

The Impact of Financial and Trade Credit on Firms Market Value*

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Abstract

This study employs data from CRSP/Compustat files for the period from 2003 to 2017 and applies a panel data analysis. The results of this study show a positive relationship between trade credit and the firm's market value, however, the results show a negative relationship if we test the impact of financial credit on the firm's market value. The results have direct policy implications for investors, the firm's management, and financial strategy. An implication of our study is that using trade credit as a source of financing may give a positive signal of the firm's creditworthiness and increase the firm's market value. Also, the results of our study indicate that the benefits of using trade credit may outperform the cost of using it as a source of finance. Prior studies examine the impact of financial leverage on the firm's value, however, this study contributes to the existing studies that examine the factors that affect the firm's market value by examining the impact of using trade credit finance on the firm's market value. The main limitation of this study is that the results are based on listed firms, using data from unlisted firms is not available.

Keywords: Trade Credit, Market Value, Tobin's Q, Financial Credit, Leverage, Financial Performance

JEL Classification Code: G30, G31, G32

1. Introduction

Credit financing can be obtained through financial credit such as short-term and long-term bank loans, corporate bonds, or through trade credits such as notes payable and accounts payable. The two essential sources of finance for businesses are bank loans and trade credit. During times of crisis, when organizations find it difficult and challenging to obtain external funding and loans from credit institutions, trade credit provides the necessary funds and credit that is required by organizations (Ferrando, 2015).

Firms interchangeably use trade credit and financial credit to finance their investment. Yazdanfar and Öhman (2016) examined whether trade credit and financial credit are substitutes or complement, they show that firms may use trade credit to be a complement for short term financial loans. Furthermore, Palacín-Sánchez et al. (2019) showed that the institutional factors affect the firm's decision regarding using trade credit or financial credit. Besides, Bussoli and Marino (2018) found that firms during financial crises depend more on trade credit to finance their investments.

Funds are sought by obtaining debts and equity, and the financing mix of the two is known as capital structure. Financial leverage refers to the utilization of borrowed funds to acquire new assets that are assumed to generate a higher capital gain or income as compared to the cost of borrowing. It is a liability for the borrowing business organization whereas, makes a source of income for the lender. The proportion of the debt usage is directly related to the firm's market value (Waheed et al., 2016). The use of debt of an organization also provides adequate information about its future performance. Diminishing debts forecasts bad news and conversely increasing and growing debts predict good news about the future of the organization (Ross et al., 2000). Furthermore, trade credit provides the buyers with enough time to predict future cash expenditures with greater certainty. It also gives the buyers adequate time to plan for

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the payment of unforeseen purchases and simplifies their cash management.

The main objective of this study is to investigate the impact of loans and trade credit on the market value of organizations. The factors taken into consideration are accounts payable, the profit that the company makes, the firm's size, dividend payout ratio, cash flow, and total debt of the firm. It has been argued that the implicit financial cost of accounts payables is very high. Most of the empirical papers assume that for firms not paying within the discount period, the cost of accounts payable will be higher than the cost of bank loans.

However, Giannetti et al. (2011) related trade credit to product characteristics and aspects of bank-firm relationships and documented three main empirical regularities. First, the use of trade credit is associated with the nature of the transacted goods. In particular, suppliers of differentiated products and services have larger accounts receivable than suppliers of standardized goods and firms buying more services receive cheaper trade credit for longer periods. Second, firms receiving trade credit secure financing from relatively uninformed banks. Third, a majority of the firms appear to receive trade credit at a low cost. Additionally, firms that are more creditworthy and have some buyer market power receive larger early payment discounts. Similarly, Miwa and Ramseyer (2008) found that firms of all sizes borrow heavily from their trade partners, and at implicit rates that track the explicit rates banks would charge. They borrow from banks when they anticipate needing money for relatively long periods; they turn to trade partners when they face short-term unexpected exigencies. This apparent contrast in the term structures follows, we suggest, from the fundamentally different way bankers and trade partners cut default risk. Furthermore, Antov and Atanasova (2007) argued that one important benefit of supplier credit is to increase the availability of institutional financing. If the use of trade credit is perceived as a favorable signal that is informative of the creditworthiness of the borrower, some firms will use trade credit in addition to conventional institutional loans despite its higher cost. The model predicts that firms with high agency costs and information opacity will rely heavily on suppliers to finance their short-term operational expenditures.

