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Trade Credit Supply among Manufacturing Firms in Uganda, does Repayment Behaviour Matter?

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Abstract:- This paper is a discussion of repayment behaviour as a variable that mediates the relationship between transaction cost and Trade credit supply among manufacturing firms of Uganda. The study also thought to address repayment behaviour as a knowledge gap which other studies on Trade credit supply did not address. This study also sought to establish whether repayment behaviour influences Trade credit supply. The study took a correlational cross sectional survey approach and employed both qualitative and quantitative approaches. The sample size was 91 firms out of a population of 118 firms with three respondents from each firm and with data analysed using SPSS version 20. We made sure that Validity and reliability of the instruments were both done. Results from the study indicate that transaction cost as an independent variable was a positive predictor of Trade credit supply while repayment behavior (mediator) was not a significant predictor. The short comings faced were that some respondents did not have full knowledge of trade credit practices in their firms and some did not want to reveal a lot of information about the firm. My contribution to the world is the fact that repayment behavior should seriously be evaluated before granting trade credit to customers and that transaction cost is positively associated to Trade credit supply.

Keywords:- *Manufacturing firms, trade credit Supply, repayment behaviour, character, capacity.*

I. INTRODUCTION

Trade credit supply is used to buy goods and services without immediate payment and is used by most businesses (Leire&Cowton, 2009). Although previous studies have examined trade credit supply from perspectives like financing, price discrimination and transaction cost (Williamson, 1996); Ferries, 1981; Summers & Wilson, 1997; Kevin, 2013;Cunat, 2012), non has introduced the mediating variable of repayment behavior.

➢ *Background*

Repayment behaviour is the likelihood of repayment by the firm to whom trade credit is supplied to (Bhatt & Shui, 2002).Repayment behaviour can help explain repayment default and it's composed of character and capacity. Character of the debtor is one of the key determinants of repayment behavior. The one giving trade credit need to closely analyze the debtor's payment character to make sure that the goods that were supplied on credit will be paid for (Nawai & Mohd, 2010). The key dimensions of character are monitoring and management procedures. The firm giving trade credit need also to closely analyze the debtor's payment capacity to make sure that the goods that were supplied on credit will be paid for.

Trade credit supply is a source of financing and its key determinants include volume of transactions, price of trade credit and enhanced buyer/seller relationship, (Gofman, 2013). Researchers such as Petersen and Rajan (1997), DemirgucKunt, and Maksimovic, 2001) observed that both small, medium and large firms use trade credit as a source of funding to finance purchases and offer financing to firms. Horen, (2007) stated that in the business world, the volume of trade credit has been higher than short-term credit received from financial institutions.

Although Trade credit supply can be explained by agency, product differentiation and other theories in this study, they do not sufficiently articulate trade credit supply as evidenced by its decline in Uganda (Araujo & Oliveira, 2009; Investor Survey Report, 2012/13).The gap identified by that agency theory include: ignoring the impact of repayment behaviour and which categories of firms may access trade credit supply. This study looked at repayment behaviour as a factor that can mediate the relationships between other variables and Trade credit supply. We needed to find out whether repayment behaviour can influence Trade credit supply (Bhatt and Shui, 2002).Therefore, introduction of repayment behavior could better explain Trade credit supply.

The theory that explains repayment behaviour is rational choice. This theory harmonizes the theories of financing, price discrimination and transaction cost that can be used to explain trade credit supply. Rational choice theory assumes that an individual has preferences among the available choice alternatives that allow them to state which option they prefer (Marschak, 1965: 10, 135-140).

➢ *Statement of the Problem*

Trade credit supply by Manufacturing firms in Uganda is faced by numerous challenges such as poor debt collection practices, liquidity problems (Fisman & Raturi, Giannetti et al, 2008; Ng et al., 1999; Kazooba, 2006) and reduced trade credit supply. Reduced Trade credit supply is a serious problem resulting from debt default which stems from non-payment by firms hence leading to financial difficulties, (Humphrey, 2009). Researchers such as Ferris, (1981); Salima (2007); Isaksson (2002); Fabbri & Menichini (2006); Cunningham (2007) have not applied repayment behavior as a key factor that can improve Trade

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credit supply and financial performance of manufacturing firms of Uganda.

