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A Comparative Study: Bank Loan V/S Trade Credit, a Panel Data Approach

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Abstract. Non-financial firms have a unique behavior towards trade credit, where they have complicated constraints on bank loans for a developing economy. There is a huge trading governed by the way of trade credit in this ever emerging trade era. Trade credit is a short-term business financing based on purchases between the buyer and the supplier. In almost every field technology has driven trading to the smart, sophisticated ways of businesses. The current study is concerned with some of these factors especially the trade credit system which is beneficial for the small industries of the country. This is helpful in suitable decision making for business schemes, to overcome those factors which causes obstacles in revenue generation in case of lack of availability of funds from banks and other financial institutions. The demand for trade credit serves the best means of short term financing to the financial distressed firms. Financial sectors including banks require the collateral as guarantee however, customer is usually unable to provide any security and suffers from financial discomfort. The interest rates and documentation keeps the burden on the small investors so they move towards other easy sources of funding as trade credit is suitable for same business dealers. Whereas, trade credit serves the short term loan at easy requirements. This facility is helpful for the customer in flexible way as product price and profit is returned after a short time span. Trade credit regulates the business in a smooth way. The method adopted to pursue the research is by using the panel data of Pakistan non-financial SMEs from 2009–2019, it has been analyzed that although the investments of SMEs are restricted by banks, trade credit can maintain the sustainability of enterprises. Private enterprises are more reliant on trade credit, which can be intensified during periods of monetary tightening. The data is also helpful for SME's having lack of financial support. Due to the long-term nature and information asymmetry, SMEs experience serious financial constraints that affect their business. The methodology used is Generalized Method of Moments (GMM) formalized by Lars Peter Hansen in 1982. GMM is helpful for the problem raised because of the correlation among the independent variables and the error term known as endogeneity as well as the heterogeneity of firms. The results enlighten that trade credit is the simplest and most demanding method to generate finance for the financially distressed firms as compared to the bank loans and other financial sectors. The conclusion states that the short term financing as trade credit is suitable for small investors as compared to the bank loan and other financial institutions.

Key words: Trade credit, growth, bank loan, SME, COVID-19 and non-financial firms of Pakistan.

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1 Introduction

Trade credit is a critical instrument for many types of businesses looking to expand. Trade credit is credit granted by suppliers to buyers, allowing them to buy now and pay later. Buyer firms are allowed to make transaction of delivery of material, equipment or other goods without paying cash on spot. The time span, for which credit is given, is determined by the supplier firm, it is necessary that both the parties should agree upon the terms and conditions. Trade credit is a type of credit given to encourage sales. In trade credit cycle the buyer requests for goods on credit from the supplier. The supplier once agrees delivers the goods on credit to the buyer. The buyer then pays back to the supplier the due payment upon which both the parties were agreed before the deal. Buyers can solve liquidity concerns by taking items from suppliers and deferring payment until a later date. Because they have little or limited access to financial markets, trade credit is an important source of external funding in developing countries (Beck et al., 2008; Ge and Qiu, 2007). The majority of enterprises in Pakistan are small and medium-sized. Since most Pakistani SMEs have a poor capital structure and rely on their day-to-day operations, equity financing is their principal source of finance, however, if they demand for external financing then trade credit serves their best interests (Shah et al., 2019).

The bank loans are not entirely neglected / forbidden, however small and medium enterprises (SME's) demand for less desirable alternatives. The bank loan is mostly issued after prolong and complicated procedure. Also required a lot of security as a guarantee for the loan. One can only receive bank loan after going through complicated terms and conditions which are not possible to generate for SME's. That is the reason that these SME's prefer to deal in trade credit. Trade credit facilitates the companies to build business relationship in a new market and is more fruitful for the success of a company. It is time saving and beneficial for the new entrants to deal in trade credit, in a competitive environment.

In the same industry the suppliers have better information of the market functions therefore the asymmetric information is the main cause of non-financial firms to give credit to their customers (Shah and Dar, 2021).The financial institutions have to invest to gather information about their interested customers whereas suppliers do not spend anything for collection of information about buyers. Trade credit is practically easy to implement as compared to that of bank loans.