This study contributes to quantitative research on the firm and financing sources by extending our understanding of the impact financial leverage and trade credit have on the firm value measured by Tobin's Q value.

2. Literature Review and Hypothesis Development

It is said that granting trade credit affects an organization's profitability. A study conducted by Martínez-Sola et al. (2014)

examined the profitability implications of providing financing to customers for a sample of 11,337 Spanish manufacturing SMEs during the 2000–2007 period. This article also examined the differences in the profitability of trade credit according to financial, operational, and commercial motives. The findings suggested that managers can improve firm profitability by increasing their investment in receivables and that the effect is greater for financially unconstrained firms (larger and more liquid firms), for firms with volatile demand, and firms with bigger market shares.

The value of an organization is represented by its share prices. If trade credit is not adequately managed it can lead to liquidity problems and firms can incur major losses. A study was conducted by Nthenge (2013) examined and investigated the relationship between trade credit and the value of firms listed at the Nairobi Securities exchange. Panel secondary data was collected from published Financial statements at Nairobi Securities Exchange and Capital Markets Authority for the period between 2009 to 2012. The study used a descriptive correlation research design on a sample of 39 Non-Financial Firms listed at the Nairobi Securities Exchange to study the relationship between the two variables. Regression analysis was used to determine the relationship and found an inverse and insignificant relationship between the investment in accounts receivables and the value of the firm. This implies that the increase in profits as a result of trade credit use in boosting sales is later negated by the associated trade credit risks and costs and therefore the negative effect on the value of the firm. This further confirmed that accounts receivables entail both costs and confer benefits. The study established that the size of firm and leverage greatly influenced the firm value and the need by investors to pressure their firms to limit trade credit granted to mitigate the opportunity cost, financial risk, and reduction in profitability and liquidity while also encouraging managers to maintain an investment in accounts receivable which maximizes operational, financial, and commercial benefits.

Capital structure has been studied extensively with the main focus on whether debt affects a firm's value or the proportion of debt usage is irrelevant to the individual firm's value. Investors return their investments in the form of dividends and capital appreciation, and all stakeholders expect a positive return from their investments. The objective of the firm must be to maximize the market value of shares. Waheed et al. (2016) investigated the relationship between leverage and the firm's value, in the Pakistani context, to show that what happens to the value of a firm in face of changing financial leverage. Secondary data was obtained for this purpose from KSE and financial statements of hundred companies for six years. Regression analysis was carried out for the said relation. It was found that an increase in leverage is positively related to the value of a firm.

Lin and Chou (2015) used quarterly data of 1213 Chinese firms from the first quarter of 2006 to the end of 2012 to examine the relationship between trade credit and bank credit. In particular, they investigated how the relationship is affected during the 2008–2009 global financial crises. Several findings are noted. First, there is a significantly positive relationship between the supply of trade credit (i.e., accounts receivable) and bank loans and a significantly negative relationship between the demand of trade credit (i.e., accounts payable) and bank loans, indicating a complementary and substitution effect between trade credit and bank loans. Second, this study showed a significant decrease in the demand/supply-side of trade credit at the peak of the financial crisis, followed by a subsequent increase of this source of financing after the crisis events. Third, both large and small firms provide significantly less trade credits (accounts receivable) and receive less trade credits (accounts payable) during the financial crisis. After the crisis, large firms still provide significantly less trade credit to their customers but receive more trade credits from the suppliers than smaller firms.

Casey and O' Toole (2014) using Euro area firm-level data since the recent financial crisis, tested whether bank lending-constrained small- and medium-sized enterprises (SMEs) are more likely to use or apply for alternative external finance including trade credit, informal lending, loans from other companies, market financing (issued debt or equity) and state grants. Their constraint indicators identify both credit-rationed firms and firms that self-ration due to high lending costs. They found that credit-rationed firms are more likely to use and apply for, trade credit. This increases with firm size and age. They also found that constrained firms are more likely to use informal lending or loans from other companies but find no evidence that bank-constrained SMEs apply for, or use market finance. Smaller, self-rationing borrowers are more likely to apply for grant finance. Finally, they found that firms denied credit for working capital tend to turn to trade credit, while informal and inter-company lending tends to act as a substitute for bank investment loans.

