

# Trade Credit Utilization and Performance of Listed Manufacturing Companies: Evidence from Sri Lanka

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**Abstract-** Trade credit is one of payment option which is provided by one trader to another party in their normal course of business process when the goods or services are bought on credit. It facilitate to the transaction without immediate payment. The main objective of this research is to investigate the impact of trade credit as a short term financing method among listed manufacturing companies and profitability of the companies to ensure whether theoretical concepts of trade credit utilizations are practicable in real business environment. Although this research goes to investigate the impact of trade credit utilization and performance of the companies, with the purpose of strength the model, researcher has included three control variables to the model of the study. The sample of this study is all the listed manufacturing companies in CSE during the period of 2009 to 2018. Basically there were 41 listed companies in the sample and due to the unavailability of data, only 31 listed manufacturing companies were selected for the final analysis. Panel data regression was used to analyse the data using Eviews software. According to the results of the study, profitability is positively influenced by trade credit accounts payables and short-term debts. Furthermore liquidity level is positively related to the profitability, while firm age and firm size are negatively related to the profitability.

**Index Terms-** Trade Payable, Trade receivable, Profitability

## I. INTRODUCTION

Trade credit is not the critical recourse of the embattled. Instead, firms both large and small, in both sophisticated and primitive markets, use it to take sufficient fund (Miwa and Y.M, 2008). The problem is why? Certainly, trade credit use has some cost saving benefits: Firstly, trade credit provides flexibility. By offering the ability to pay invoices flexibly within a certain time frame, trade credit utilize improves cash flow synchronization, in this way decreasing the (opportunity) costs of paying and managing invoices and bills (Ferris, 1981). Second, trade credit is generally automatically provide at purchase by the seller's general terms and conditions, so that financing is directly avail at the time of purchase, thereby avoiding the transaction costs associated with the purchase of other funds (Danielson, 2004). Third, trade credit can give as implicit quality insurance because the buyer can inspect and review the quality of received goods or services during the net period, verifying quality before payment. In case of lacking expected quality, payment can easily be delayed until satisfying quality is provided or the product can be returned without risk of

not retrieving the (full) purchase cost or of bearing any extra cost, whereas the supplier is motivated to deliver adequate quality and to eliminate defects as quickly as possible (Lee and Stowe, 1993). Literature, including corporate finance textbooks, suggests, however, that trade credit is a very expensive source of financing operating activities with annual interest rates easily exceeding 40 percent. Since it is not very likely that transaction costs saved by trade credit utilization can outweigh interest rates of more than 40 percent, trade credit is mainly regarded as financing source for firms that have difficulties to obtain extra financing at lower rates, i.e. small and young firms as well as illiquid firms of low credit worthiness, and trade credit re-search, accordingly, has focused almost exclusively on these kinds of firms (Smith, 2004). Yet, trade credit is an important source of financing operating activities also for large, liquid, capital market listed companies with long-standing banking relationships. Wal-Mart, for example, one of the massive retailers in the world, reports for 2008 accounts payable of eight times the amount of commercial paper, its other main source of short-term financing. Furthermore, trade credits represent its second largest source of capital after retained earnings and equity, larger than long-term debt. But why should Wal-Mart raise such high amounts at interest rates exceeding 40 percent? Based on survey results of a range of previous studies, we can see, first, that the average interest rate of a firm's used trade credit is not higher than the cost of optional funds, thus making trade credit an attractive part of an optimal financing mix also for large, liquid firms. Then, as per on annual firm-level data of large, listed German companies, i.e. the sort of firms trade credit literature has neglected as trade credit users so far, researcher estimates that average implicit trade credit interest rates are around 4 to 6 percent. Researcher find furthermore that a substantial amount of firms have higher cash accounts than accounts payable, so that cash payment would have been theoretically possible to them. The fact that also highly liquid firms get material amounts of trade credit supports additionally for the hypothesis that trade credit in general cannot be as expensive as literature suggests. Overall, this study reveals that trade credit usage percentage does not mean that a firm resorts to an expensive means of the financing, thereby implying a low liquidity, low credit worthiness, and difficulties to obtain other funds. Besides thus having implications on credit worthiness assessment, the results of this study have implications for (the teaching of) short-term financing strategies and conclude a new direction for future research on trade credit. Trade credit is critical area of a business and that affect to

mainly to the performance of the company. Most of the companies lose their profit due to incorrect decisions of trade credit.

