Sukkur IBA University

Volume 6 | No. 1 | January – June 2019

Sukkur IBA Journal of Management and BUSINESS
P-ISSN: 2313-1217
E-ISSN: 2410-1885

Impact of Credit Rating on Firm Performance mediating role of Trade Credit. Evidence from Pakistani Non-financial Firms.

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Abstract

This study investigates the impact of a credit rating on firm performance with the mediating role of trade credit of non-financial firms in Pakistan. Even with the tremendous changes in financial trend, trade credits still have huge usage. Firms are using trade credit as an informal source of financing in almost all regions of the world. World-renowned companies have access to financial lending, but they also prefer trade credit, it provides them an edge against collateral held at financial institutions. This study use panel data of non-financial firms. The data consists of nine years from 2008 to 2016 for 38 non-financial firms. By investigating the mediating role of trade credit results suggest that large firms have a better credit rating that helps them to get finance from formal financial institutes at easy terms and conditions. That why they are willing to provide trade credit to other firms that have limited access to formal finance, that lead to higher firm performance. It is observed that large firms (creditworthy firms) are more involved in trade credit than small firms.

Keywords: *Trade Credit, Credit Rating, Firm Performance.*

JEL-Classification: G320, R110

1. Introduction

Trade credit is the supplier and buyer relationship which has become an essential part of today's business. The trade credit agreement is a process in which both parties (supplier and buyer) participate to fulfill the agreement. Due to the fear/problem of liquidity or shortage of investment, when customers become risky and unable to get help, they move towards other means of finance such as trade credit to fulfill their mutual interest.

Medium and small-sized firms face many limitations in getting external finance (Berger and Udell 1995). According to Storey (1994), the financial mix of UK firms indicated that trade credit is a source of finance for any firm but most preferable to medium and small-sized firms. These days, many companies are using trade credit to

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fulfill the various business objectives, firms commonly decide to make the efficient use of capital. Marotta (1997) stated that the importance of trade credit varies from country to country. As stated by Murfin and Njoroge (2012), the world's largest mart, Wal-Mart is the largest user of trade credit. Wal-Mart prefers trade credit instead of borrowing from banks.

The credit rating of the firm shows the opinion of rating agency about the entity overall creditworthiness and its capacity to fulfill the financial obligations (Standard and Poor's (2002). The term creditworthiness indicates the likelihood of an issuer to make timely payments of financial obligations according to the term and conditions of contact, while it is not an absolute measure of default probability [Standard and Poor Global Credit portal (2009)]. PACRA and JCR-VISE are working as credit rating agencies working in Pakistan.

For financial motive, firms with higher performance (profitability) are generating more funds and consequently they transfer liquidity to their customer by selling goods on credit. (Grave, 2011). From an academic viewpoint, firms that have the capacity to generate funds (cash flow) would make extra sales by extending trade credit. So, firms with better performance (profitability) that generate cash funds extend more trade credit (Grave, 2011).

The effect of a credit rating on firm performance with the mediating role of trade credit has never been deeply studied in the case of Pakistan. Therefore this study contributes to the literature by examining the effect of a credit rating on firm performance with the mediating role of trade credit.

Non-financial companies in Pakistan overcome the problem of default they maintain relationships with the financial sector. According to Smith (1987), banks have reduced credit limits for companies in Germany. However, bank loans availability is considered a major issue for non-financial companies in Pakistan. There is a risk that the buyer company may not be able to obtain funds due to lack of funds. As risk increases, buyers need to find other convenient and less time-consuming external source of finance for business. Trade credit is the best way for companies where supplier already involved in business provides more help and support to businesses which are facing financial distress. Thus, the problem statement is "the use of trade credit has increased because of the high credit rating of nonfinancial firms". This study raises the question that what is the impact of a credit rating on trade credit supply and demand? Does its impact differ for small and large firms? So the main objective of this study is to find the relationship between credit rating and trade credit supply and demand and to find the relationship between credit rating and trade credit of large and small firms. Also, to find out the impact of a credit rating on firm performance by using trade credit.

