Influence of Trade credit on the Growth of Small and Medium Size Manufacturing Enterprises in Rwanda

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Abstract

The purpose of this study was to analyze the influence of trade credit on the growth of manufacturing SMEs in Rwanda. To achieve the objective, the study used a mixed research approach involving both qualitative and quantitative methods. The target population of this study consisted of all the 868 small and medium manufacturing enterprises registered with Rwanda Development Board from which a sample of 273 firms was taken by way of stratified random sampling technique. Close-ended questionnaires were used in data collection. The data collected was analyzed using Statistical Package for Social Science 22 to generate descriptive statistics including percentages, frequency tables and mean scores. Multiple regression analysis was used to explore the relationship between Trade credit finance structure and the growth of small and medium size manufacturing enterprises in Rwanda. R^2 was deployed to measure the extent of the goodness fit of the regression model. The findings from the study show beta values of (β=0.082, p=0.047) for trade credit finance. Hence, trade credit influences the growth of small and medium manufacturing enterprise in Rwanda. Among recommendations, the management of the SMEs should learn how to use account receivables and account payable to fully take advantage of trade credit finance. This will ensure SMEs continue producing or manufacturing during time of low liquidity and financial constraints.

Key words: *Trade credit; Small and Medium Size Manufacturing Enterprises; Rwanda*

INTRODUCTION

Background to the Study

Al-Qaisi (2018) argues that trade credit is a key source of funds for firms especially where external funding via credit institutions is not a viable option and so, an important alternative to bank loans for the SME sector in developed and developing economies alike. Hence, Paul, Guermat and Devi (2018) note that in the UK, at least 80% of corporate sector transactions take place on credit. The authors report that the value of trade credit in the UK exceeded 59 billion pounds in 2006. In the US, they maintain that the size of trade credit supply exceeds the credit supplied by the country's entire banking system and remains the most important supplier of short term business credit. In France and Italy accounts receivable amounts to 29% of firm's total asset. Trade credit is equally important in Eastern Europe where the ratio of accounts payable to total liabilities vary between 21% in Hungary and 49% in Bulgaria while evidence from Asia shows that the private sector firms in China also largely based on trade credit. In East Asia, Tan and Ma (2016) shows that firms make use of trade credit to stimulate their growth during financial crises while Aslam and Hussain (2017) in Pakistan demonstrate that trade credit is a growing source of finance for industrial sector in Pakistan.

In Africa, despite the impressive contribution made by SMEs, most of them perform below capacity as a result of inaccessibility to credit financing. SMEs in Africa are highly limited by credit constraints compared to larger firms which hinders their growth and expansion potential. In South Africa for instance, Abor, (2010) estimates that 91% of the business entities are SMEs accounting for 57% of GDP while in Ghana, SMEs make up to 81% of the private business entities. In East Africa, SMEs have increasingly acted as a key instrument for job creation and income generation through self-employment and hence according to Arinaitwe and Mwesigwa (2015), SMEs contributed to reduction of poverty and supply the economy with ideas and innovation required to foster competitiveness and proper resource allocation.

Rwanda's SMEs sector contributes to national economic development. However, the main strategic bottleneck they face is limited access to finance which hinders their growth and expansion (Akimana, 2017; Ndikubwimana, 2016; Gamba; 2019 and Harelimana; 2017). Hence, although Rwanda is among the ten fastest growing economies in Africa, limited access to finance makes its manufacturing sector fail to keep pace with the overall national growth (Behuria, 2019). The sector currently contributes an estimated 6% to GDP per year compared to the service industry which stands at 48% to GDP (NISR, 2016)

Furthermore, the manufacturing sector is less well diversified as 92 percent of the country's total manufacturing is generated from only seven sub sectors: food, beverages and tobacco, textiles and clothing, wood, paper and printing, chemicals, rubber and plastics, non-metallic minerals as well as furniture (United Nations Industry development Organization, UNIDO 2013). Thus, according to MINECOM (2014) Rwanda's manufacturing sector has failed to attract the required investment for growth and expansion thereby remaining a small player in the Rwanda economy.