1.1 Trade Credit Relieves Financial Restrictions

Supplier credit can help SMEs supplement their credit funds. On the one hand, suppliers linked to firms through trading commodities have an information and oversight advantage over the banking system, allowing them to meet the related enterprises' requirement for short-term money, according to the idea of finance competitive advantage. Finance, production, and R&D data can be gathered at a low cost, and the repayment behavior of related businesses can be monitored by dynamically controlling the supply of items (Shah and Dar, 2022). Furthermore, it is simple for suppliers that have a thorough understanding of industries to manage deposits when associated businesses default on payments. Suppliers, on the other hand, employ trade credit to maximize their profits through price discrimination. By establishing a trade credit relationship with downstream businesses, you may assist them assure steady outlets and long-term earnings.

Supplier firms supply completely illiquid input, but the bank delivers cash, which is completely liquid. The trade credit transaction is applicable to all types of businesses, but it is more

efficient for small and medium-sized businesses (SMEs) because they are often overlooked by banks and other financial institutions. Due to non-availability of bank loan, the condition of buyer firms requires additional financial support which ultimately move towards other sources of business like trade credit.

1.2 Research Gap

To the best of the knowledge in case of Pakistan, there is not much discussion in this context has been studied. Because Pakistan is a developing economy, SMEs require financial assistance. As a result, bank loans are a significant source of funding for SMEs. The usage of trade credit is increasing as a result of the hassles and constraints associated with bank loans. When looking for trade credit literature for Pakistan, there is still a research void.

1.3 Problem Statement

The bank loan effects the demand for trade credit for SME's.

1.4 Objective of the Study

The goal of this study is to show that a decline in bank loans leads to an increase in demand for trade credit among Pakistani SMEs. So, the research topic has significance for the Pakistan SME industry because they face the financial constraints most of the time and trade credit is their easiest way of financing. This study analyses and supports trade credit as external financing for SMEs.

2 Literature Review

Every level of enterprise requires capital or stock to grow. Two capital sources are long term and short term. Long term sources give more benefit and profit and requires more investment but however, short term sources provide less profit but save enterprises from further loses. Trade credit is the short term financing requirement for many SME's. The economy of Pakistan is rapidly growing nowadays (Shah and Dar, 2021).Recently, Pak-China Economic Corridor plays a very vital role in growth of economy of Pakistan (Zhou et al., 2020). It is important for growth in terms of the availability of skilled workers, physical performance and technological infrastructure for generating profit. Chinese investment in energy, infrastructure, education, health and telecommunication in Pakistan is depicted in figure 1.

The small and medium enterprises have a better opportunity to avail from the export of goods and the local private sectors growth, also increases the products demand. As the demand of products increases, it requires the firms to grow accordingly. The banking system of any country is very important and sophisticated in nature. Same, the Pakistan banking system is also up to the mark. There are many conventional banks operating in the country and provide loans for the business. But still a large number of credit constraints restricts the dealings with the small businessman. One of the main important reason of Pakistan private sector is, one owner business system. Sole business dealers have limited access to financial sectors and are reluctant to get benefit from bank loan. Mostly they are less educated and don't know the technicalities of

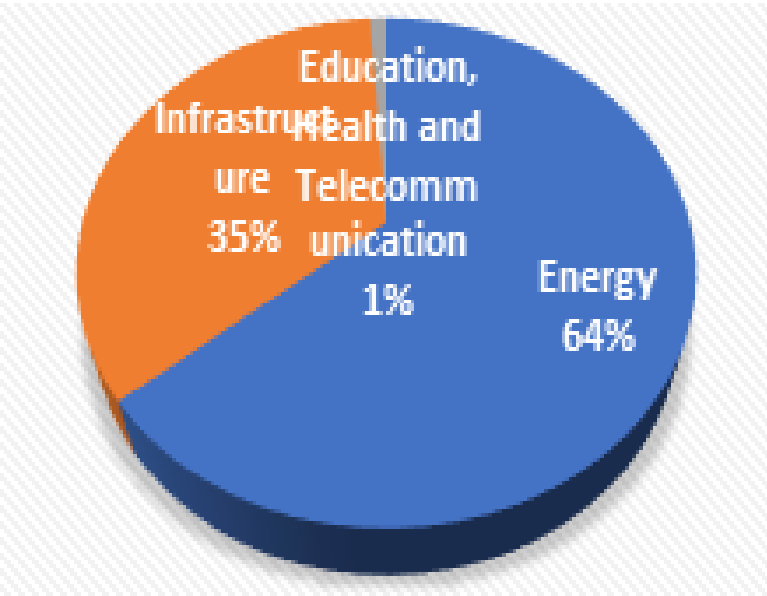

Figure 1: Chinese investment in different sectors of Pakistan (Zaheer et al., 2017)

banking sectors. Therefore, the external financing, trade credit serves the demand of these small and medium enterprises.