For buyers and suppliers, trade credit is a good source of short-term financing. Trade credit used as a source of financing to effectively use resources and increase business sales. The supplier can easily assess the creditworthiness of the buyer through the credit rating developed by an independent third party. Trade credit agreements

provide the best means to manage the way a business operates without disturbing other loan related issues. On the other hand, buyers have the advantage that they do not have to face the problem of lending and can do credit transactions directly with the supplier.

2. Literature Review

According to Ferris (1981) in trade credit theory, trade credit is a mean that used to reduce the attached cost to the transaction. Stated by Peterson and Rajan (1997) in early 1990 suggested that trade credit is an important segment of the balance sheet of all American firms, 18 percent of total assets were recorded as account receivable. They find that large firms borrow and lend more trade credit. Larger firms prefer to borrow more although their cash flow is higher and fewer opportunities for growth. It indicates that they are more creditworthy. When financial institutions deny granting the credit then firms move to see other options and trade credit extensively used by firms (Petersen & Rajan, 1997).

In Pakistan trade credit also an external source of finance most time for non-financial firms. According to Beck & Maksimovic (2008), instability in the financial market, the supplier and buyer make trade credit contract to fulfill their financial and business needs.

To resolve the problem of liquidity, small firms are more interested to issue the trade credit. Large companies show less interest in credit transactions, they do not need to give the guarantee of their products (Long et al; 1993). According to Beck, Kunt & Maksimovic (2008) as per the survey 48 countries of the world have 19.7 percent of investments has been financed by trade credit as an external source. Developed countries like the UK and France more than 30 percent of finance is trade credit as an external source. Explained by Elliehausen & Wolken (1993) that in US 60 percent of small firms use trade credit as a major financial source.

According to Berger, Udell (1995) and Cunat (2007) firms at the beginning and younger firms mostly rely on trade credit as an external source of finance. Suppliers offered them more helping hands and provide working capital financing to them. According to Cook (1999) and Garcia (2010), these offers enables the buyers to start a new era of trade and to form a new history of payments for their near future. According to Petersen and Rajan (1997), large companies are giving more trade credit because these companies hold large amounts of accounts receivables. Large companies have more opportunities for properly managing the mechanism so that analysts can make more reliable transactions and records. These aspects lead to the company's huge financing.

A company's credit rating reflects the view of rating agency about the entity's overall credibility and ability to meet its financial obligations (S & P 2002). According to Shaheen and Yasmin Javid (2014), credit rating agencies (CRAs) play a significant role in assessing the firm's risk of default. Credit rating agencies evaluate companies

based on publicly available information. Credit ratings convey the view of credit rating agencies on the issuer's ability to pay its financial obligations. A good corporate credit rating is seen as a symbol of good quality, financial strength, and sound reputation.

According to the study by De and Kale (1993) founded that financially strong firms have higher profitability and good credit ratings, which signals good firm quality. In the same context, it's suggested that credit ratings are signal to firm quality, and if markets identify them as adding value, then credit rating changes can signal changes creditworthiness of firm (Kisgen, 2006). This statement is also supported by Pottier and Sommer (1999) and Adams et al. (2003) that higher firm performance is an indication of the better financial strength of the firm. So, these statements indicate a positive association between firm performance (growth) and credit rating as, ratings monitor the agents of firms (Sylla, 2001).

A study conducted by (Abuhommous, 2017) suggests that a firm's profitability is positively affected by the investment in accounts receivable. Theoretically shown by Kim and Atkins (1978), Copeland and Khoury (1980), and Martinez-Sola et al (2014) that performance of firms is affected by the investment in trade credit granted to customers. When firms provide trade credit, it increases their sales and profitability. According to the study of Meltzer (1960), firms with good financial position prefer to increase their market share by offering trade credit to customers, particularly to those customers that have a low credit rating. Meltzer (1960) shows that firms with a good financial position prefer to increase their market share by offering trade credit to customers, especially for customers with a low credit rating.

