06	15.24	21.35
Skewness	0.03	0.37	3.21	1.09
Kurtosis	5.27	10.76	20.69	3.65
Jarque-Bera	233	2734	15935	232
Probability	0.00	0.00	0.00	0.00
Sum	13086	7087	17898	24844
Sum Sq. Dev.	266405	156965	250614	491694
Observations	1080	1080	1080	1080

From above table 1 results show that Mean ROE was 12.12 while Mean ROS was 6.56. Implying that ROE was twice ROS for the period under the study with minimum of -53.44 and -48.52 showing that firms were having negative returns during the period under the study. Trade credit uncertainty showed Mean rate of 16.57 for CER and 23 for DR with maximum of 153.49 for CER and 91.75 for DR. However, CER had minimum of negative 0.05 showing that there was likelihood of having negative rate. Standard deviation was very high above average of 2 meaning regressors, and regressed variables were very volatile. Volatility was used to measure uncertainty in trade credit.

Jarque-Bera results had a probability of less than 0.05 showing that data was normally distributed. Skewness for all variables was less than 1 except for CER which was slightly more than 3. Kurtosis for all variables was very high with CER being 20.69. This shows data collected was peak and skewed to the left.

Diagnostic Tests

**Table 2 Panel Unit Root Test**

Variable	Method	Statistic	Prob.**
ROS	ADF	244.285	0.000
	PP	380.610	0.000
ROE	ADF	244.285	0.000
	PP	380.610	0.000
Credit rate exposure	ADF	239.048	0.000
	PP	340.651	0.000
Default rate	ADF	262.417	0.000
	PP	407.725	0.000

Panel root test was tested using ADF and PP for all variables under the study. P value was < 0.05 at significant level of 5%. This test was to determine if panel data was stationary for linear model assumption to hold. It was concluded collected data was stationary. Variables were not differentiated.

**Table 3 Other Diagnostic Tests**

Diagnostic Test	Test	Dependent	Statistics
Radom versus pooled effects	Breusch Lagragian multiplier test	ROE	$\chi^2 = 627.73$ , p value = 0.000
		ROS	875.16, p value = 0.000
Serial correlation Test	Wooldridge serial correlation test	ROE	F= 6.724, p value = 0.011
		ROS	F= 9.372, p value = 0.0029
Heteroskedasticity	Likelihood ratio	ROE	$\chi^2 = 1.2E+05$ p value = 0.00
		ROS	$\chi^2 = 1.4E+05$ p value = 0.00
Random or fixed effects	Hausman test	ROE	$\chi^2 = 10.871$ , p value = 0.0044
		ROS	$\chi^2 = 3.303$ , p value = 0.1918

**Table 4.2 Correlation Analysis**

	ROE	ROS	CER	DR
ROE	1			
ROS	0.579	1		
	0.000	-----		
CER	-0.195	-0.175	1	
	0.000	0.000	-----	
DR	0.167	0.096	-0.110	1
	0.000	0.002	0.000	-----

Source: Collected data analysed

For the study to assess the strength of influence of Trade credit uncertainty on Financial performance of manufacturing firms in Kenya, regression analysis correlation coefficient was adapted. Credit Exposure rate and Default rate were regressed against ROS and ROE. Results in above table showed that Credit Exposure Rate had negative and significant influence on financial performance of manufacturing firms in Kenya while default rate had positive and significant influence on financial performance of manufacturing firms in Kenya. Default rate had negative and significant influence on Credit exposure rate.

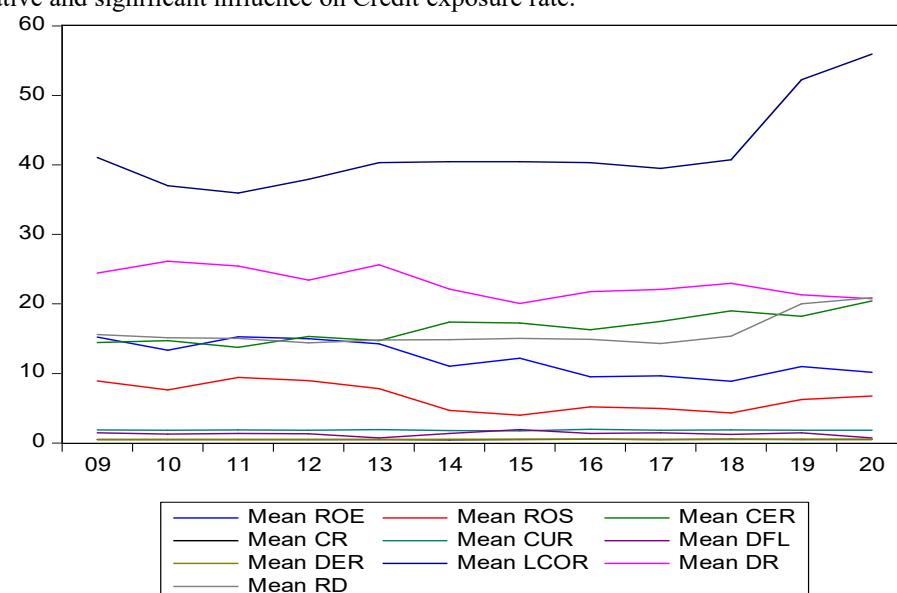


Figure 1. The Trend of financial performance

Pictorial presentation on the average return on equity of manufacturing companies in Kenya indicates that

the highest ROE was recorded in 2011 and 2009 while the least was in 2018 a trend that reversed but nosedived in 2020. Performance of manufacturing firms went down from 2015 to 2016 and sunk further toward 2018. Meaning both pre-election and post-elections affected performance of manufacturing firms. Uncertainty in the country during 2019 caused firms that were recovering to start dropping in performance (ROE).