Trade credit is an important concept all over the world including Pakistan. The importance of trade credit is expandable among many enterprises of the world (Schwartz, 1974). Trade credit is an extensively used global system and its importance is more in external financing. In a Federal Reserve Board study USA, in 1987, trade credit present as 15 to 20% (Summers and Wilson, 2002). More than 80% of commercial transactions in the U.K. are on credit terms (Ge and Qiu, 2007). Developed countries including France, Germany and Italy as well as China, developing country, companies use trade credit more than their total assets.

Smith (1987) and Walker (1991) state in their work that receivables are settled on the circumstances of an economy. Smith (1987) Benjamin et al. (2000) say that mostly suppliers have information advantage as compared to financial institutions. Trade credit has extended in case of the conditions of the country are not stable and increase in borrowings make trade credit a viable type of short term funding. In Belgium 95% of industrial sector have accounts payable outstanding. Belgian industrial enterprises postponed payments on average for 84 days in 2001, with accounts payable accounting for 18.10 percent of equity and total liabilities. The world largest mart, Wal-Mart is the biggest user of trade credit (Murfin, 2012).Wall-mart gives more preference to trade credit rather than bank credit and have more than 8% share of trade credit in its capital.

A study of Japanese firms concludes that trade credit and bank credit have the same cost and sometime trade credit is cost efficient (Miwa and Ramseyer, 2008). According to a study, large companies typically have a strong reputation and creditworthiness, allowing them to obtain finance from a variety of sources. These firms have no need to provide the guarantee for their products to their customer. They already have a brand image. Small and medium-sized businesses, on the other hand, confront numerous challenges in obtaining external financing

(Berger and Udell, 1995; Storey, 2016). The capital structure of UK's small sized firm's suggested that trade credit is a source for finance in case of any size of the firm's preferably to small and medium sized firms.

Transaction cost theory explains the use of trade credit as a means to reduce transaction cost (Ferris, 1981). Due to Pakistan's financial crisis in 2008, the use of trade credit grew. Because banks require security against loans, trade credit is more frequent among businesses who are unable to borrow from banks. Bank always issues loan to less risky firms due to issue of repayment (Shah et al., 2019). As risk makes enterprises unhealthy and hinders the progress, therefore trade credit serves the best means. As a result, trade credit gives buyer enterprises an advantage in the competitive market. This illustrates that trade credit is a robust, healthy, and effective tool in both developed and developing countries.

Where H_0 and H_1 are the two hypotheses indicating that in H_0, the bank loan and demand for trade credit has no relationship where in H_1 there exists relationship between bank loan and demand for trade credit. So we can hypothesize this phenomenon as:

H_0: No relationship between bank loan & demand for trade credit.

H_1: There is relationship between bank loan and demand for trade credit.

3 Method

Several methods are available which are generally used to evaluate the trade credit. The information regarding trade credit is taken from annual reports of non-financial companies of Pakistan. Therefore, a detailed discussion is presented with regards to the method selected in this study. Pakistan has mostly low or middle income business units therefore it is necessary to get data from the non-financial sectors of Pakistan.

3.1 Sampling Units

Reason behind selecting only non-financial firms for the study is firstly the difference of business nature which is not quite comparable with other firms and secondly they report under different reporting rules and they have different accounting rules. Data will be used for the year 2009-2019 for analysis from non-financial firms of Pakistan. The State Bank of Pakistan's Balance Sheet Analysis (BSA) and Financial Statement Analysis (FSA) will provide the bulk of the data (SBP). Second, data will be gathered from non-financial enterprises registered on the Pakistan Stock Exchange's financial filings (PSX). Firms who do not give complete information on supply, demand, and other variables will be excluded from the working group. Cotton and other textiles, chemicals, engineering, sugar and allied industries, paper & board, cement, and fuel are among the companies represented in the document. According to Table 1, non-financial firm's data is used in ten different industrial groups.

There were 40.06 percent firms belong to the major textile sector of Pakistan. Motor/vehicle and Food Companies is the second with percentage of 14.77 percent and third is Food group, identified with percentage of 14.49 percent respectively. Other non-metallic mineral products sectors belong to the smallest economic group with percentage of 1.70 percent of the above mentioned distribution.

The detailed description of the variables used in the study is explained in Table 2.

