THE EFFECT OF TRADE CREDIT ON FIRMS' PROFITABILITY IN NIGERIA

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ABSTRACT
It is widely acknowledged that financial institutions play an important role in promoting firm growth and firm performance but lack of access to adequate and timely finance is arguably a major impediment to sustainable investment and economic growth in developing countries where Nigeria is among. Therefore, the purpose of this study is to find empirical evidence of the effect of granting trade credit on firm profitability of quoted firms in Nigeria. Panel data framework was fitted to the secondary data obtained from 80 sampled firms for the period 2000-2009. The result indicates that trade credit positively influenced the profitability of firms in Nigeria. The finding implied that trade credit financing is an integral part of doing business for firms especially those that raising funds from the credit market find it difficult and could not generate adequate internal funds for their working capital requirements.

Keywords: Trade credit; Account payable; Firms' profitability; Quoted firms; Nigeria.

Introduction

Trade credit is one of the most important sources and an essential element of business life for most firms in the world. Trade credit is an arrangement between a buyer and seller by which the seller allows delayed payment for its products instead of cash payment but it even has macroeconomic repercussions. In countries where financial markets malfunction, contract enforcement is insecure, and information is scarce, unreliable and asymmetric, trade credit is even more important (Ojenike & Olowoniyi, 2012) cited by (Ojenike et al 2013). For instance, Fisman & Love (2001) find that firms in industries with higher rates of trade credit grow faster in countries with relatively weak financial institutions. The efficient and effective performance of Nigeria's financial institution required for improved economic well-being of the businesses appear not to be manifesting. This is evident in Soyode (1998) when he observed that the mobility of Nigeria's financial institutions to adequately satisfy the credit demand of their customers constitute a binding constraint on the pace and pattern of economic development in Nigeria. Lack of access to adequate and timely finance is arguably a major impediment to sustainable investment and economic growth in developing countries. This argument derives from theoretical and

empirical studies (Deploy and Jegers, 1999; Fafchamps, 1997) cited by (Ojenike et al 2013) which not only show a positive relationship between access to credit and economic growth, but also suggest that both long and short-term credits are associated with higher productivity (GDP), investment and growth.

Trade credit plays an important role in firm financing policy. For the buyer, it is a source of financing through accounts payable, while for the seller, trade credit is an investment in accounts receivable. We focus on the supply side of trade credit. Although, there is a wide consensus regarding the problem of financing for companies in developing economies. Lack of financing has been identified as one of the three main obstacles to business activity and company growth for small and medium-sized companies (Pissarides, 1999). These difficulties result notably from the limited access to bank credit. For many years a lot of efforts have been expended on how to enhance access by entrepreneurs in developing countries to both long and short-term financing through the establishment and development of functional finance institutions. While there is the need to create an efficient credit market in order to enhance the role of producing firms in the development process, there is little evidence on the distribution of characteristics of firms accessing credit from other firms.

Financing decision becomes more difficult when the economic conditions of the country where the firm operates are typically uncertain. Specifically, in the Nigerian case, the presence of two aggravating factors is observed. They are the high interest rates practiced in the financial institutions and the instability of the economy. The effects of high interest rates on the firms take various forms. On one side, the rising cost of financing and on the other hand, inhibiting sales, thus resulting in fall in the economy's activities, producing a combined effect of aggravating the degree of uncertainty (Salawu, 2007).

Trade credit arises from delayed payments between firms. It is a more flexible means of financing and forms the largest source of short-term funds for business firms collectively. In developed economies, most buyers are not required to pay for goods upon delivery but are allowed a short deferment period before payment is due. The firm does not have to sign note, pledged collateral or adhere to a strict payment schedule. During this period, the seller of the goods extends credit to the buyer. Since suppliers are generally more liberal in the extension of credit than are financial institutions, small companies in particular rely on trade credit. In addition, a supplier views occasional delinquent payment with far less critical eyes than does a banker or other lender. Thus, trade credit from suppliers is a major source of business finance, especially to small companies. It

is otherwise called supplier credit or in–kind finance. When a firm customarily buys its supplies and materials on credit from other firms, it records the debt as an account payable. At times, it is found to be a more expensive financing alternative to conventional loans because suppliers have a higher direct cost of funds. These higher costs can take the form of inefficiencies in the collection of payments, while financial intermediaries (banks) enjoy cost advantages due to specialization. For firms and companies that find the borrowing facilities available from financial institutions inaccessible or insufficient or tied with stringent terms to provide the necessary margin of working capital resources, there is the alternative possibility of trade credit.