Problem Statement

Sindani, Namusonge and Sakwa (2016) observe that majority SMEs fail due to limited finances and poor management of the available scarce resources citing millions of bankrupt and cash strapped SMEs due to poor cash flow in form of uncollected accounts receivables. According to Wongma (2016) SMEs need to efficiently and effectively acquire finance in order to grow and compete in the market. Yet, according to Sharmilee and Hoque (2016) financial institutions credit processing is cumbersome with most commercial banks reluctant to provide SMEs with adequate capital.
Moreover, in Rwanda, the private sector has limited access to credit instruments as most Rwandan banks are conservative and risk averse, trading in a limited number of commercial products (International Trade Administration, ITA, 2020). Furthermore, Harelimana (2017) intimates that a significant number of firms in Rwanda (35.5%) operate their enterprises using internal finance sources with a further 61.3% having their loan applications rejected due to lack of collateral and lack of information on their operations.

Casey and O'toole (2014) further find that constraints on available credit from banks and other financial institutions force firms to resort to use of trade credit. Hermes, Lensink and Meesters (2018) equally argue that firms having troubles accessing important resources need to rely on suppliers to partially offer key resources. Yet, Gamba (2019) highlights that available research on Rwandan SMEs financing especially with regard to use of trade credit is scanty. Hence, there is a gap in extant literature on firm use of trade credit as a finance alternative and its benefits for

SMEs in Rwanda. A study on the influence if trade credit on the growth of SMEs in Rwanda therefore becomes crucial since SMEs play a vital role in a private sector led economy.

Objectives of the study

This study set out to investigate the influence of trade credit finance structure on the growth of small and medium manufacturing enterprises in Rwanda, hence the research question, "what is the influence of trade credit finance structure on the growth of small and medium manufacturing enterprises in Rwanda?"

LITERATURE REVIEW

Agostino and Trivieri (2014) in a study of 4,543 firms in Italy confirm that there is indeed a positive correlation between trade credit and bank loan accessibility for SMEs. Huang, Shi and Zhang (2015) use data from Chinese firms to highlight evidence of substitution of trade credit for bank credit which show counter-cyclical pattern. Kapkiyai and Mugo (2015) further use evidence from several studies which concur that SMEs with low credit worthiness are likely to be more financed by trade credit suppliers. Hence, there is a positive linear relationship between trade credit finance structure and the performance of firms arising from the fact that the advantages associated with trade credit transcend the costs of vendor financing. Furthermore, the benefits of a firm using trade credit might differ based on certain firm attributes. For instance, larger and more creditworthy firms tend to advance trade credit to smaller customers' thereby growing the firm's sales and creating an implicit rate of return. Hence, larger and more liquid firms gain superior returns on receivables as opposed to smaller and less liquid firms.

According to Nanyondo (2017) in Egypt, most SMEs are inclined to use alternative finance in the form of trade credit. Using secondary data from the Central Bank of Egypt (CBE), analysis indicated that 19% of SMEs use formal bank finance, compared to 81% usage by large enterprises. In addition, the descriptive statistics indicated that fewer than 50% of SMEs in Egypt sought formal bank finance in the period 2012 to 2013. The respondents indicated that SMEs dislike the bureaucracy that surrounds access to formal finance. Likewise, loan officers indicated that nearly 80% of SMEs lack accepted collateral to secure the loans and insufficient guarantors to secure the finance.

Daskalakis, Balios and Dalla, (2017) explored the contributing factors to the use of trade credit by small English firms. Key among their findings is that large firms with better access to both internal and external finance at favorable cost require less trade credit from suppliers and that firms with larger growth opportunities make more use of trade credit so as to fund their additional sales volumes.

Aslam and Hussain (2017) aimed to analyze the role of trade credit in upgradation of cement sector using 17 listed firms in the cement sector of Pakistan Stock Exchange (PSX). The analyses were carried out by using 8 year data, starting from year 2007 to 2014 and study findings indicate that trade credit has a very significant positive affect on sales growth of the firms.