Since existing trade credit supply studies cannot explain Trade credit supply adequately, introducing repayment behavior will provide an adequate understanding and make an important contribution to the current debate. The study will also establish the relationship between trade credit supply and whether repayment behavior mediates this relationship between other independent variables among manufacturing firms in Uganda.

II. THEORETICAL AND CONCEPTUAL FRAMEWORK

➢ *Repayment behavior and rational choice theory underpinnings*

The theory that best describes repayment behavior is rational choice theory. This theory coordinates theories of financing, price discrimination and transaction cost mentioned above. The theory assumes that an individual has preferences among the available alternatives that allow them to state which option they prefer (Marschak, 1965). These preferences are assumed to be complete and transitive. The rational agent is assumed to take account of available information, probabilities of events, and potential costs and benefits in determining preferences, and to act consistently in choosing the self-determined best choice of action (Stigler & Becker,1977). Rational behaviour means sensible, predictable, reflective and consistent. This theory explain repayment behavior as a mediating variable between factors that influence Trade credit supply among manufacturing firms in Uganda. The key elements of rational choice explanations are individual preferences, beliefs, and constraints. Preferences denote the positive or negative evaluations individuals attached to the possible outcomes of their actions. This theory also assumes that all people try to actively maximize their advantage in any situation and therefore consistently try to minimize their losses. The theory is based on the idea that all humans base their decisions on rational calculations, act with rationality when choosing, and aim to increase either pleasure or profit.

Assumptions:

- A Person acts rationally in pursuit of her own self-interest and not in the interests of others. Individuals seek to maximize their gains and minimize their losses.
- A person has sufficient information upon which to establish her preferences and perform her rational analysis.
- Preferences are transitive in nature. This is a logical principle that sounds more complicated than it really is.
- In order to understand the behavior of international actors, including states, intergovernmental organizations, nongovernmental organizations and multinational companies, we must understand the behavior of the humans running them.
- The behaviors of each person can be added up in order to understand these international actors.

The above assumptions have met criticism from within economics, resulting into the birth of behavioral economics which uses insights from psychology and the cognitive neuro sciences to refine the oversimplified and highly stylized conceptualization.

Rather than dismissing variances from the model as cognitive anomalies that would cancel each other out when aggregated to the collective level, behavioral economics and related fields attempt to develop a more realistic behavioral micro foundation. The three dimensions that bring the differences are : rationality type, preference and individualism assumptions.

Although trade credit supply is explained by financing, price discrimination, transaction cost, rational choice, agency and differentiation theories, they do not adequately explain trade credit supply as evidenced by its decline especially in developing countries like Uganda (Araujo and Oliveira, 2009; Investor Survey Report, 2012/13). The gaps or weaknesses identified by those theories include: not bringing out properly the impact of repayment behavior, which categories of firms may access trade credit supply a wrong assumption that trade credit accessibility applies only when financial markets are imperfect and buyers have unsatisfied demand for finance from financial institutions. Combining these theories with repayment behavior will address the weaknesses mentioned above and explain better trade credit supply beyond the current state specifically among manufacturing firms in Uganda.

➢ *Objectives of the study*

To examine the relationship between repayment behavior and Trade credit supply among manufacturing firms in Uganda.

To examine the mediating effect of repayment behavior between financing, price discrimination plus transaction costs and Trade credit supply among manufacturing firms of Uganda.

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Fig 1:- Conceptual Framework
Source: Derived from Relational choice (Marschak, 1965).

The main questions to be answered in this study include: is there a positive relationship between repayment behaviour and trade credit supply and to examine the mediating effect of repayment behavior between other factors and Trade credit supply among manufacturing firms in Uganda.