However, there are several problems with this approach. First, it separates firms into groups on the basis of a single indicator that may not be a good proxy for credit quality and access to institutional finance. Generally, the use of a single indicator prevents the researcher from controlling for the many factors that influence firm's borrowing ability. Second, in the conventional strategy, whether a firm belongs to the financially constrained or unconstrained group is determined exogenously and is fixed over the entire sample period. This approach is also restrictive, since it does not allow for firms to switch between the constrained and the unconstrained groups over time.

Over the years, therefore, researchers have concentrated their studies on developing and Sub-Saharan developing African countries (Kenya, Zimbabwe and Ghana). From the review of literature and information gathered, it is discovered that little work has been done on the usage of and the determinants of trade credit in Nigeria. There has also been a debate in the literature regarding the impact of trade credit usage in developing economies. On the one hand, some economists following Kornai (1980) considered as negative the generalized use of trade credit in transition economies, because they are afraid that its use may prevent efficient restructuring of companies. On the other hand, Coricelli (1996) and Cook (1999) gave a positive role to the use of trade credit in these economies. According to Coricelli (1996), trade credit favours growth by providing newly established companies an access to private credit markets. Cook (1999) pointed out that trade credit may be a very useful tool of financing in these countries because of the advantage in information for suppliers, as compared to banks (Ojenike et al 2013).

Similarly, while there has been considerable empirical exploration of the links between the performance of corporate organizations and sourcing of their finances either through the capital market or the financial market (Adelegan, 2008; Ezeoha, 2008; Salima and Kolawole, 2008), there has been little work done in Nigeria on the use of trade credit as an alternative form of short-term financing available to firms who are credit constrained either due to business cycle or tightened credit condition from the financial market

(Ojenike et al 2013). Succinctly put, inefficient functioning of the credit market and poor access to credit results in inadequate and untimely finance to productive firms.

Furthermore, previous studies suffered from the use of exogenous variables and firms' characteristics based on single indicator that may not be a good proxy for credit quality and access to institutional finance. In addition, to the best of our knowledge (Ojenike et al 2013) has specifically focused on the use and association of trade credit and company's performance in Nigeria. Therefore, in order to provide evidence on the role of trade credit in developing countries, it is of utmost interest to investigate the effects of trade credit extension on profitability of firms in developing economies.

TRADE CREDIT AND FIRM PROFITABILITY

Our base method of estimating is panel econometric approach. Next, we introduce a fixed effect estimation to control for the presence of individual heterogeneity. Fixed effects estimation assumes firm specific intercepts, which capture the effects of those variables that are particular to each firm and that are constant over time. Finally, to control for the potential endogeneity problem that may exist if trade credit policy correlates with unobservable heterogeneity influencing firm's profitability, we use instrumental variables estimation.

Methodology

This study employs panel data framework to allow for differences in the form of unobserved individual firms effect. Secondary data were sourced for this study. The data were sourced from the Annual Reports and Accounts of the random sample of 80 non-financial quoted firms listed on the Nigeria Stock Exchange (NSE) for the period 2000-2009. The panel data framework makes it possible to allow for differences in the form of unobservable individual country effects. Panel study has a number of advantages over time series or cross-sectional studies. These include its ability to control for individual heterogeneity as well as state and time invariant variables which are not possible with either time series and cross sectional study (Baltagi 1995). Further, it gives more informative data, more variability, less co-linearity among variables, more degree of freedom and efficiency. The fixed effect, random effect and Hausman-test based on the difference between fixed and random effects estimators were conducted. The fixed effect is appropriate if we are focusing on a specific set of firms or countries and our inference is limited to the behaviour of these sets of countries. Although fixed effect is more appropriate, it is often observed that there are too many parameters in the model and thus the possibility of loss of degree of freedom that can be avoided by assuming that the individual effect is random. The random effects model is an appropriate specification when drawing a sample out of a large population. The test revealed that the random effect is the better estimation method.