Most of the existing literature has covered for trade credit usage in SMEs and Private limited companies in various continents (Yazdanfar and Öhman, 2017). Accordingly, researcher has identified the gap regarding trade credit usage in Sri Lankan context, especially in manufacturing sector. Therefore researcher attempt to address the above mentioned gap in the current study.

### A. Research Question

This research seeks to fill the gap for following research question,

Main Research Question:

“What is the impact of trade credit utilization on firm’s profitability of listed manufacturing companies in Sri Lanka?”

### B. Objective of the Study

Main objective of this study is to empirically investigate the impact of trade credit utilization and profitability of listed manufacturing companies in Sri Lanka.

Also expect to identify whether trade credit is practicable as theory and to identify the effectiveness of the trade credit decisions of the manufacturing companies as sub-objectives.

## II. LITERATURE REVIEW

Trade credit has been recognized as a crucial source of short-term financing for small and medium-sized enterprises (SMEs) (Peel, et al., 2000). A trade credit contract is a legally binding agreement between both parties that allows a buyer to purchase goods or services on account and pay the supplier at a later date.; The buyer considers the agreement a financing tool, and trade credit appears as a current liability on that firm’s balance sheet. From the supplier perspective, the agreement is regarded as an investment in accounts receivable and appears as an asset on that firm’s balance sheet. The present study highlights the buyer side (i.e. the demand side) of trade credit as a financing tool. If the use of trade credit gives better access to external capital or lowers the cost of capital, it gives the buyer a comparative advantage in the product market. Ferris (1981) found that trade credit can minimize transaction costs by allowing firms to settle bills periodically.’ Using trade credit also allows the buyer to confirm product quality before settling (Deloof & Jegers, 1996; Pike & Cheng, 2001). The relationship between credit financing and firm performance is a crucial and frequently discussed issue in managerial corporate finance. Debt financing is related with the trade-off between costs and gains and there is an overall credit level beyond which the costs are higher than the benefits related to; taxation-sheltering. Reaching a satisfactory credit level is critical for any business, not only because of the need to achieve profitability and firm value, but also because it increases an organization’s ability to deal with its competitive environment (Harris & Raviv, 1991). Several theoretical concepts have been developed to explain this relationship. According to Modigliani & Miller (1958), in a perfect capital market, a firm’s financing choice does not affect its cost of capital, value or real operation, including performance. This view is based on a number of assumptions; for example, that no taxes or cost of transaction exist, that all investors have similar opportunity to borrow and lend money, that there isn’t information

asymmetry and that agency costs remain. This view has been questioned due to its assumption of market perfection and its limited applicability to small firms (Grabowski & Mueller, 1972). Therefore this literature justify that maintaining optimum level of trade credits is not easy for complex entities. Even though there are several studies in various continents and countries, this literature review identified research gap in Sri Lankan context regarding trade credit utilization and company performance in complex entities.

## III. METHODOLOGY AND EXPERIMENTAL DESIGN

This research presents an empirical investigation of the impact of firm profitability on trade credit usage of listed manufacturing companies in Sri Lanka with most recent available data. It is an explanatory research and has employed a quantitative method. A multivariate regression model was used to evaluate the data collected from the financial statements of listed manufacturing companies operating in Sri Lanka which have an age 09 years and above. Based on the regression outputs, test of the data used and hypotheses; and analysis of the result were prepared. The analyses are presented by using descriptive approach.

### A. Sampling Design

A Sample of 31 listed manufacturing companies were selected from the total population of 41 manufacturing companies that are listed in the Colombo Stock Exchange Sri Lanka due to unavailability of data. It represents 75.6% percent of the existing listed manufacturing companies. The data was collected from the official website of the Colombo Stock Exchange Sri Lanka. (Annual Reports - Period Starts from 2009 and ends in 2018).

### B. Method of Analysis

Multiple Ordinary Least Square (OLS) regression is used to investigate whether there subsists a relationship between the multiple independent variables using set of panel data. (Determinants = Trade payable usage, trade receivable usage) and the dependent variable (Firm’s profitability).

