Impact of Profitability on Trade Credit Supply (TCS) of Pakistani Firms: Moderating Role of Financial Distress

Sadaf Noreen[1], Ahsan Riaz[2], Nimra Riaz[2], Nadeem Nazir[3], and Nadia Sadiq[2]

[1] University of Lahore, Pakistan
[2] Government College University Faisalabad, Pakistan
[3] Government Post-graduate College Samanabad Faisalabad, Pakistan

Abstract

The current study aimed to elucidate the relationship between trade credit (supply) and the profitability/growth of non-financial companies in Pakistan. The 386 unbalanced panels listed firms in the Pakistan Stock Exchange (PSX) between the period (2004-2017) were analyzed through GMM with 3976 annual observations. The research indicated an insignificant relationship between profitability and growth with the net trade credit of non-financial companies. On the other hand, net trade credit positively correlates with return on equity, company size, and age. Financial distress has a significant moderating effect on net trade credit. Moreover, firms need to increase return on equity and growth to overcome financial distress.

Keywords: financial distress, firm profitability, Pakistan Stock Exchange (PSE), Panel data, Trade Credit

JEL Classification Codes:
G30, G32, C23, C33, G10

Introduction

Working capital is considered an essential balance sheet item to estimate the business's liquidity. More liquidity means ease of management to manage the day-to-day business operations; however, it also reflects an inefficient use of liquid assets. This is especially important when the limit is pressing on the rising cost of materials. Reduced revenue, innovation, and trade payments can make the best use of liquid assets (Pais & Gama, 2015). Commercial debt is a significant component of current assets, and working credit is another term for credit periods. It is the amount to be collected at the agreed time after the delivery of the product sold (Öhman & Yazdanfar, 2017). Trade debt is more convincing than the option, especially in intense competition. Companies can extend their trade debt to different goals depending on their life cycle (Asif & Nisar, 2022)

The trade debt of all non-financial companies listed on the Pakistani Stock Exchange (PSX) is 110.2 billion rupees, with a growth rate of 12.84% in 2017, reached Rs. 6682.72 billion, which was Rs. 7497.11 billion in 2016. In 2017 (excluding capital), the total trade debt increased by 13.02% to reach Rs.4.5018 billion. Equity increased by 10.96% (2,993.930 cores) during the year. Activities for the public sector (current and non-current) were 29.60, the share of total assets increased by 10.65% in 2017. With a growth rate of 12.84% in 2017, the private sector accounted for 70.40% of total assets. Debt from the public and private sectors recorded 14.73% and 9.78% in 2017, starting in 2016(Park & Lee, 2018).

Lending plays an important part in business performance and growth as a viable position of bank credit to alleviate financial limitations. Huang et al., (2019) contributed to the existing literature by establishing the link between creditworthiness and firmness at the firm level. It was done by using financial statements from 2008's Chinese A-share firms from 2003-2017, retrospective retrieval using high-level retrofit, and the two-phase retrieval method metabolic variability in endogeneity testing. According to the study, commercial debt

has a favourable and substantial impact on Chinese enterprises' sustainable growth, particularly for firms with good internal control capacities. Debt financing greatly helps in the sustainability of growth. As private enterprises, government corporations' growth relies on trade credit.

Moro et al., (2021) employed commercial credit in Western Europe, depending on a limited sample and building on asymmetry theory expertise. Moreover, it also explored how the country's culture may affect the use of Small & Medium Size Enterprises (SMEs) for commercial credit. For businesses, commercial debt is lucrative until the advantages surpass the costs. The knowledge of the link between trade debt and business profits can encourage managers to develop efficient debt management policies and assist investors in evaluating a company's profitability and liquidity risks (Baker et al., 2020). Huang et al., (2019) found that the link between financial debt trading and the company's sustainable growth is strong in areas with low financial access. It suggests that firms with a high reliance on commercial debt financing show high levels of sustainable growth in the regions and weak financial institutions.

Trade credit is a source of building and strengthening customer relationships. Customers can support their business by investing in customer activities, as they feel comfortable and uninteresting to competitors due to their credit reports (Karim et al., 2021). Firstly, selling products to more customers increases trade debt, so increasing the number of customers can increase trade debt. Secondly, trade debt can be increased by extending the number of days paid to existing customers. In both cases, companies can improve their customer relationships (Yazdanfar & Öhman, 2015) and (Mehta, 2014).