The figure above indicates that the average return on sales increased from 2010 to 2011 then started declining in 2011. There was a notable downward trend from 2011 to 2015 though an upward trajectory was noted from 2018 to 2020. It can be noted that average return on sales was high in 2009 and 2011 then downward trend with some recovery as from 2015

There was an upward average increase in trade credit exposure rate among manufacturing companies in Kenya from 2009 to 2010. The increase in trade credit exposure may have inversely affected performance of manufacturing companies since this uncertainty may deter credit sales that may erode amount of revenue generated. As CER was increasing, performance financially for manufacturing firms was going down.

The average default rate of manufacturing companies had irregular patterns. This was manifested by decrease from 2013 to 2015 and mixed patterns from 2016 to 2020 though the least default risk was recorded in 2015 and 2020.

### Regression Analysis

The main objective of the study was to investigate the effect of trade credit uncertainty on financial performance of manufacturing companies in Kenya. Multiple regression was applied to examine the effect of trade credit exposure and default rate on financial performance of manufacturing companies in Kenya. Results in Table 4.10 indicated that 41.7% of changes in ROS can be explained by trade credit exposure and default rate while the remaining percentage is attributed to other aspects excluded in the model of the study. Further, 47.3% of changes in ROE was explained by trade credit exposure and default rate while the other percentage change in financial performance of manufacturing firms was attributed to factors beyond the scope of this study. F statistics were 7.754 and 9.746 for both models and since their p values were less than 0.05, then the results complied with goodness of fit test for the model used during this study.

Regression coefficients indicated that there was an inverse and significant effect of trade credit exposure and default rate on ROS. From the resulting equation, a unit change in credit exposure rate will negatively affect ROS and ROE by 8.8%. Default rate had positive and significant effect on ROS and ROE. The result shows that a unit change in Default rate will positively affect ROS by 13.0% and 14.4% for ROE. The resultant equations are:

$$\text{ROS} = 5.026 - 0.088*\text{CER} + 0.130*\text{DR}$$

$$\text{ROE} = 10.253 - 0.088*\text{CER} + 0.144*\text{DR}$$

These results were in line with findings by Tadesse (2014) who did a study in Ethiopia to investigate impact of credit (Loans) on performance of banks. Relationship was negative and significant on profitability of banks. While AFrita, (2018) found negative relationship between trade credit and financial firms in UK. These findings were contrary to Huan et. al., (2018) who found a U-shaped relationship between trade credit and profitability of firms in Eastern Asia and Pacific

**Table 4.10 Trade Credit Uncertainty and Financial Performance**

Dependent	Variable	Coefficient	Std. Error	t-Statistic	Prob.
ROS	C	5.026	0.930	5.404	0.000
	CER	-0.088	0.038	-2.313	0.021
	DR	0.130	0.015	8.605	0.000
	R-squared	0.417	Mean dependent var		6.562
	Adjusted R-squared	0.363	S.D. dependent var		12.061
	S.E. of regression	9.627	Akaike info criterion		7.448
	Sum squared residuals	91570.490	Schwarz criterion		7.873
	Log likelihood	-3930.134	Hannan-Quinn criterion.		7.609
	F-statistic	7.754	Durbin-Watson stat		1.680
	Prob(F-statistic)	0.000			

ROE	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	10.253	1.237	8.291	0.000
	CER	-0.088	0.046	-1.903	0.057
	DR	0.144	0.038	3.756	0.000
	R-squared	0.473	Mean dependent var		12.12
	Adjusted R-squared	0.424	S.D. dependent var		15.71
	S.E. of regression	11.920	Akaike info criterion		7.876
	Sum squared residuals	140387.10	Schwarz criterion		8.300
	Log likelihood	-4160.87	Hannan-Quinn criterion.		8.036
	F-statistic	9.746	Durbin-Watson stat		1.812
	Prob(F-statistic)	0.000			

### Conclusion and Recommendations

Positive influence of default rate on financial performance of manufacturing companies in Kenya, indicates that an increase in default rate increases return on sales and return on equity. Despite this positive co-movement there is need for examination of the most optimal combination of default rate and financial performance to eradicate odds of firms being exposed to financial distress due to high default rates by customers.

Since uncertainty of trade credit has positive and significant contribution on financial performance. There is need for adoption of strategies that would minimize odds of a manufacturing companies from being over exposed to trade credit exposure and default rate. Market segmentations may be adapted, and customers be classified with credit rating scores from which discounts may be adopted to increase the chances of credit being paid faster.

The study recommends further studies to include firms that are not registered with KAM because when sampling is limited to KAM firms then such limits may lead to results that are biased to firms registered by KAM and not all manufacturing firms in the country. Other studies can also include control variables like firm size, credit control policies and age of firm. The same study can also be done for financial institutions to find out how financial performance behaves when there is change in trade credit uncertainty.

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