2.1 Hypothesis

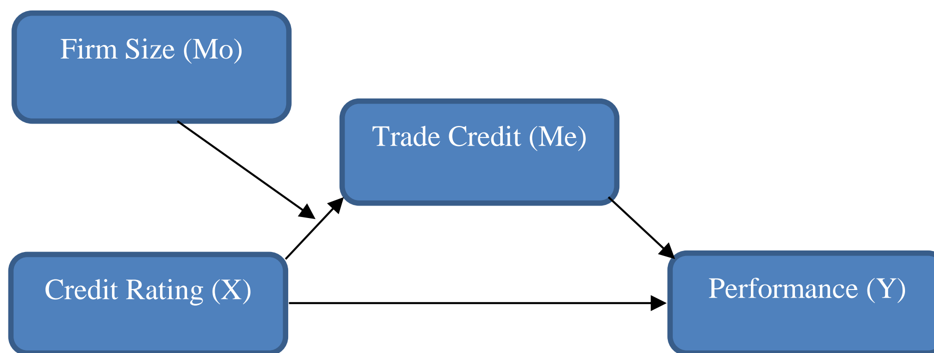
H_1: Credit rating impact on firm performance in Pakistan.

H_2: Credit rating impact on trade credit in Pakistan.

H_3: Trade credit impact on firm performance in Pakistan.

H_4: Trade credit mediate the relationship between credit rating and firm performance.

2.2 Theoretical Model



3. Methodology

The population for this study consists of non-financial firms from Pakistan, listed at PSX. So, our database contains the financial results of 38 non-financial firms, listed at PSX and data for the credit rating of non-financial firms taken by the PACRA. The sample selected on the base of availability of data according to PACRA Credit Rating for non-financial firms. Both cross-sectional and time series data is included in this research and data collected for nine years from the year 2008 to 2016. For analysis purpose[2] , here weight assigned to rating. AAA=1, AA+=0.95, and so on it ends at D=0.5.

General model:

$$y_{it} = \alpha_i + \beta_1 X_{1it} + \beta_2 X_{2it} + \cdots + \beta_k X_{kit} + \varepsilon_{it} ---- ------------ (0)$$

An econometric model for firm performance and credit rating.

$$Prof_{it} = \beta_0 + \beta_1 lsize_{it} + \beta_2 CR_{it} + \beta_3 (Lsize * CR)_{it} + \beta_4 AT_{it} + \beta_5 INV_{it} + \beta_6 lnC_{it} + \beta_7 Ret_{it} + \varepsilon_{it} --------------------------- (1)$$

An econometric model for trade credit and credit rating.

$$TC_{it} = \beta_0 + \beta_1 Lsize_{it} + \beta_2 CR_{it} + \beta_3 (CR * Lsize)_{it} + \beta_4 INV_{it} + \beta_5 AT_{it} + \beta_6 RET_{it} + \beta_7 \ln C_{it} + \varepsilon_{it} -------------------------- (2)$$

An econometric model for firm performance and trade credit.

$$Prof_{it} = \beta_0 + \beta_1 TC_{it} + \beta_2 AT_{it} + \beta_3 INV_{it} + \beta_4 lnC_{it} + \beta_5 RET_{it} + \varepsilon_{it} ---- (3)$$

An econometric model for the impact of a credit rating on firm performance with the mediation of trade credit;

$$Prof_{it} = \beta_0 + \beta_1 TC_{it} + \beta_2 CR_{it} + \beta_3 lsize_{it} + +\beta_4 (Lsize * CR)_{it} + \beta_5 AT_{it} + \beta_6 INV_{it} + \beta_7 lnC_{it} + \beta_8 Ret_{it} + \varepsilon_{it} --------------------- (4)$$

Where;

Prof= Profitability (net income to total assets) is the measure of firm performance
TC=Trade credit
β_0= Constant value
Lsize=large Size firms (dummy 1 for large firms and 0 for otherwise)
CR=Credit rating of the firm

[2] For research purpose this credit rating process already used by (Shaheen and Yasmin Javid, 2014) and MS thesis document of (Zeshan M,) from CUST, Islamabad.