An increase in shareholder wealth is the first corporate objective achieved with trade credit. The capital is used in a company, regardless of whether it is realized through equity or debt. These costs can be passed on to customers at an increased rate on credit. Prepayment requires a discount on invoices, while a trading debt charges an additional fee. When a business sells on credit, the negotiating power of the customer decreases. A company's sales increase the size of its economy and its costs (Oh & Kim, 2016), and from the customer's point of view, the accounts payable reduce the business's profitability.

Furthermore, it improves the conversion rate of activity towards the environment (Shrivastava et al., 2017). Large firms can help SMEs by extending trade credit as an alternative to credit (Hill et al., 2017). SMEs have problems with bank credit ratings, business documents, and inheritance. On the other hand, large companies can easily access their capital by issuing shares or debts. Banks are satisfied with the excellent financial condition of market value and asset value (María Cantero-Saiz et al., 2023). These large companies can support SMEs by transferring this capital through commercial funds (Petersen &Rajan, 1997). For large companies, trade debt helps to strengthen customer relationships, increases sales, improves profitability, and ensures the well-being of small businesses and the economy (Apochi & Baffa, 2022)

On the contrary, reducing the current assets and liabilities is particularly effective and efficient. The management strategy must act cautiously, actively increasing non-current assets for long-term investments or injecting current assets (credits) to accelerate business growth immediately (Baños-Caballero & García-Teruel, 2022). The economic cycle can support corporate profitability (Carbó-Valverde et al., 2016). Trade credit (Accounts receivable) is essential to make a profit. The impact of trade debt on sales and profits varies depending on the firm, business life cycle, season, and firm size.

The underlying study is helpful for managers to manage their findings at strict rates to maximize profits. In other words, increasing one rupee to a commercial debt can increase profits with different non-financial firm equity. Therefore, it also helps the managers to explain whether they should increase investment in receivables or reduce them. Additionally,

the current study would also help the lenders or banks to extend their short-term operating debt as well. They can assess whether the increase in account receivables at this firm would benefit business growth or cause losses in additional financial costs. This kind of study has not been conducted in the case of Pakistan so far. Therefore, it is the first study for Pakistani non-financial firms to establish and validate the power of account acquisition and profit. Additionally, the impact of firm size and age on trading credit would be considered as well.

Moreover, non-financial firms play a significant role in Pakistan's economy. Just by examining the performance of these firms, the overall economic performance can be judged. Therefore, this study is essential, and at present, 559 firms are listed on the PSX with a total market value of $84 million. Only by examining the performance of these companies, the direction/performance of the economy can be determined. The current study attempted to explain the relationship of trade credit with profitability, sales, market share, firm size, and age. It also examined the moderating influence of a firm's financial distress on the relationship between trade credit and profitability. Secondary data was obtained from PXS and was analyzed to achieve the desired objectives.

Theory and Hypotheses

Several theories, for instance, Ferris (1981) and Ng et al., (1999), described the peculiarities of the trader's debt and established a theoretical model for trading credit analysis. The idea of a transaction theory, for instance, indicates that by separating commodities, exchanges, and currency trading, a trade debt can lower exchange costs. However, few studies focused on understanding the relationship between commercial debt and company earnings, and good facts do not back up those business debt beliefs.

The trading partner's transaction payment for commercial debt saves a joint transaction cost. In systematic analysis, uncertain delivery time is used to produce demand by firms to store goods and money. Commercial debt is viewed as distinguishing between the exchange of money and uncertainty of asset exchange. By providing to all income trading partners, the debt is diminished, facilitating optimal oversight of overall revenue. The current study aimed to contribute novelty by examining the relationship between net trade credit and profitability based on a theoretical framework and a database of 386 non-financial firms from 2004-2017.

The study primarily addressed how trade credit affects the profits of non-financial firms. Credit sales strengthen customer relationships by increasing sales. Moreover, firms achieve an economy of scale that reduces the cost of goods sold (COGS), and both increased sales and reduced CGS ultimately increase profitability. A further impact of firm size, age, and industry affiliation would also be studied on the trade credit of the firm.

In the context of the literature review, a correlation indicating a positive association with size and a negative association with age has been established in comparison to various other countries. The multiple regression method analyzes the importance of independent variables with the dependent variables, trade credit supply (TCS). The dependent variable is the TCS selected; the trade credit offer will be analyzed in these ways. The supply of trade credit with current assets would be increased or decreased. In comparison, the independent variables are the profitability (ROA or ROA), the size of the company (Capital), the age (year of establishment), market participation, and the moderating variable of financial distress (dummy variable). Based on the theoretical framework, the hypotheses of the study are:

H1. A firm's profitability has a significant positive influence on TCS.
H2. A firm's growth has a significant positive influence on TCS.
H3. The firm's size has a significant positive influence on TCS.
H4. The firm's age has a significant negative influence on TCS.
H5. Financial distress has significantly influenced TCS.