Muchuri and Shukura (2017) highlight trade credit aspects that influence a firm's financial performance of SMEs registered with the private sector federation in Rwanda. The factors highlighted include: the term to maturity of the loan with (mean 3.56) implying to a great extent

and uncertainty about loan amount to a moderate extent (mean 3.24). High interest rates were found to affect the firm's financial performance to a great extent (mean 3.86) while mismatch of funds was revealed to influence a firm's financial performance to a moderate extent (mean 3.21). Finally, undue pressures for repayment was found to affect a firm's financial performance to a great extent (mean 3.83)

Ferrando, Popov and Udell (2017) argue in addition that firms are likely to supply more trade credit to buyers who are temporarily in short supply of cash flow. This subsequently fosters their sales, as the otherwise distressed clients would be unable to acquire the goods. Firms will however only offer additional trade credit when they believe there is a prospective likelihood for a long term relationship with that customer.

Mateut and Chevapatrakul (2018) have demonstrated that trade credit provides a safety valve for firms facing distinctive liquidity shocks as they transfer a quarter of shocks to suppliers through acquisition of more trade credit. Thus, trade credit helps SMEs to build a stable commercial relationship in the long run despite the fact that it may increase customers' reliance on suppliers, leading to a higher implicit interest rate. According to Rodriguez (2016) trade credit helps suppliers reduce transaction costs related to insolvency of each individual commercial exchange.

RESEARCH METHODOLOGY

Research design

Coopers and Schindler, (2008) define a research design as a framework for guiding a study which connects the questions or objectives of the study to the data gathered. This study adopted mixed methods research design. Elahi and Dehdashti (2011) argue that the mixed methods research design is ideal when the study objectives require determining the degree to which study variables are associated and making predictions regarding the occurrence of phenomena.

Population and Sampling

Castillo, Olivos and Azar, (2018) defines a target population as the whole set of individuals or objects to which researchers are interested in making generalizations. The target population for this study is all SMEs in the Rwanda manufacturing sector. According to Rwanda Development Bank (RDB 2017) there are 868 SMEs in the Rwandan manufacturing sector.

Kothari (2014) refers to sampling as the process of acquiring information on an entire population by testing only a part of it. The study adopted stratified random sampling technique. Orodho (2009) argues that stratified random sampling method ensures that small-categories in the population are adequately represented in the sample. Hence, stratified random sampling technique was adopted to ensure that sub-groups in the population get an adequately representation in the sample. Afterwards, simple random sampling was deployed in choosing respondents from each stratum. SMEs owners and finance managers were interviewed as well. Thus, the study used simple random sampling to select SMEs from each stratum.

Data Collection Methods

Both primary and secondary data were collected for this study. Saunders (2019), defines data collection as a way in which information gets acquired from the selected subjects of an

investigation. The author stresses that the most prevalent instruments used in data collection are interview schedules, questionnaire, observational forms and standardized tests.

In this study, questionnaires were deployed in collection of primary data from the proprietors or the manager of SMEs selected in the study sample. Both open and close ended questions were integrated in the questionnaire. Secondary data was collected from Rwanda's National Institute of Statistics (NISR), Rwanda Development Board, (RDB) and Ministry of Trade and Industry since they are main Government departments that oversee the SME sector.

Data Processing and Analysis

Data analysis entailed use of statistical package for social science (SPSS) version 22. Cronbach coefficient alpha values were utilized in checking the goodness of fit of the data as well as the consistency and reliability of measures obtained from the Likert scale items. According to Adeniran (2019) Cronbach's Alpha values should not go below the traditional cutoff mark of 0.7 as a rule of thumb. The study deployed inferential statistical approaches; correlation and regression analysis to test for relationships between variables.

RESULTS AND DISCUSSIONS

Introduction

This part presents and discusses the results of data analysis. The section has findings on demographic features of study participants, descriptive and inferential statistics showing the effect of independent variables on the dependent variable.

In this study, 273 questionnaires were administered to selected respondents. The questionnaires that were dully filled and returned equaled 225 while 48 were not properly filled and some not returned. A response rate of 82% was recorded which according to Mugenda and Mugenda (2009) is deemed adequate for one to proceed with data analysis.

Summary of the Scale Reliability Results

Table 1 shows a summary of findings from the reliability test obtained from pilot study. The finding indicates the Cronbach Alpha scores on trade credit of 0.887. These findings point to a high reliability measure for the scale deployed to assess the study variables and so, all attributes used to measure the variable were maintained in the final survey.