In this study, we adopt both a holistic and disaggregated models of panel regression. The former model allows us to sufficiently accounts for the overall factors determining trade credit in Nigeria while the latter models are also investigated to examine the individual effects of the variables included in our model specified for this study;

$$\mathbf{Yit = a_0 + ß1\ X1it + ß2\ X2it + ß3\ X3it + ß4\ X4it + ß5\ X5it + \varepsilon_{it}} \ldots\ldots\ldots\ldots (1)$$

Where:
Y= APAY (proxy for trade credit); X1= ROA; X2= ROI; X3= ROCE; X4=NPM; X5=CPP; a_0 = Constant; ß = The Coefficient of the variable; i = firm; t= time period and ε = error term.
The disaggregated models are thus specified;

$$Yit = a0 + B1ROA + \varepsilon_{it} \ldots\ldots, (2)$$

$$Yit = a0 + B1ROI + \varepsilon_{it} \ldots\ldots. (3)$$

$$Yit = a0 + B1ROCE + \varepsilon_{it} \ldots.. (4)$$

$$Yit = a0 + B1NPM + \varepsilon_{it} \ldots\ldots (5)$$

$$Yit = a0 + B1CPP + \varepsilon_{it} \ldots\ldots. (6)$$

Results and Discussion

Descriptive Analysis of the Variables

Table 1 presents the results of the descriptive analysis of the effect of trade credit on the four performance variables (X1=ROA, X2=ROI, X3= ROCE and X4= NPM). The analysis indicated that X2 which is ROI had the highest mean value of 0 .85 for all the firms with minimum value of 0.090 and maximum of 9.63. X1 which is ROA had the least mean value of 0.13 while the minimum value is 0.0002 and the maximum value of 2.33. The maximum value of 10.17, (X4 which is NPM), 9.63 (X2 which is ROI) and 13.22 (X3 which is ROCE) for all firms signified a high level of influence of trade credit usage on these measures of firms' profitability. This is particularly supported by the mean value of 0.52 for X4, 0.85 for X2 and 0.21 for X3. On the contrary, the maximum value of X1 being 2.33 and the minimum 0.0001 is also confirmed by the mean value of 0.13 suggesting little or no effect of trade credit financing on this firms' profitability.

Table 1: Trade Credit and Profitability Measures

Variable	Obs	Mean	Std. Dev.	Min	Max
Yit	660	39.27842	308.2068	0	6400.44
X1	660	.1284372	.2578655	.0001725	2.326198
X2	660	.8488289	1.119573	.0898517	9.634341
X3	660	.2116544	.755314	.0000603	13.21151
X4	660	.5247948	.951787	.0007772	10.16538

Source: Data Analysis, 2012

Correlation Analysis of Trade Credit and Profitability Measure

From Table 2, the coefficient of correlation between X4= npm and account payable is positive and significant at 0.61 suggesting that there is a direct relationship between account payable and net profit generated by firms. This finding implies that more trade credit financing obtained by firms, the more net profits made, the correlation co-efficient between trade credit and X2 returns on investment (ROI) is low and positive (0.29) indicating direct relationship between X2 and trade credit. A rise in account payable may influence increase in the net profit margin of sample firm. In the case of X3 (ROCE), the correlation coefficient is positive (0.13) but low implying a direct but very weak relationship with accounts payable. On the contrary, trade credit exhibits negative and very low correlation coefficient (0.01) implying negative and very low level of association between the two variables.