Table 3.1: Industrial Frequency Distribution

No.	Sectors	Total No. of Non-financial Firms	Frequency	Percentage
1	Textile	178	141	40.06%
2	Motor vehicles, trailers and auto parts	29	52	14.77%
3	Food, Sugar	57	51	14.49%
4	Cement	29	21	5.68%
5	Chemicals, Chemical Products, Pharmaceuticals	48	32	9.09%
6	Other Manufacturing	39	25	7.10%
7	Coke and refined petroleum products	15	9	2.56%
8	Electrical machinery and apparatus	19	9	2.56%
9	Paper, paperboard and products	15	7	1.99%
10	Other non-metallic Mineral Products	14	6	1.70%
	Total	**443**	**352**	**100.00%**

Sources: Author's Calculations

Table 3.2: Description of Variables

Variables	Names	Abbreviations	Measurement
Dependent Variables	Trade Credit	TC	AP/ Total Liabilities
Independent Variables	Short Term Bank Loan	STB	Short term Loans+ Long term Loan/ Sales
	Inventory	INV	Inventory/ Total Sales
	Liquidity	LIQ	Liquid Assets / Total Assets
	Price Discrimination	PD	Operating Margin / Sales
	Sales Growth	SG	Current Year Sales – Previous Year Sales/ Previous Year Sales
	Gross Domestic Product	GDP	Measured by log of annual figures of GDP

3.2 Model Explanation

General dynamic panel GMM model is as follows:

$$Y_{it}=\beta_0 + \beta_1 Y_{it-1} + \sum_{j=1}^{n} \beta_j X_{jit} + \varepsilon_{it} \quad (1)$$

As in our case specifically the model for trade credit and bank loan can be written as follows:

$$TC_{it} = \alpha_i + \beta_1 STB_{it} + \beta_2 INV_{it} + \beta_3 LIQ_{it} + \beta_4 PD_{it} + \beta_5 SG_{it} + \beta_6 GDP\varepsilon_{it} \quad (2)$$

Here, "Y_{it}" is dependent variable. X explanatory variables, i represented different firms at time t. ε error term. Equation one based on the postulation that β_0 represents intercept and equal for all cross sections and is constant. ai is used because of heterogeneity of the firms.

In case of lagged dependent variable:

$$TC_{it} = \alpha_i + \beta_1 TC_{it-1} + \beta_2 STB_{it} + \beta_3 INV_{it} + \beta_4 LIQ_{it} + \beta_5 PD_{it} + \beta_6 SG_{it} + \beta_7 GDP\varepsilon_{it} \quad (3)$$

3.3 Econometric Methodology

Panel data give more clarity while addressing combines both cross sectional and time series data. Econometric problems are resolved by the help of panel data. Panel data provides the simplicity in case of analysis. Error term has to be uncorrelated to the regressors. This is termed as exogenous variable. Endogeneity was the problem in which the explanatory variables correlate with the error term. As per a recent study, if lagged dependent variables become an explanatory variable, as well as the problem of endogeneity occur or explanatory variables do not remain strictly exogenous. Lag value represents the previous value of the lagged variable as in the study firm's growth depend on last year's firm's growth means its lagged value so there might be a chance of endogeneity. Since, there exists more than one cross section so these give advantage to control the unobserved heterogeneity among variables.

Generalized Method of Moments (GMM) became very popular tool among empirical researchers. Hansen (1982) formalized the GMM estimation and then this method was mostly applied in the fields of finance and economics (Shah et al., 2019). For estimating panel data models, the method termed as Generalized Method of Moments (GMM) became a popular method. Panel data was proposed of trade credit to elude the problems of endogeneity and heterogeneity. It was found that the misspecifications related to estimated model, Sargan-Hansen J-Statistic was used to check the non-existence of correlation among error terms and instruments. J-statistics indicate that the instruments used in the estimation are valid or not.

Data consisted for study is panel data of firms for working therefore it includes the time series and cross sectional data. Different firms are used and every firm has different industry from others. Different industries include textile industry, sugar industry, cement industry, automobile industry, etc. Each and every firm is different from other firms with respect to size, business, no. of employees, product quality based upon purchase power of customer, nature in all respect. My firms are primarily heterogeneous to each other. So simple regression is not applied. As the dependent variable depends on the previous value of itself which creates the problem of endogenity, to remove this problem Generalized Method of Moments (GMM) is used. GMM estimation provides a straight forward way to test the specification of the proposed model.

4 Analysis and Results

4.1 Descriptive Statistics

Table 3 presents the descriptive features of the data, such as the number of observations, mean, median, and standard deviation for all dependent and independent variables.