### General Form of the Equation is:

Equation 1. General Form of Equation

Profitability = Function of (Trade payable ratio, trade receivable ratio)

Then researcher has introduced following control variables to the model, with the purpose of strength the model.

Firm Size- (FS), Firm Liquidity- (FL), Firm Age (FA).

Therefore the **Specified Model** is:

Equation 2. Specified Model

$ROCE = \beta_0 + \beta_1 (TP) - \beta_2 (TR) + \beta_3 (FS) + \beta_4(FL) + \beta_5(FA) + \epsilon_i$

## IV. FINDINGS

This illustrates the results of the regression model and their corresponding discussions. Before the analysis of regression model, the researcher tests of linear regression model assumptions and then followed by the correlation and descriptive analysis. It is

also illustrated the analysis of the collected empirical data, shows the results, and clarifies the determinants of profitability in the listed manufacturing companies in Sri Lanka.

**A. Descriptive Statistics**

Table 1. Exhibits the summary of descriptive statistics for the variable values used in the sample. The summary of descriptive statistics contains the mean, standard deviation, minimum and maximum of dependent variable (ROCE) and five explanatory variables (TR,TP,FA,FS,FL) from year 2009 – 2017. The data comprise sample of thirty one listed manufacturing companies in Sri Lanka.

Table 01. Descriptive Statistics

	TP	TR	FA	FL	FS	ROCE
Mean	0.171	0.295	35.400	0.313	7.567	3.549
Median	0.132	0.201	34.000	0.252	7.070	2.025
Maxi	1.626	4.072	77.000	1.211	10.388	2.504
Minim	0.945	0.002	8.000	0.005	3.905	1.017
Std.Dev	0.280	0.468	0.389	0.225	1.584	1.501

**B. Test of Normality**

Test of normality is applied to decide whether a set of data is well-modelled by a normal distribution or not, and to compute how probable an underlying random variable is to be normally distributed. In this study, researcher has used the jarque -Bera normality test provided in the e-views 8 and the results are as follows, relevant graphical presentation and quantitative descriptions are included in the table 02.

Table 02. Test of Normality

Series: Standardized Residuals  
 Sample 2009 - 2017  
 Observations 279

Mean	-2.04E-18
Median	-0.012792
Maximum	0.716316
Minimum	0.541945
Std. Dev.	0.210478
Skewness	0.346485
Kurtosis	3.561033
Jarque-Bera	5.796621
Probability	0.055116

**C. Test of Multicollinearity**

Multicollinearity outlines that there is linear relationship between explanatory variables which may affect the regression model biased. In order to observe the probable degree of multicollinearity among the explanatory variables. The researcher used the correlation matrix .Results of the correlation matrix test are as follows in the table 03.

Table 03. Test of Multicollinearity

	ROCE	TP	TR	FS	FL	FA
ROCE	1.00					
TP	-0.81	1.00				
TR	0.06	0.27	1.00			
FS	0.03	0.14	0.20	1.00		
FL	0.11	0.17	0.28	-0.06	1.00	
FA	-0.01	0.24	0.38	0.19	0.26	1.00

According to the results shown in the above table 03, none of the independent variables are no any of the independent variables that are highly correlated except trade payable and profitability.

**D. Test of Autocorrelation**

Auto-correlation which is in fact the problematic in panel data, because it comprises time-series. Autocorrelation is a characteristic of data in which the correlation between the values of the same variables is based on related objects. In order to test for the existence of autocorrelation, the Durbin-Watson test is a widely used method of testing for autocorrelation. Durbin-Watson Stat was 2.022157, the rule of thumb is when data set shows value which is close to 2, the auto correlation issue is not included. Therefore above output shows Durbin Watson value close to 2, It mean there is no auto correlation issue in the considered variables.

**F. Panel Unit root test**

Unit root test is testing whether the variables in the data set is Non-Stationery or possesses a unit roots. A stationary series is comparatively easy to forecast. As per unit root test all the variables are stationary at the level condition.

**G. Multivariate Regression analysis of panel Data**

Preceding empirical studies have conventionally used different estimation methods based on the types of data to investigate the impact of trade credit usage on profitability of listed manufacturing companies in Sri Lanka. In this study researcher has employed the fixed effect data analysis. Multiple Ordinary Least Square (OLS) regression is used to investigate whether there subsists a relationship between the multiple independent variables (Determinants = Trade payable, Firm Size, firm liquidity level and firm Age) and the dependent variables (ROCE = Return on capital employed).