Table 1: Summary of the Reliability Statistics

Variables	No of Items	Cronbach's Alpha	Remarks
Trade credit	9	0.887	Accepted

Demographic Information

This section analyzed the demographic information of the respondents which included age bracket, gender, highest level of education, among other characteristics. Background information enabled the researcher to understand the respondents and whether their characteristics reflected attributes of the entire the population so as to make generalizations.

Age Bracket of the Respondents

Table 2 presents findings on the age bracket of respondents. As indicated, 34.7% of the respondents were aged between 31 and 40 years, 32% between 21 and 30 years and 22.7% between 41 and 50 years.

Table 2: Age Bracket of the Respondents

Age Bracket	Frequency	Percent (%)
21-30 years	72	32
31-40 years	78	34.7
41-50 years	51	22.7
51-60 years	18	8
Over 60 years	6	2.7
Total	**225**	**100**

Gender of the Respondents

Table 3 shows findings on the sex of respondents. As revealed in the table, 55% of the study participants were male while 45% of the respondents were female. This study finding implies that information collected by the study was gender representative.

Table 3: Gender of the Respondents

Sex	Frequency	Percent
Male	123	54.7
Female	102	45.3
Total	**225**	**100**

Highest Level of Education attained

The results on the highest level of education attained in Table 4 show that 38.3% of the respondents had attained secondary education, 32% had primary education, and 20% were undergraduates.

Table 4: Highest Level of Education

Highest level of education	Frequency	Percent
Primary School	72	32
Secondary School	86	38.3
Undergraduate	45	20
Graduate	22	9.7
Total	225	100

Influence of trade credit finance structure on SMEs growth

The objective of the study was to investigate the influence of trade credit finance on the growth of manufacturing SMEs in Rwanda. Thus, the study used various tests such as factor analysis, descriptive and inferential statistics to answer the study objective.

Factors Analysis for Trade Credit Finance Structure Indicators

Table 5 reveals findings of factor analysis which show that all constructs used to test for trade credit finance structure have factor loading values above the threshold of 0.4 as recommended in related studies. Hence, all the attributes used under trade credit finance structure reached significant levels in terms of explaining the variable and so none of them was eliminated.

Table 5: Factors Analysis for Trade Credit Finance Indicators

No	Statements	Factor Loading
1	Customers honor their commitment to pay in agreed credit period	0.759
2	Appropriate credit period creates repeat business for the company	0.753
3	The business considers the length of credit period for the customer before trade credit approval	0.689
4	The business prefers giving favorable credit terms and standards to customers than cash sales in return of long-term relationship building	0.587
5	The business receives payments from suppliers based on contract credit terms and standards	0.728
6	Shorter and strict credit terms and standards reduce sales revenue for my business	0.695
7	The business trade discounts do not conflict with the liquidity demands of my firm	0.637
8	Customers' loyalty and goodwill increase whenever I offer favorable trade discount facilities	0.805
9	The business grants trade discount only to big organizations	0.726

Extraction Method: Principal Component Analysis.

Correlation Analysis for Trade Credit Finance structure and SMEs Growth

The study used correlation analysis to check for the nature of relationship between trade credit finance and growth of manufacturing SMEs in Rwanda. Table 6 reveals that trade credit finance has a moderate positive association with growth of manufacturing SMEs in Rwanda as shown by the correlation value of r = 0.428 and p=0.000. The correlations were found to be significant at

0.05. The results imply that increasing trade credit finance leads to a rise in growth of manufacturing SMEs in Rwanda. The finding corroborates those by Nasr and Pearce (2012) in Egypt, who found that most SMEs deploy alternative finance in the form of trade credit as it helps firms generate growth and expansion unlike debt. Ogawa, Sterken, and Tokutsu (2014) equally maintain that firms tend to rely more on trade credit when distressed financially and this plays a crucial role in substituting bank credit while helping financially constrained firms leverage their growth and expansion prospects.