The purpose of this study was to examine whether repayment behaviour influence Trade credit supply among manufacturing firms in Uganda and develop an alternative working model that will provide an understanding and explanation of Trade credit supply based on repayment behaviour.

This paper is structured as follows. The next part of this paper contains the literature review that discusses repayment behaviour in relation to trade credit supply of manufacturing firms in Uganda. The next part describes sampling, methodology and techniques. The other part is on findings and its discussions while the last part discusses conclusion and policy implications. In this research, the case study is conducted in 91 firms with 228 respondents.

III. LITERATURE

A. Main components of repayment behaviour

➢ *Character*

The character of the person to whom goods were supplied is one of the key components of repayment behavior. The giver of trade credit need to closely analyze the debtor's payment character to make sure that the goods/services that were offered on credit will be paid for (Nawai & Mohd, 2010). The key dimensions of character are monitoring and management procedures (i.e credit policy). The lender need to use many monitoring skills to make sure that the debtor does not become delinquent. Proper management procedures should also be done to avoid default (Awoke, 2004).

➢ *Capacity*

Capacity is the ability of the borrower/debtor to pay his debt obligations periodically as agreed with by the supplier of trade credit (Nawai & Mohd, 2010). The key dimensions of capacity include debtor's willingness to repay and stability of income. The debtor's willingness to pay is a vital dimension because he may be having the capacity but not willing to pay (Idoge, 2013). With the debtor's stability of income, if he has a stable source of income, the lender may not be strict enough to ration trade credit. Because the lender may feel that the borrower has enough financial back up that could make him credit worthy.

B. Repayment behaviour and Trade credit supply

Repayment behavior is the likelihood of repayment by the firm to whom trade credit is supplied (Bhatt &Shui, 2002).The issue of repayment behavior is critical for most firms since high repayment rates are desirable (Bhatt &Shui, 2002). The low default rates of some firms have led observers to believe that giving credit to some firms might not be as risky as has been traditionally assumed (Bhatt & Shui, 2002). Results of a statistical test by Bhatt, 2002, indicate that some clients' character is that some are able but not willing to pay and others have the capacity to pay. Chances for repayment are increased if the borrower has experienced lower transaction costs in accessing trade credit to be supplied (Bhatt et al…). Additionally norms plus values of firms also guide, influence, direct, shape or predict actual behaviour (Suki, 2006, Rhodes & Courneya, 2003). To enhance repayment behaviour , it is important to rightly identify potential profitable firms to offer trade credit to (Bhatt & Tang, 1998). Repayment behavior is supported by the agency theory (Jensen and Meckling, 1976), which is characterized by adverse selection and moral hazard phenomena.

Our contribution in regards to repayment behavior and trade credit supply is to seriously advise manufacturing firms to consider repayment behavior before giving trade credit to customers, to monitor transaction costs relating to giving trade credit and performance of debt collection staff.

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IV. SAMPLING, METHODS AND TECHNIQUES

A. Sampling

The sample size was 91 manufacturing firms and the computation was based on Yamane (1973). Previous studies such as Nkundabanyanga, (2012) and Kamukama (2010) used it and their results were reliable. For the purpose of this study, the formula derived from Yamane (1973) was used as indicated below:
n = N/1+N (e)2, where; n = sample size; N = total population; e = tolerable error (0.05 or 95%).

Senior Managers with trade credit knowledge in the firm were purposively selected. This selection included Chief executives, Debt management staff, Accountant, Director, Head of finance, Head of marketing plus other knowledgeable staff making a number of at least 3 people per company. The aim of purposive sampling was to select information rich respondents from whom one would learn about the issues that are central to the purposes of the study (Patton, 2002). According to Saunders et al, (2000), researchers prefer probabilistic sampling methods over non probabilistic ones. However in applied social research, there may be circumstances where it is not feasible, practical or theoretically sensible to do random sampling (Trochim, 2006). Due to lack of any reliable sampling frame, this research used both probability and non probability sampling.