Table 2: Correlation Matrix: Accounts Payable and Profitability Measures

	Yit (apay)	**X4** (npm)	**X2**(roi)	**X3** (roce)	**X1** (roa)
Yit (apay)	1.0000				
X4 (npm)	0.6191	1.0000			
X2 (roi)	0.2993	0.3334	1.0000		
X3 (roce)	0.1314	0.0522	0.2324	1.0000	
X1 (roa)	-0.0088	0.0296	-0.0026	0.0535	1.0000

Source: Data Analysis, 2012

Panel Regression Estimation of Trade Credit and Performance

The higher the size of profit, the more an enterprise is able to withstand negative variations arising from rising costs, falling prices and declining sales. The Net Profit Margin is a signal to the level of profitability of the firm's ability to sell goods and services above cost and earn reasonable returns on investment or capital. The result of simple linear regression (Table 3) of trade credit on NPM indicates a positive but insignificant effect. Since Net Profit Margin (NPM) measures the ability of a firm to earn adequate returns on sales, a coefficient of 0.001 is an indication that the contribution of trade credit to net profits is minimal though positive. It further suggests that the firm's speed of turning over the inventory of goods supplied on credit is low.

Panel regression on X2, the F-statistic indicates the fit of the model. From the table, trade credit is positive and significantly affects ROI (ß = 0.001) of quoted firms in Nigeria. The result also indicates that X3 regression predicts that trade credit is positive and significant (ß =0.0003) at 5% level. This result indicates that trade credit significantly influenced ROCE directly as the high coefficient shows that trade credit

financing has been profitably utilized by the firms. However, the table further shows that X1 regression predicts no association between trade credit and Returns on Assets (ß = -.000014) at 5% level. From Table 3 trade credit was found to be positive and significantly influence creditors' payment period (CPP) at 5% level. Creditors' payment period ratio reflects the average length of time for which creditors balances remain unpaid. A unit increase in trade credit would raise the value of CPP which determines a firm's promptness of payment to suppliers. A high ratio or coefficient indicate high degree of insolvency (inability to pay creditor as at when due), while a low ratio is an indication of an efficient payment system.

This supports the financing motive which postulates that customer act as initiator of the post purchase "credit extension". A lack of funds can compel the customer to delay trade credit repayment and so abandon the very attractive interest rates offered by the supplier's discount incentive, while trade credit atimes may be an unattractive substitute for loans, it often lie "readily at hand", the credit source which a customer can conveniently invoke if facing reduced bank credit, he merely delays repaying her bill by lengthening trade credit duration and thus "extend" credit to himself. Since the supplier typically responds passively (Ng et al., 1999), it may observe account payable rising for this reason; especially during monetary contractions. Therefore, in requesting for this form of finance, customers (firms) reveal that they are willing to pay the high interest rates required for the use of short term funds.

Table 3: Regression Estimation of Trade Credit and Measures of Performance

Dependent Variable ⇨ / **Independent Variable** ⇩	**X1 (ROA)**	**X2 (ROI)**	**X3 (ROCE)**	**X4 (NPM)**	**X5 (CPP)**
Y_{it} [Account payable]	-0.0014 (0.000)	0.001* (0.0001)	0.0003* (0.0000)	0.001 (0.001)	8.216* (0.0003)
Constant	0.128 (0.012)	0.805* (0.60)	0.197 (0.033)	0.521* (0.055)	0.147 (0.00266)
R^2	0.045	0.122	0.028	0.131	0.0228

Source: Data Analysis, 2011. [Values in brackets are standard errors]

Conclusion

Trade credit has been a major and growing source of finance in all sectors of Nigerian economy. Trade credit management is particularly important in the case of small and medium-sized companies, most of whose assets are in the form of current assets. Efficient trade credit management could improve firm profitability significantly. Its widespread use has not been matched by any other kind of business financing. Yet trade credit has

received little attention in the literature. One reason for this neglect is that trade credit is buried in the distribution activity of the firm, and sorting out the complex institutional factors that influence its behaviour is extremely difficult. The various findings suggest the existence of imperfections in Nigerian financial market. Though the impact of trade credit policy on profitability is highly important, the objective of the current research is to provide empirical evidence about the effect of trade credit on the profitability for a firms' sampled. The results confirmed that trade credit financing is an integral part of doing business for firms in Nigeria especially for those firms that still find raising funds from the credit market difficult and could not generate adequate internal funds for their working capital requirements. The overall conclusion that can be drawn from this study is that trade credit financing had a positive but weak effect on firm's performance and their financing choices. Trade credit has widened access to finance and decreased the degree of credit market segmentation. From the standpoint of investment and rates of profit, the net effect appears to have been positive.

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