CR*Lsize= It is an interaction term for credit rating and large size firm
AT=Asset turnover
INV= Inventory to total assets
lnC=Log of Cash and cash equivalent
RET=Retained Earning to total assets
$\mathcal{E}$ = Error Term

4. Results and Discussions

4.1 Descriptive Statistics

Table 1 shows the results of descriptive, the mean value of ACR is 0.181 and its standard deviation is 0.2969 for the period of 2008 to 2016. The maximum and minimum are 2.8112 and 0.0012. The mean of AP is 0.208 with the maximum and minimum of 5.2715 and 0.0083. Its standard deviation is 0.4584. The mean value of CR is 0.799 and its standard deviation is 0.1318 for the period of 2008 to 2016. It's maximum and minimum are 1 and 0.05. The results show that maximum credit rating is AAA and minimum credit rating is D. Profitability of non-financial firms average value is 0.128 but the standard deviation is 0.087.

Table I: Descriptive Statistics

Variables	**Mean**	**Maxi**	**Mini**	**Std. D**
TO	0.181	2.8112	0.0012	0.2969
ACP	0.208	5.2715	0.0083	0.4584
CR	0.799	1	0.05	0.1318
AT	1.334	15.289	0.0454	1.475
CGS	9.813	17.461	2.7821	2.1071
INV	0.153	2.3603	0.0007	0.1932
RET	0.303	5.7811	0.0003	0.4098
lnC	5.76	13.463	0.1337	2.4354
PROF	0.128	0.491	0.001	0.087

4.2 Correlation

Table 2 shows the degree of association between dependent and independent variables. Pearson correlation test adopted to explain the direction of the relationship. Credit rating and trade credit show a positive association with firm profitability.

Table II: Correlation Analysis

IV's	TC	CR	PROF	AT	C	INV	RET	CGS
TC	1							
CR	0.11	1						
PROF	0.23	0.09	1					
AT	0.08	0.12	0.18	1				
lnC	0.38	0.19	0.12	0.50	1			
INV	-0.14	-0.06	0.36	0.69	0.14	1		
RET	-0.08	0.09	0.08	0.57	0.04	0.66	1	
CGS	-0.13	0.29	0.22	0.21	0.09	0.07	0.01	1

TC: Trade Credit, CR=Credit Rating, PRFO=Profitability, AT=Asset Turnover, lnC=logarithm of cash & Cash equivalent, INV=Inventory to Total assets, RET= Retain Earning to Total Assets, CGS=Cost of Goods Sold.

4.3 Results

Firm performance and credit rating large firms(Equation 1)

Independent Variable		Coefficient	P value
C		-0.281783	0.0005
LSIZE		0.334351	0.0001***
CR		0.515104	0.0000***
LSIZE*CRL		-0.449303	0.0000***
AT		0.009486	0.0857*
INV		0.280251	0.0000***
lnC		-0.262248	0.0000***
RET		-0.095272	0.0000***
R^2	0.306181	F-statistic	16.1389
Adj R^2	0.287210	Prob (F)	0.0000

***, ** and * indicates significates at 1%, 5% and 10% level respectively, CR=Credit Rating, Lsize=Large size firms, AT=Asset Turnover, lnC=logarithm of cash & Cash equivalent, INV=Inventory to Total assets, RET= Retain Earning to Total Assets.

In the given table, the main variable is credit rating (credit rating of large-sized firms), indicates significant (0.000) and positive coefficient (0.515104) with firm performance. Our results are aligned with the study of De and Kale (1993), which suggest that financial strong firms (large firms) have good credit rating and higher

profitability. Inventory, asset turnover also shows a significant and positive relationship with firm performance. R2 indicates that these independent variables explain 30% to firm performance.

Trade credit and credit rating Large firms(Equation 2)

Independent Variable		Coefficient	P Value
C		-0.398071	0.1804
LSIZE		0.556289	0.0790*
CR		0.773639	0.0403**
LSIZE*CRL		-0.776499	0.0519*
AT		0.007626	0.7041
INV		-0.3305	0.0207*
lnC		1.119975	0.0000***
RET		-0.00651	0.9133
R2	0.208305	F-statistic	9.39691
Adj R2	0.186138	Prob(F)	0.0000

***, ** and * indicates significates at 1%, 5% and 10% level respectively, CR=Credit Rating, Lsize=large size firms, AT=Asset Turnover, lnC=logarithm of cash & Cash equivalent, INV=Inventory to Total assets, RET= Retain Earning to Total Assets.