Stratified random sampling was used so as to obtain a representative sample and the population was stratified into a number of non overlapping sub population/stratas and senior managers were selected from each stratum randomly and purposely. The strata or sub populations involved manufacturing sectors like textiles, soft drinks, furniture, construction and other manufacturing firms. Both stratified and purposive random sampling techniques were used in order to collect the information from these respondents. The technique chosen suited the frame of the study and ensured relevance of the data that was collected.

B. Methodology and techniques

The methodology covered the research philosophies, paradigms, research design, study population and sample size, data sources, sampling design and procedures, data collection instruments, reliability and validity of research instruments, operationalization and measurements of research variables, data analysis, limitations and ethics of the study.

This study adopted positivistic philosophical view based on the fact that reality is external and objective (Cavana et al., 2001). This research philosophy was deemed appropriate here because the research aimed at testing hypotheses through an empirical scientific process with measurements to identify and establish the relationships between latent variables and obtain statistically significant findings that were generalized about the population that was studied.

The philosophical assumptions underlying this study came mainly from positivism. The positivisits/objectivists position enabled the study to test objectives and hypotheses developed from existing theories to determine facts or truth, while the interpretivists/subjectivist allowed the study to examine contextual factors that influence, determine and affect the interpretations based on the respondent's experiences (Davies, 2003). Quantitative (deductive) and qualitative (inductive) were the two commonly used research approaches. These are based on positivism and phenomenology.

V. FINDINGS AND DISCUSSIONS

The study was conducted under repayment behaviour. Data was collected using a close ended questionnaire that was administered directly to the respondents. The unit of analysis was manufacturing firms and the main respondents were debt management staff, head of finance, head of marketing plus other trade credit knowledgeable staff. The selected respondents were employees of the manufacturing firms in the Districts of Kampala, Wakiso and Mukono.

A. Hypotheses

H_1 there a positive significant relationship between repayment behaviour and Trade credit supply.
H2: There is a mediating effect of repayment behavior between financing, price discrimination and Trade credit supply.

B. Confirmatory Factor Analysis (CFA)

According to Albright and Park (2009), confirmatory factor analysis (CFA) is theory or hypothesis driven based on theoretical relationships between the observed and unobserved. With CFA it is possible to place substantively meaningful constraints on the factor model. Researchers can specify the number of factors or set the effect of one latent variable on observed variables to particular values. CFA allows researchers to test hypotheses about a particular factor structure.

Whereas factor analysis summarize variables from the constructs with multiple questions to a more meaningful and interpretable factors, CFA produces many goodness-of-fit measures to evaluate the model but do not calculate factor scores. Byrne (2005) suggests that CFA can be adopted and appropriately used when the researcher has knowledge of the underlying latent variable structures. Based on the knowledge and empirical research, relationships between the observed measures and underlying factors can be determined. Indeed, CFA focuses solely on how and the extent to which the observed variables are linked to their underlying latent factors based on a sound theoretical foundation (Hair et al., 2010). More specifically, it is concerned with the extent to which the observed variables are generated by the underlying latent constructs and thus the strength of the regression paths from the factors to the observed variables (Factor Loadings). Many software can be employed to conduct the CFA but for samples that are less than 200, the Smart-PLS

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is the software of choice and is very relevant for other SEM models (Hair et al., 2010).

The researcher conducted a confirmatory factor analysis model for each variable using the Smart-PLS software. Smart-PLS is deemed as a voodoo modeling that can give benefit to those who face difficulty to achieve the required sampling (Hair et. al, 2012). This method executes the analysis using small sample size (less than 100) rather than CB-SEM which requires a minimum of 100. In CB-SEM, certain fitness indices are related to sample size such as the parsimonious fit (Chisq/df), and may affect the parameter estimates if the small sample is used. However, the result obtained using CB-SEM is more meaningful if the researcher has more than 200 data (Hooper et al., 2008).Since in this study the sample is 91, smart- PLS software is the most appropriate method to use. The results are presented in the sections that follow;

CFA is performed as a measurement modelling analysis. The essence of the measurement model is to determine the reliability and the validity of the indicators.