We can find that there is no agreement on the impact of the leverage on a firm's performance measured by the market value of the firms. Besides, the empirical studies ignore the impact of using trade credit as a source of finance on the firm's market value. The capital structure of a company is the way a company finances its assets. A company can finance its operations by either equity or different combinations of debt and equity. The capital structure of a company has a majority of the debt component or a majority of equity or an even mix of both debt and equity. Each approach has its own set of advantages and disadvantages. Various capital structure theories attempt to establish a relationship between the financial leverage of a company (the proportion of debt in the company's capital structure)

with its market value. One such approach is the Modigliani and Miller (1958) Approach.

In their seminal paper, Modigliani and Miller (1958) argued that in perfect market conditions the firm's market value is independent of the capital structure mix. The Modigliani and Miller (1958) approach to capital theory, devised in the 1950s, advocates the capital structure irrelevancy theory. This suggests that the valuation of a firm is irrelevant to the capital structure of a company. Whether a firm is highly leveraged or has a lower debt component has no bearing on its market value. Rather, the market value of a firm is solely dependent on the operating profits of the company. Modigliani and Miller advocate capital structure irrelevancy theory, which suggests that the valuation of a firm is irrelevant to the capital structure of a company. Whether a firm is highly leveraged or has a lower debt component in the financing mix has no bearing on the value of a firm. The Modigliani and Miller Approach further state that the market value of a firm is affected by its operating income, apart from the risk involved in the investment. The theory stated that the value of the firm is not dependent on the choice of capital structure or financing decisions of the firm.

Utami et al. (2021) investigated the capital structure policy among Indonesian public companies. Previous studies suggest that capital structure policy could follow either static or dynamic behavior. The sample data used in this study was companies in the manufacturing sector, divided into three sub-sectors: the basic and chemical industry, miscellaneous industry, and the consumer goods industry. The results showed that the dynamic and non-linear model tests can explain the capital structure determinants than the static and linear models. The dynamic model showed that the capital structure of a certain year is influenced by the capital structure of the previous year. The findings indicated that the company performs some adjustments in its capital structure policy by referring to the previous debt ratio, which implied support to the trade-off theory (TOT). The study also showed that profitability, tangible assets, size, and age explained the variation of capital structure policy. The patterns on the dynamic and non-linear confirmed that capital structure runs in a nonlinear pattern, based on the sector, company condition, and the dynamic environment.

Trade-off theory by Kraus and Litzenberger (1973) postulated that firm's trade-off between benefits and costs of various sources of finance. Thus, the firm value is positively affected by tax advantage resulting from interest expense tax shield but inversely affected by bankruptcy cost of high leverage. Furthermore, Myers (1984) demonstrated that firms have an optimal credit ratio that balances the benefits of debt (such as tax advantages) versus the cost of having debt in the firm's capital structure (such as the risk of bankruptcy). Recent empirical studies found mixed results regarding the impact of financial credit on the firm's

performance (Khoa & Thai, 2020). A few researchers found a negative relationship between financial leverage and firms' performance or value. Examples of such research are Sardo and Serrasqueiro, (2017), Vo and Ellis (2017), Manrique and Martí-Ballester (2017), Platonova et al. (2018), Xie et al. (2019), Uyar et al. (2020), and Li et al. (2020). However, some studies found a positive impact of financial leverage on a firm's financial performance examples, Sardo et al. (2018) and Soewarno and Tjahjadi (2020). Some studies find that the firms have target trade credit (Abuhomous, 2017).

The second source of a firm's financing is trade credit, where firms use short term loans from suppliers to finance their purchasing of products. In Table 2 below we can see that 8.9% of the total assets of U.S firms are funded by trade credit. Different theories aim to explain the reason that encourages firms to use trade credit as a source of financing. Firms use trade credit to overcome the problem of asymmetric information and agency cost theory (Mian & Smith, 1992) suppliers can have a lot of information regarding the firm's trading activity, hence the firms can borrow from their suppliers to finance their purchase at a lower cost. Furthermore, firms use trade credit to reduce the cost of paying at each time of purchase. The transaction cost theory (Ferris, 1981) postulates that firms can reduce the cost of transferring cash if they use trade credit. The results of the impact of trade credit on firm financial performance are mixed. Some research found a positive impact of trade credit on the firm's value (Li et al., 2016; Hoang et al., 2019), but some researchers found no evidence to support the relationship between trade credit and firm performance (Jory et al., 2020). On the other hand, some researchers found the opposite. Orazalin (2019) used data from emerging markets and found a negative relationship between the number of days accounts payable and the firm's profitability. Thus, in agreement with theoretical debates and prior empirical findings, the following hypotheses are developed:

H1: *There is a negative relationship between the firm's market value and the firm's leverage.*

H2: *There is a positive relationship between the firm's market value and the firm's trade credit.*

3. Research Method

3.1. Sample and Data

The study employed quantitative analysis of secondary data. A research sample of 2100 US-listed companies for the period between 2003–2017 was obtained. The study collected panel data to examine the impact of loan and trade credit on the market value of listed firms. The variables used included accounts payable, firm leverage, dividend policy,

firm size, cash flow, and the firm's market value. Moreover, correlation analysis was used to examine the association between the study variables, and deduct any multicollinearity problem.

3.2. Empirical Model and Measurement of Variables

Besides, panel data regression has been used to analyze the impact of loan and trade credit on the market value using the fixed effect model. The following model is structured to analyze the study's objective:

$$\text{Market Value}_{i,t} = \alpha_0 + \beta_1 \text{ACCP}_{i,t} + \beta_2 \text{DEBT}_{i,t} + \beta_3 \text{DIV}_{i,t} + \beta_4 \text{CF}_{i,t} + \beta_5 \text{SIZE}_{i,t} + \beta_6 \text{ROA}_{i,t} + \text{Year effect}_t + \varepsilon_{i,t} \quad (1)$$

Table 1 has summarized the descriptions for study variables. Since we use panel data, we control for the firm's specific effect by including the firm's model, and we also control for the year effect for all firms in specific years such as interest rates inflation, and financial crisis by including a dummy variable for each year. All variables are lagged one year to reduce the effect of the endogeneity problem.

4. Empirical Results

4.1. Descriptive Statistics

A total of 2100 publicly listed have been included from the period of 2003–2017. Table 2 shows the descriptive statistics for the variables and the average value of MV is 1.395. This shows that the market value of the firm is higher than the

Table 1: Variables Measurement

Variable	Measurement
MV	(Market capitalization + book value of total assets – book value of equity) / book value of total assets.
ACCP	Accounts payable/ total assets at the end of the fiscal year
DEBT	Total debt divided / total assets at the end of the fiscal year
DIV	Dividends/total assets at the end of the fiscal year
SIZE	The natural log of the firm's revenue at the end of the year
CF	(Net operating income + depreciation) / total assets at the end of the fiscal year
ROA	Net income / total assets

book value which reflects a positive evaluation of the firm's future growth. The ACCP variable has a mean value of 0.089 with a percentile of 95% equal to 0.262, which indicates that U.S firms use accounts payable to finance their purchases.

4.2. Correlation Matrix

In Table 3 we can see the correlation matrix and Variance Inflation Factor (VIF). A correlation analysis is used to examine the initial relationship between the market value and other independent indicators. From the findings, it has been revealed that there is a negative correlation between MV and ACCP ($r = 0.081$). The highest correlation is between ROA and CF (0.848). To examine the multicollinearity problem, we use the VIF value cutoff (less than 5). The highest VIF value is lower than 5, which indicates that multicollinearity problem does not exist.

4.3. The Relationship between Account Payable and Tobin's Q

The impact of loan and trade credit on the market value of companies in the fixed effect model with the year as a dummy variable is analyzed through regression analysis

Table 2: Descriptive Statistics

Variable	Mean	Median	5%	95%	S.D
MV	1.395	0.926	0.201	3.923	1.791
ACCP	0.089	0.061	0.009	0.262	0.094
ROA	-0.031	0.039	-0.501	0.154	0.094
SIZE	13.17	13.58	8.283	16.95	2.679
DEBT	0.374	0.360	0	0.864	0.274
DIV	0.012	0	0	0.052	0.263
CF	0.056	0.1068	-0.334	0.263	0.337

(Table 4). The results indicate that there is a positive and significant impact of ACCP on Tobin's value and the results are in line with the findings of Li et al. (2016) and Hoang et al. (2019), where the coefficient of ACCP is positive and statistically significant at a conventional level. The results show a negative impact of DEBT on Tobin's Q value and the results are in line with the findings of Bui and Nguyen (2021). The regression coefficients on the control variable, the CF coefficient is positive and statistically significant at 1%, which indicates the importance of cash flow on Tobin's Q value. The results also show that the coefficients of SIZE and ROA have a negative effect on Tobin's Q value. The coefficient of DIV is positive but not statistically significant at a conventional level.