Table 4.1: Descriptive Statistics

Variables	N	Mean	Median	Std. Dev.
TC	443	0.305	0.305	0.475
STB	443	0.367	0.367	0.252
INV	443	0.199	0.199	0.232
LIQ	443	0.455	0.455	0.512
PD	443	0.245	0.245	0.552
SG	443	0.225	0.225	0.348
GDP	443	0.443	0.443	0.588

Table 4.2: Correlation Matrix and Variance Inflation Factor (VIF)

Variables	N	Mean	Median
TC	443	0.305	0.305
STB	443	0.367	0.367
INV	443	0.199	0.199
LIQ	443	0.455	0.455
PD	443	0.245	0.245
SG	443	0.225	0.225
GDP	443	0.443	0.443

Table 4 contains a correlation matrix for all variables. Multi-collinearity between independent and control variables is measured using a correlation analysis. Trade credit is negatively linked with our major independent variable, as shown in Table 4. All firm-related variables, such as inventory, liquidity, and sales growth, are significantly linked with the dependent variable, as shown in Table 4.

Table 4.3: Correlation Matrix and Variance Inflation Factor (VIF)

Variables	TC	STB	INV
TC	1.0000		
STB	-0.0340	1.0000	
INV	0.0556	0.0760	1.0000
LIQ	0.0276	0.0194	-0.0245
PD	-0.0178	-0.0127	-0.0169
SG	0.0298	0.0256	0.0038
GDP	-0.0198	0.0343	-0.0282

To establish the absence of multi-collinearity in the sample, we calculated the variance in-

flation factor (VIF) for all independent and control variables. A VIF score greater than five may indicate that a variable is multi-collinear. All explanatory variables had VIF values less than five, indicating that the data were free of multi-collinearity. Table 5 summarizes the findings of the VIF analysis.

Table 4.4: Variance Inflation Factor (VIF) Statistics.

Variables	**VIF**	**1/VIF**
STB	1.22	0.8132
INV	1.32	O.8932
LIQ	1.21	0.8945
PD	1.32	0.8732
SG	11.34	0.8855
GDP	1.34	0.8634

Table 4.5: Trade Credit V/S Bank Loan

Variable	**Coefficient**	**Std. Error**	**t-statistic**	**Prob.**
TC(-1)	0.35	0.02	14.78	0.00
C	7.03	2.69	2.62	0.01
STB	-1.28	0.45	-2.85	0.00
INV	0.00	0.00	2.68	0.01
LIQ	0.52	0.23	2.29	0.02
PD	-0.33	0.12	-2.75	0.01
SG	0.45	0.10	2.45	0.02
GDP	-0.42	0.17	-2.45	0.01

R-squared 0.49
Adjusted R-squared 0.35
J-statistic 13.51
Prob. (J-statistic) 0.05

5 Discussion

According to the Table 6, the dependent variable, Trade Credit (TC) is negatively significant to the bank loan of borrower which proves hypothesis that there is negative relationship between bank loan and trade credit. As the customer moves towards banks and financial institutions, he has to fulfil the banking policies to achieve bank loan. However, being unable to meet the requirements of security, the customer moves towards other sources of financing including

trade credit which fulfilled the objective of the study. Trade credit serves the best possible means as external financing to financially distressed firms. The modified R-square value of 49 percent implies that the explanatory factors account for 49 percent of the variation in trade credit. Prob. J-statistics is 0.05 indicating that the explanatory variables used in model have influence on trade credit. The study hence proves the hypothesis regarding trade credit and bank loan as the most suitable financing system is trade credit for SMEs of Pakistan.

6 Conclusion

As the time precedes the use and importance of the growth has extended in the new Era. The business established the best out of resources to get the best potential of the working system, to enhance the growth for purpose of efficiently and effectively running the businesses. The firm growth is important to be monitored and evaluated to maintain the growth. The significance of the study is to evaluate the bank loans and trade credit to analyses the best possible means of financing to SME's. Bank loan is available after a prolong procedure which hinders the growth of SMEs however, trade credit is suitable for the small investors to meet their financial requirements at the earliest. These implications are helpful for the future practical execution of the investors in making investment decisions and evaluations.

The study has the financial significance for the investors while performing investment policies and allocates the resources for the future enhancement of the businesses. The study suggested a very important role for the decision makers, investors as well as for the businesses to have an insight regarding their firm growth related scenario. As the firms which requires maximum time for their quality can reduce or extend their policies for the firms accordingly. Hence the factor which impacts positively on firm growth are discussed and important for future practical execution of monitoring growth of SMEs.

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