This is assessed by comparing the square root of the AVE of a particular latent variable with correlation coefficients of that latent variable with other latent variables. In essence the square root of the AVE should be greater than all the correlation coefficients. These comparable statistics are summarised in the Fornel-Larcker criterion table.

Further to the assessment of the reliability and validity of the indicators, the measurement model is assessed for model fit, which is obtained by looking at the Standardized Root Mean Square Residual (SRMR) which should be below the 0.8 threshold.

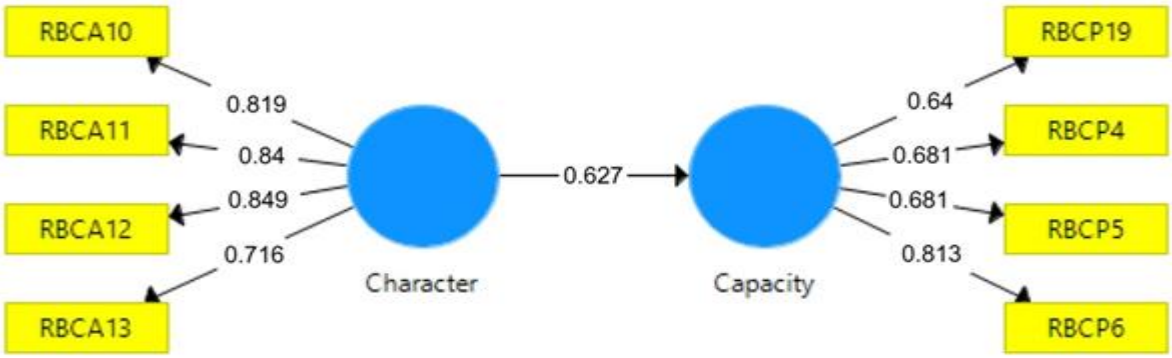

Fig 2:- Confirmatory Factor Analysis (CFA) For Repayment Behavior

Latent Variable	Indicators	Loadings	Sample mean	Standard Deviation	T Statistic	P value
Character	RBCA10	0.819	0.816	0.050	16.338	0.000
	RBCA11	0.84	0.834	0.050	16.802	0.000
	RBCA12	0.849	0.837	0.057	14.825	0.000
	RBCA13	0.716	0.686	0.133	5.389	0.000
Capacity	RBCP19	0.64	0.614	0.126	5.096	0.000
	RBCP4	0.681	0.679	0.082	8.259	0.000
	RBCP5	0.681	0.681	0.091	7.452	0.000
	RBCP6	0.813	0.797	0.060	13.587	0.000

Table 1:- Estimation of the measurement model of Repayment Behaviour

The P values of less than 0.05 associated with the indicators summarized in table 4.20 indicates that those indicators were significantly measured their respective factors and subsequently their main construct, repayment behavior. Noteworthy is their loadings which are all above the average 0.6.

	CR	AVE	Fornell-Larcker Criterion	
			Character	Capacity
Character	0.798	0.5	0.707	
Capacity	0.882	0.652	0.627	0.808

*SMSR = .048

Table 2:- Test for Reliability and Validity of Repayment Behavior Constructs

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Looking at the composite reliability (CR) values in table 4.21 of over 0.6 shows that the indicators retained in the CFA of Repayment Behavior, it is evident that all items guarantee internal consistency reliability. Furthermore, both convergent validity and discriminant validity were assured since the AVE for both factors is 0.5 or over and the square root of the AVE for each construct is above the correlation coefficients with other factors. The SRMR of 0.048 also indicates good model fit for the measurement model.