H6. Financial distress has significantly moderated the relationship between a firm's profitability and TCS.
H7. Financial distress has significantly moderated the relationship between a firm's growth and TCS.
H8. Financial distress has significantly moderated the relationship between a firm's size and TCS.
H9. Financial distress has significantly moderated the relationship between a firm's age and TCS.
The theoretical predictions and expected relationship of firm-level determinants with TCS are presented in Table 1.

Table. 1

Factors	**Theoretical relation with Transaction theory**	**Expected Relation**
Profitability	+	+
Growth	+	+
Size	+	+
Age	-	-
Financial Distress	Ex-ante	Ex-ante

Source. The author created a Table of Theoretical Predictions and the Expected Relationship of Determinants with Trade Credit.

Empirical Studies on Trade credit

Initially, commercial credit research was based on financing theories (Meltzer, 1960) and (Nadiri, 1969). Commercial credit was assumed to be a financing tool for small businesses. A larger company extends the supply of commercial credit to liquidity problems (Schwartz, 1975); (Schwartz, 1974). The first step in a company is to increase the number of buyers. Increasing market share the second step is to dominate the more competitive market and extend credit to the same number of customers by extending the credit period by expanding market share (Cohen et al., 1978).

Between 2003 and 2018, Giannetti et al., (2011) developed a sample of over 200,000 supply chains. The current study revealed facts related to trade credit within supply chains. Rising enterprises borrow more from suppliers, lend more to consumers, and hold more trading credit. The ascent of commercial debt is a weakness for high-profit firms and long chains. Companies in abundance, medium or high-value chains provide additional net credit. These results are most reliable with a recurring view of the moral risk of trading debt; evidence of a belief in financial gain is included.

Similarly, Chod et al., (2019) investigated how supplier competitiveness influences their willingness to provide commercial loan finance. A supplier, representing a small share of a seller's purchase, contributes a small portion of the profit from the increase in the seller's expenditure and, as a result, extends a small trading debt concerning his sales. Consequently, retailers with disseminated dealers receive less trading credit than their more focused suppliers. The problem of free commuters is particularly damaging to a commercial lender when free-moving suppliers compete with the market for their products. It gives rise to an

inverse correlation between the act of switching products from various suppliers to a specific supplier and the commercial credit extended by that supplier to the initial entity.

In the same way, Bussoli & Conte, (2020) represented how the benefits of providing longer payment periods can increase Italian businesses' earnings. Furthermore, the study also attempted to determine if a trade debt at a higher rate than the industry average impacts corporate profitability. Finally, it was assessed whether the benefits associated with the provision of commercial credit are more significant than for unrestricted and affluent companies. The findings suggested that trade credit positively impacts Italian company profits. The economic analysis also implies that businesses might boost profits by investing more in trading earnings on a greater scale than other businesses in their industry. Consequently, the increased use of supplier payments and increased bank credit diminishes the contribution of accounts accessible to business profitability.

The crisis (COVID-19) may be attributed to unforeseen developments, including subprime mortgage troubles and the outbreak of the coronavirus. Commercial debt is necessary for SMEs, especially during a financial contract, as it is the final choice for businesses without access to bank credit. Kwon et al., (2020) determined whether debt trading benefits consumer and retailer firms during and after the financial crisis. It shows that commercial debt is more beneficial for consumers and suppliers in the post-disaster period than in the post-crisis period. Additionally, paid trade works better for unrestricted buyers than restricted buyers. In the end, a mixed strategy is superior to an aggressive or effective SME strategy. The results suggested a small profit on commercial debt during the downturn period and greater sensitivity to consumer SMEs, underscoring the idiosyncratic liquidity strategy of each firm. This research may be helpful to develop a profitable trade-credit strategy for SMEs and to establish a policy on debt management.

Medium Enterprises (MEs) constitute a tiny but substantial portion of the EU-28's SMEs. Nonetheless, they contribute significantly to additional expansion and recruitment. The goal of sustainable spatial development, in terms of green economic growth, also depends on seeing. Trading debt is a significant source of funding for SMEs. Arcuri and Pisani (2021) explored the relevance of trading Italian MEs' debt, mainly 'green' MEs instead of non-green MEs. Researchers discovered that green MEs are more reliant on debt trading than non-green ME and show a debt replacement effect between commerce and banks. Moreover, local growth influences commercial loan demand. The findings suggested that commercial debt is more conducive to long-term development than bank debt.