**H. General Form of the Equation is:**

Profitability = Function of (Trade Payable ratio, trade Receivable ratio, Firm Age, Firm Liquidity, Firm Size)

The multivariate linear regression model

$$\text{Profitability} = \beta_0 - \beta_1 (\text{TR}) + \beta_2 (\text{TP}) + \beta_3 (\text{FA}) + \beta_4 (\text{FS}) + \beta_5 (\text{FL})$$

The regression model results are generated based on the above specified model. Hence, the results of the regression analysis are discussed in relation to the dependent variables mentioned above. Following is the regression output generated for the equation one which is the dependent variable of return on capital employed.

In the analysis, Hausman test should done to select the most appropriate regression model to analyse the panel data.

The hypotheses tested under the Hausman test are as follows,

H0= Random Effect Model is Appropriate

H1= Fixed Effect Model is Appropriate

Result of Hausman test (Dependent Variable - ROCE)

**Table 04. Hausman test.**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.97624	5	0.007

Therefore Hausman test was recommended to reject Null Hypothesis and accept to Alternative Hypothesis. Accordingly the panel data regression analysis was performed under the fixed effect model.

**I. Regression output**

Table 05. Presents the regression results of trade credit usage of listed manufacturing companies between 2009 and 2017. The regression summary statistics results and analyses are discussed as follows.

**Table 05. Regression output**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	489.5206	420.0277	1.165448	0.245
TP	-112.5398	48.09529	-2.339933	0.0201
TR	33.22775	31.31791	1.060982	0.2898
FA	-88.4492	107.9358	0.819461	0.4133
FSLOG	31.46736	57.47053	0.547539	0.5845
FL	308.0909	74.59906	4.129958	0

R-squared	0.255812	Mean dependent var	9.548504
Adjusted R-squared	0.07259	S.D. dependent var	150.0689
S.E. of regression	144.5195	Akaike info criterion	12.90462
Sum squared resid	507527	Schwarz criterion	13.37316
Log likelihood	-1764.195	Hannan-Quinn criter.	13.09257
F-statistic	1.621705	Durbin-Watson stat	2.028136
Prob(F-statistic)	0.019449		

The R squared is 0.2558 which indicates that about 25.58 percent of the variability of return on capital employed ratio is (profitability) described by the selected firm-specific factors (trade payable ratio, trade receivable ratio, firm age, firm liquidity and firm size). In other words, about 25.58 percent of the variance in the dependent variable is clarified by the independent variables that are encompassed in the model. Moreover the p – value of the F static value is significant at 5% level, which also indicates that ROCE of the selected listed manufacturing companies predicted

probably by TP, TR, FA,FL and FS together shows a statistically significant relationship among them. Consequently, the F-statistics of the regression result and its p-value 0.019449 evidences there is a significant relationship between the profitability (ROCE) measured in terms of return on capital employed and the determinant explanatory variables measured in terms of TP, TR, FA, FS and FL. In simple words, results suggests that the model fits the data significantly.

The estimated regression equations as follows,  
 $ROCE = 482.5206 - 112.5398 (TP) + 33.22775 (TR) - 88.44920 (FA) + 31.46736 (FS) + 308.0909 (FL) + \epsilon$

### J. Impact of trade credit utilization on companies' profitability

*i) Trade Payable Ratio H1:* – There is a positive relationship between Trade payable ratio & profitability of the company.

According to the table 05, there is a significant relationship between trade payable ratio and the profitability of the company which is confirmed by the probability value of 0.0201 which is less than the 5%. Results conclude that, alternative hypothesis can be accepted and the null hypothesis is rejected.

*ii) Trade Receivable Ratio: H1* – There is a negative relationship between Trade receivable ratio & profitability of the company.

According to the table 05, there is an insignificant relationship between trade receivable ratio and the profitability of the company which is confirmed by the probability value of 0.2898, which is greater than the 5%. Results conclude that, alternative hypothesis can be rejected.

*iii) Firm Age: H1* – There is a positive relationship between firm age & profitability of the company.