Latent Variable	Indicators	Loadings	Sample mean	Standard Deviation	T Statistic	P value
Enhanced Buyer-Supplier Relationship	TCER7	0.848	0.848	0.054	15.739	0.000
	TCER9	0.813	0.809	0.065	12.426	0.000
Price of Trade Credit	TCPC1	0.798	0.789	0.086	9.253	0.000
	TCPC4	0.669	0.662	0.102	6.562	0.000
	TCPC5	0.756	0.736	0.105	7.231	0.000
Volume of Transactions	TCVS1	0.765	0.758	0.069	11.173	0.000
	TCVS10	0.618	0.607	0.082	7.549	0.000
	TCVS2	0.882	0.879	0.032	27.634	0.000
	TCVS3	0.795	0.793	0.057	13.837	0.000
	TCVS8	0.82	0.824	0.043	18.97	0.000

Table 3:- Estimation of the Measurement model of Trade credit Supply

The P values of less than 0.05 associated with the indicators summarized in table 4.20 indicates that those indicators were significantly measured their respective factors and subsequently their main construct, repayment behaviour. Noteworthy is their loadings which are all above the average 0.6.

	CR	AVE	Fornell-Larcker Criterion	
			Character	Capacity
Character	0.798	0.5	0.707	
Capacity	0.882	0.652	0.627	0.808

*SMSR = .048

Table 4:- Test for Reliability and Validity of Repayment Behavior Constructs

Looking at the composite reliability (CR) values in table 4.21 of over 0.6 shows that the indicators retained in the CFA of Repayment Behaviour, it is evident that all items guarantee internal consistency reliability. Furthermore, both convergent validity and discriminant validity were assured since the AVE for both factors is 0.5 or over and the square root of the AVE for each construct is above the correlation coefficients with other factors. The SRMR of 0.048 also indicates good model fit for the measurement model.

	Beta	Mean	SD	T Statistic	P –Value	R Square
Transaction Costs - ► Repayment Behavior	-.423	-.404	.117	3.606	.000	
Repayment Behavior - ► Trade Credit	.288	.256	.0128	2.262	.024	
Transaction Costs - ► Trade Credit	-.430	.421	.097	4.447	.000	

SRMR = .000 < .08

Table 5:- Estimation results for the Structural Equation Model

		Beta	Mean	SD	T Statistic	P –Value
Repayment behavior	Character	.222	.170	.083	2.05	.044
	Capacity	.107	.102	.106	0.965	.337

Table 6:- Estimation results for the regression of factors and Trade Credit

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Hypotheses on the Mediation of Repayment Behavior	Hypothesis Finding
H_4: Repayment Behavior mediates the relationship between Financing and Trade credit supply.	Supported
H_5: Repayment Behaviour will mediate the relationship between price discrimination and Trade credit supply.	Not Supported*
H_6: Repayment Behaviour mediates the relationship between transaction costs and Trade credit supply.	Supported

Table 7:- Estimation of Indirect Effects and Mediation

VI. CONCLUSIONS AND POLICY IMPLICATIONS

This research was motivated by the decreasing level of Trade credit supply among manufacturing firms in Uganda. We conclude that repayment behavior have an influential bearing on trade credit supply and it is confirmed both at an individual basis and combined interaction with trade credit supply.

We recommend that manufacturing firms and policy makers adopt repayment behavior pillars into their existing operational frameworks. These could result into improvement in Trade credit supply and improvement of firm performance since we focused on predictive powers of transaction cost on trade credit supply.

Our results mean that manufacturing firms and policy makers involved in trade credit supply should appreciate considering them as ingredients in enhancing their operational strategies geared towards improving Trade credit supply, enhancing firm performance and economic development of the country.

There is an addition to existing literature on trade credit supply research in Uganda, regionally and in developed countries.Theoretically, our results reveal that combining repayment behavour and Trade credit supply can improve the performance of manufacturing firms in Uganda.

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