Table 6: Correlation Analysis for Trade Credit Finance structure and SMEs Growth

Variable	Statistics	Trade Credit Finance	Growth SMEs
Trade Credit Finance	Pearson Correlation	1	.428**
	Sig. (2-tailed)		0
	N	225	225
Growth of SMEs	Pearson Correlation	.428**	1
	Sig. (2-tailed)	0	
	N	225	225

**. Correlation is significant at the 0.05 level (2-tailed).

4.5.3 Univariate regression analysis of trade credit finance structure and SMEs growth

The study further used univariate regression to test the influence of trade credit finance on the growth of small and medium manufacturing enterprises in Rwanda. The results of the regression analysis are presented in tables 7 and 8.

Table 7: Model Summary trade credit and SMEs growth

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.428[a]	0.183	0.179	.43433

a. Predictors: (Constant), Trade Credit Finance

Table 7 shows coefficient of determination (R-square) =0.183 which reveals that other factors held constant, trade credit finance accounts for 18.3% of the variation in the growth of the manufacturing SMEs in Rwanda. The findings further imply that trade credit finance is a good predictor variable for growth of small and medium manufacturing enterprises. The results are congruent with Shao, (2019) who argues that trade credit helps direct resources flow to the financially constrained SMEs hence increasing their aggregate productivity and fostering their growth prospects. According to Fu, Matous, and Todo, (2018) trade credit is the most important source of short-term financing for firm growth and expansion in Japan where 78 percent of small and medium enterprises (SMEs) in the manufacturing sector utilize trade credit, and 34 percent rely more on transactions using trade credit than on immediate payments. Rodriguez (2016) also found that SMEs receive more capital from market, gaining more investment and growth opportunities through the use of trade credit finance structure.

Table 8: ANOVA for Trade Credit Finance structure and SMEs Growth

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.421	1	9.421	49.941	.000[b]
	Residual	42.067	223	.189		
	Total	51.488	224			

a. Dependent Variable: Growth of SMEs
b. Predictors: (Constant), Trade Credit Finance

Table 9 highlights findings from analysis of the variance (ANOVA) of the model used to link manufacturing SME growth to use of trade credit. As it is quite evident, the result of F=49.941 with a corresponding p=0.000 imply that the model was found to be statistically significance. This means that the study failed to reject the null hypothesis on the goodness of fit and so, trade credit finance was found to significantly explain the variation in growth of manufacturing SMEs in Rwanda. Such finding is concomitant with one earlier found by Boissay and Gropp, (2007) as well as Cunat (2007) who maintain that trade credit provides a safety valve for firms facing distinctive liquidity shocks. Cole (2012) in addition finds that 20 percent of small firms used trade credit to boost their firm growth, and about 40 percent used both bank and trade credit which is evidence that trade credit can be complementary to bank credit since trade credit is primarily short term.

Table 9: Regression Coefficients for Trade Credit Finance structure and SMEs Growth

Variables	Unstandardized coefficients β	Std. Error	Standardized coefficients Beta	t	Sig.
(Constant)	2.743	0.115		23.9	0.000
Trade Credit Finance	0.25	0.035	0.428	7.067	0.000

a Dependent Variable: Growth of SMEs

Table 9 presents the findings of regression coefficients for trade credit finance structure and growth of manufacturing SMEs. The findings reveal a beta coefficient value of β=0.250, p=0.000 <0.05 which implies that trade credit finance has a positive and significant effect on growth of manufacturing SMEs in Rwanda when all other factors are held constant. Hence, a unit increase in trade credit finance would results into a proportionate rise of 0.250 units in growth of manufacturing SMEs in Rwanda when all other factors are put on hold. The findings concur with those of Rodriguez (2016) who maintains that trade credit helps suppliers reduce transaction costs related to insolvency of each specific commercial transaction thus fostering survival, growth and expansion of firms. Hermes, Lensink and Meesters (2018) argue that firms need to rely on suppliers to for key resources.

CONCLUSION AND RECOMMENDATIONS

The study concludes that manufacturing SMEs in Rwanda that use trade credit finance in their financial structure have high probability of the achieving their growth objectives. Trade credit ensures that firms continue to be serviced by their suppliers on credit and the available resources can be channeled for alternative growth opportunities.

The management of the SMEs should further learn how to use account receivables and account payable to fully exploit advantages of trade credit finance structure. This will ensure the SMEs continue producing or manufacturing during times of low liquidity. Also, both the government and SMEs should come up with a proper legal framework to regulate the use of trade credit finance in Rwanda.

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