Table 4: Regression Analysis Fixed Effects

	Model 1	Model 2
ACCP	1.104** (2.02)	1.247** (2.07)
DEBT		-0.421*** (-5.98)
CF		0.570** (2.50)
SIZE		-0.153***
		(-4.17)
ROA		-0.250
		(-1.49)
DIV		0.666* (1.93)
F-value	31.93***	27.18***
No. of observations	13694	13694
No. of firms	2100	2100
Year effect	yes	yes

t-statistics in brackets. ***Significant at 1%; **significant at 5%; *significant at 10%. Standard errors are robust to heteroscedasticity, and cluster at the firm level. Variables definition are in Table 1.

Table 3: Correlation Matrix and VIF Test

	MV	ACCP	ROA	SIZE	DEBT	DIV	CF	VIF
MV	1.000							
ACCP	0.081	1.000						1.09
ROA	-0.277	-0.232	1.000					3.49
SIZE	-0.242	-0.029	0.440	1.000				1.40
DEBT	-0.173	-0.158	0.066	0.285	1.000			1.13
DIV	0.047	-0.064	0.150	0.194	0.061	1.000		1.05
CF	-0.290	-0.218	0.848	0.429	0.071	0.140	1.000	3.53

5. Discussion

The results have indicated a significant impact of ACCP, DEBT, CF, SIZE, ROA, and DIV on the firm's Tobin's Q using the fixed effect model, while ACCP and CF positively influence the firm's performance measured by Tobin's Q. This indicates that market participants consider the firm's use of accounts payable as an indicator of the firm's creditworthiness which is consistent with the argument of Antov and Atanasova (2007). However, financial leverage measured by debt ratio indicates that there is a negative relation between the firm's debt and Tobin's Q value. These findings have been corroborated by several studies. For instance, the current findings have indicated a significant and negative impact of financial credit on the market value of the firm, which is consistent with findings of Nwude et al. (2016), Sardo and Serrasqueiro (2017), Vo and Ellis (2017), Manrique and Martí-Ballester (2017), Platonova et al. (2018), and Xie et al. (2019). Uyar et al. (2020), Li et al. (2020), and Bui and Nguyen (2021) found a negative and significant impact of financial credit on the market value of firms.

The positive relation between accounts payable and firm value is in line with the findings of Li et al. (2016), Hoang et al. (2019), and Kumaraswamy (2016) who supported the findings of the current study and indicated that there is a significant and positive impact of working capital on market value and companies' performance. Similarly, the study has also supported the negative impact of size on market value and asserted that large firms may not have the ability to adapt to the rapid changes in markets which have a negative effect on their performance. However, Ha et al. (2016) had indicated a negative and significant effect of working capital on market value. The study has indicated a significant effect of firm size and debt structure on the market value and firm performance. This study shows a negative impact of financial credit on the firm's performance measured by Tobin's Q, which is in contrast to the findings of Akeem et al. (2014), who asserted that total debt and debt to equity ratio are positively associated to firm performance and market value.

6. Conclusion

This study aims to examine the impact of trade and financial credits on the market value of firms measured by Tobin's Q. The study has drawn implications based on the findings, which shows trade credit has a positive impact on the firm's market value, which gives several indicators: first, it indicates that the market investors consider trade credit as a sign of creditworthiness. Second, it indicates that the benefits of using trade credit outperform the costs associated with trade credit. In contrast, the results show

that financial credit has a negative impact on market value, which indicates that debt is considered as a source of risk and the costs associated with financial credit are lower than the benefits of using it to finance the firm's activities. Hence, the market value decreases as financial credit increases, since the firm's probability of bankruptcy increases with a high level of debt. The policy implication of this study is that the firm may depend less on financial credit because the risks and costs associated with it outperform its benefits. Furthermore, the firm's management might consider trade credit as a good substitute for financial credit to finance their investment, which in line with the finding of Yang (2011).

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