Credit rating has significant and positive with trade credit (P<0.0403, Coefficient is 0.773639) It means when the credit rating of firms increase it leads to extend the trade credit by large firms. The result of the interaction term of credit rating with large size of the firm (LSIZE* CR) shows that its p-value is (0.0519) significant with a negative coefficient (-0.776499). It means higher credit rating leads to more trade credit by large forms. This result is aligned with the Petersen and Rajan (1997) which indicate that creditworthiness firms are more willing to provide trade credit. R2 value has is 0.208. It specifies that a 28 % variation in trade credit is explained by the independent variables.

Firms Performance to Trade Credit (Equation 3)

Independent Variable		Coefficient	P Value
C		0.117747	0.0000
TC		0.039529	0.0299**
AT		0.009156	0.1157
INV		0.222136	0.0000***
lnC		-0.173363	0.0067***
RET		-0.069951	0.0000***
R2	0.237475	F-statistic	15.6962
Adj R2	0.222346	Prob (F)	0.0000

***, ** and * indicates significates at 1%, 5%, and 10% level respectively, TC=Trade Credit, AT=Asset turnover, lnC=logarithm of cash & Cash equivalent, INV=Inventory to Total assets, RET= Retain Earning to Total Assets.

In the above table, results show that trade credit is significant (P<0.0299) and positively (Coefficient is 0.0395) effect on firm performance. This study also supported by the studies of Kim and Atkins(1978), Copeland and Khoury (1980) and Martinez-Sola et al (2014) that suggests that firm performance is affected by the investment in trade credit granted to customers. Trade credit shows a significant and positive relationship with firm performance. It indicates that firm performance increases when firms provide trade credit to other firms. Variation in firm performance 23 % explained by trade credit and other variables.

The mediating role of trade credit between credit rating of large firms and firm performance (Equation 4)

Independent Variable	Coefficient	P Value
C	-0.313534	0.0001
CR	0.569184	0.0000***
TC	0.05496	0.0016***
LSIZE	0.375693	0.0000***
CRL*LSIZE	-0.504262	0.0000***
AT	0.010039	0.0674*
INV	0.264488	0.0000***
lnC	-0.204264	0.0008***
RET	-0.096723	0.0000***
R2 0.335564	F-statistic	15.7192
Adj R 2 0.314216	Prob(F)	0.0000

***, ** and * indicates significates at 1%, 5% and 10% level respectively, TC=Trade Credit, TC= Trade credit, Lsize=Large size firms, AT=Asset turnover, lnC=logarithm of cash & Cash equivalent, INV=Inventory to Total assets, RET= Retain Earning to Total Assets.

Above table indicates trade credit as a mediator has a significant and positive effect on firm performance and credit rating and the large firm also shows a significant and positive effect on firm performance. The results of this study are aligned with the study of (Abuhommous, 2017) which suggest that the profitability of the firm is positively affected by the trade credit and credit rating.

5. Conclusion

This research strives to capture the impact of a credit rating on firm performance with the mediating role of trade credit. Therefore, the study examined the impact of credit ratings on trade credit usage with the mediating role of firm performance to shows the picture of trade credit. Trade credit contracts give the best way of business operation. On the other hand, the buyer has the advantage of not facing any discomfort as the

supplier is already involved in the same business and can make direct use of the supplier's credit facilities. Commercial loan and loan collateral become troublesome for the buyer. Risk buyers have a better chance of using discounted loans from the same supplier already involved in the supply of goods. This study suggests that large firms have better credit rating and they are willing to join the informal way of financing to capture the market share that leads towards the firm's profitability.

Trade credit plays an important role in firms as a source of finance. Those firms that are financially constrained, they can get funds at better term and condition of trade credit from supplier especially from a large firm, because large firms have good credit rating and they face less financial constraints to obtain funds from the capital market, to keep up their business operation. Those firms that have higher credit rating they can get supplies on credit from their supplier on easy terms and condition. Creditworthy firms pay their financial obligations on time. Creditworthy firms financially less constrained as a result they can get finance from the formal financial channel. They are able to offer trade credit supply to their customers. Small firms give less trade credit to their customers as compared to large firms. Small firms have financial limitations. Therefore they offer less involved in trade credit channel, but they try to imitate the large firm's procedure for trade credit.

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