TCS can be adjusted to control corporate growth and market share (Ferrando & Mulier, 2013). Trade credit is an alternative source of bank credit (Freeman III, Herriges, & Kling, 2014). On the other hand, restrictions on the supply of trade credit cause a decline in trade between the parties (Breza & Liberman, 2017) and may indicate a path to bankruptcy (Barrot & Vagnat, 2016). Despite the goodness of commercial credit, there is a decrease in commercial credit. Giannetti et al., (2011) have shown that the supply of commercial credit depends on the company and the industry to which it belongs (Lee & Stowe, 1993) and product quality (Smith, 1987).

Afrifa and Gyapong (2017) the capital market and the expansion of commercial credit and capital agreements an independent decisions. If the dialing speed is low, the signature can be as low as possible. However, in practice, this decision deserves to be taken into consideration. Businesses can increase credit sales until the minimum funding cost drops below the additional credit rate. At that time, serious maximization is needed if the cost of capital is greater than the benefit of expanding credit sales. According to Wilson & Summers, (2002), "Companies with little capital can limit the supply of commercial credit". "Therefore, granting credit through offering commercial credit depends on free cash flows". Volatility in cash flow generation can limit the company from aggressive credit sales (Harris & Roark,

2017); daily sales stood out as dependent variables and decreased by cash flow volatility as capital and size, debt, sales growth as control variables, financial difficulties, cash flow risk, liquidity, and the problem of liquidity can be managed by the company to reduce cash flow (Molina & Preve, 2009). Trade credit is also associated with the age of society. Hermes et al., (2015) stated that new companies can expand trade to position themselves in a new market and attract customers.).

However, older companies already have a strong customer base and are less dependent on commercial credit offers. The increase in the positive causes of trade receivables impacts the company's sales growth. The impact of this relationship is different for companies that belong to different sectors. The increase in commercial debt can suddenly push sales across trade sectors. Yazdanfar & Öhman, (2015) established that sales growth has a significantly positive relationship with receivables, growth, and company size delays and a significantly negative relationship with the age of companies. The affection of the industry is also significant in the Swedish context. Commercial compensation due to commercial debt (net trade receivables) provides a clearer picture and directly relates to sales. Afrifa & Gyapong (2017) analyzed the data of 88.482 lists, and the UK companies not listed from 2004-2013 provide significant negative evidence with inventories.

Methodology

An appropriate research design and tools are required for data collection and analysis tests. Therefore, this section discusses the development of research methods. The research method (Afrifa & Gyapong, 2017) commonly used in management science research is followed. The following is a breakdown of all the critical processes in this research method.

Data Source and Measurement of Variables

Currently, 559 firms are registered on PSX. The current study did not include newly registered companies that have historical information. Moreover, the financial sector was excluded, as the assets and liabilities in the financial statements are different. For each variation, 386 unequal panels listed in PSX between 2004 and 2017 were analyzed with 3976 annual views from the balance sheet analysis (BSA) to the publication of the State Bank of Pakistan (SBP). The measurement of the factors included in this research is mentioned in Table 2.

Table. 2

Sr#	Variable Name	Acronym	Measurement	Citations
1	Trade credit Supply	TCS	Account Receivables ratio to current assets	(Arcuri & Pisani, 2021)
2	Profitability	ROA/ ROE	Return on Assets or Return on Equity	(Mehta, 2014) (Farooq, Ahmed, Ashfaq & Tabash, 2021)
3	Growth	SG	Percentage change in sales / previous year	(Deloof, 2003)
4	Size	CAP	Capital or total assets	(Harris & Roark, 2017)
5	Age	AGE	year of establishment	(Harris & Roark, 2017)
6	Financial Distress	FD	0 for no financial distress and 1 for firms with financial distress	(Afrifa & Gyapong, 2017)

Measurement of variables

Empirical Econometric Model

Using the generalized momentum method (GMM), it was verified that the coefficients of each analysed variable provide results on the general data of all non-financial companies. These generalized results help to develop a global strategy. GMM is specifically selected to eliminate reflection and multilingual impact. According to Öhman & Yazdanfar, (2017,) the recovery of the accounts as dependent and repayable is a part of the total assets considered that the non-independence is the cause of the recognition that GMM can administer. The dependent variable trade-credit must be recorded and analysed in an independent variable, and the significance of the relationship with direction should be noted and analysed. The ROA/ROE variable is a proxy variable for the company's profitability. Credits represent the credit offer as a percentage of current assets. The size of the company would be represented by the capital employed.