According to the table 05, there is an insignificant relationship between firm age and the profitability of the company which is confirmed by the probability value of 0.4133, that is greater than the 5%. Results conclude that, alternative hypothesis can be rejected.

*iv) Firm Size: H1* – There is a positive relationship between firm Size & profitability of the company.

According to the table 05, there is an insignificant relationship between firm size and the profitability of the company which is confirmed by the probability value of 0.5845, that is greater than the 5%. Results conclude that, alternative hypothesis can be rejected and the null hypothesis can be accepted.

*v) Firm Liquidity Level: H1* – There is a positive relationship between liquidity level & profitability of the company.

According to the table 05, there is a significant relationship between firm liquidity level and the profitability of the company which is confirmed by the probability value of 0.000, which is less than the 5%. Results conclude that, alternative hypothesis can be accepted and the null hypothesis can be rejected.

### V. CONCLUSION

As per descriptive statistics, it explains that the average return on capital employed of the listed manufacturing companies is 3.54. That implies there is a higher average of profitability in the listed manufacturing companies in Sri Lanka. The minimum profitability ratio is 1.016 and maximum ratio is 2.503687. The average age of the listed manufacturing companies in Sri Lanka is 3.494662 in logarithm basis. Maximum value is 4.343 and Minimum value is 2.0794. Then average liquidity ratio is 31.25% in the listed manufacturing companies. Average trade credit

payable ratio is 17.11% and average trade receivable ratio is 29.45%. That implies listed manufacturing companies in Sri Lanka averagely holding 17% trade credit payable ratio and 29% trade receivable balance to the total sales over the considered period.

According to the regression analysis of Impact of trade credit usage on profitability of the listed manufacturing companies in Sri Lanka, following findings were revealed.

- Trade Payable ratio and profitability of the companies have positive significant relationship.
- Firm Liquidity and Profitability have positive significant relationship.
- Trade receivable and Profitability have positive relationship.
- Firm age and profitability of the company have negative relationship.
- Firm size and profitability of the company have negative relationship.

Based on the above output results we can identify there is a significant positive relationship between trade payable ratio and profitability of the listed manufacturing companies in Sri Lanka.

As per theories we learn, when company having trade payable period, company can hold cash in hand for a certain period and company can re-invest that cash in another source. Then company can earn interest income or other income and that directly affect to the profit in favourable manner. Even in the practice, those theories can be identified as same. As per Yazdanfar and Öhman (2017) there is a positive relationship between trade payable and profitability of the company. Derived regression output explain there is a positive relationship between trade receivable ratio and profitability (Yazdanfar and Öhman, 2017) of the listed manufacturing companies in Sri Lanka. But in the theory we discuss as there is a negative relationship between trade receivables and profitability of companies. When company made sales on credit basis, customers will pay in future date. Therefore company have to finance that period using another finance facility such as external borrowings or over draft facility. Therefore company has to bear interest expense and that lead to decrease profits of the company. But sales on credit as a discretionary accrual directly affects to the profitability in favourable manner. In practice most of the companies use various facilities available in the current context, such as credit factoring, credit insurance and refinance facility to suppliers.

Lastly, there is a significant impact of trade credit usage of listed manufacturing companies in Sri Lanka

### 5.1 Practical and Policy Implications

The findings from this study have practical implications for management of the companies, market participants, particularly for investors and financial analysts as well as future researchers. Since the impact of trade credit usage of listed companies is not adequately investigated in the context of developing countries, companies are not be fully informed about the relationships between trade credit usage and performance of the companies. This may lead to an information asymmetry. As such, the results of the current study provide evidence to them.

### 5.2 Limitations of the Study

This study is associated with a number of limitations. The data sample consists only of listed manufacturing companies operating in Sri Lanka. As a result, the findings cannot be generalized to firms operating in other contexts. Due to data limitations, the present study considered only a few firm-level variables. Future studies could therefore consider other variables such as collateral and internal financing sources. Moreover, the characteristics of firm founders may affect a firm's opportunities to access external capital.

### 5.3 Suggestions for Future Research

This research considered only listed manufacturing companies in Sri Lanka. As per this research investigated there is a significant relationship between trade credit usage and performance of the company, further researchers can expand the sample over the listed, unlisted sectors and investigate the real implications in the practice when comparing to theory as we learned.

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