Regression Model 1.

$$\textbf{Credit Supply}_{i,t} = \beta_0 + \beta_1(\text{Profitability})_{i,t} + \beta_2(\text{Size})_{i,t} + \beta_3(\text{Age})_{)i,t} + \beta_4(\text{Growth})_{i,t} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots (1)$$

After obtaining a generalized analysis, the financial distress dummy variable is introduced as an independent variable. Further information on the impact of financial distress is analysed for the company's credit offer. Financial distress is added to the equation as a dummy variable. If the financial problem exists, it is coded as one; otherwise, 0. Financial distress is calculated as the company's liquidity position in the current report. This study foresaw the financial distress of non-financial companies applying the Altman Z scoring model (Altman, 1968)

$$\textbf{Credit Supply}_{i,t} = \beta_0 + \beta_1(\text{Profitability})_{i,t} + \beta_2(\text{Size})_{i,t} + \beta_3(\text{Age})_{)i,t} + \beta_4(\text{Growth})_{i,t} + \beta_5(\text{Distress})_{i,t} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots (2)$$

Results and Discussion

Table 3 shows descriptive statistics for the variables used to estimate the determinants of net trade credits. The average one-year net trade credit is 20.922, with a variance of 20.035 and a range of 130.429, equal to the ROA average mean of 4.535 and a standard deviation of 19.557. The descriptive statistics for all variables are presented in Table 3 below.

Table 3. Descriptive statistics

	min	max	range	Mean	St.Dev	N
TCS	0	130.429	130.429	20.922	20.035	3813
ROA	-164.31	425.04	589.35	4.535	19.557	3845
ROE	-3264.57	3961.76	7226.33	10.316	153.868	3845
SG	-145.916	291000	291000	157.018	5418.446	3250
SIZE	1263	5.54e+08	5.54e+08	1.06e+07	3.29e+07	3844
AGE	4	198	194	40.353	21.317	3876
FD	0	1	1	.541	.498	3876

Source: Data processed by the author

These numbers measure the degree and direction of the linear correlation between variables. The correlation coefficient can range from -1 to +1, with -1 indicating perfect negative correlation, +1 indicating perfect positive correlation, and 0 indicating no correlation. (A variable having a correlation coefficient of 1 is said to be related to itself.) The correlation coefficient is a measurement of how well the value of one variable can be predicted on the dependent variable. Table 4 shows the degree of a link between research variables. The Pearson correlation test was used to explain the direction of the association. The results show a positive and significant association between ROE and trade credit of.139, a negative and

insignificant relationship with SG of -0.001, and a negative and insignificant relationship with CAP of -0.006 but a positive and significant relationship with AGE of 0.019.

Table 4. Pair-Wise Correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) TCS	1.000					
	*					
	0.000					
(2) ROE	0.139	1.000				
	*					
	0.000					
(3)SG	-0.002	-0.000	1.000			
	0.913	0.982				
(4) CAP	0.091	0.017	-0.006	1.000		
	*					
	0.000	0.300	0.749			
(5) AGE	-0.001	-0.016	0.088	0.091	1.000	
			*	*		
	0.937	0.358	0.000	0.000		
	0.019	0.058	0.086	0.060	0.206	1.000
(6) FD		*	*	*	*	
	0.270	0.000	0.000	0.000	0.000	

** shows significance at the 0.05 level*

Source: Data processed by the author

Multiple linear regression was used in Table 5 as the response variable to investigate the association between TCS and ROA, firm size (capital), age (year of establishment), and market participation. The coefficient of determination is typically written as r2. The predictor variable can explain a certain percentage of the variance in the response variable. R-squared might be anywhere between 0 and 1. A value of 0 indicates that the predictor variable does not affect the responder variable. A score of 1 means that the predictor variable can properly describe the responder variable without error. The R-squared value is 0.212, indicating that fluctuation in TCS accounts for 21.2% of the variation in ROA, SG, CAP, and AGE accounts. The p-value linked with the F statistic is the table's final value. There is enough evidence to conclude that the regression model fits the data better than the model with no predictor variables if the p-value is less than the significance level, which is 0.01, 0.05, or 10. This is a positive outcome because it indicates that the predictor variables in the model increase the model's fit. Table 5 shows the results. The p-values for CAP and AGE are less than 0.05, indicating that these variables significantly impact TCS, while ROE and SG have a negligible impact on TCS.

Table 5

Regression Analysis using Trade Credit Supply (TCS)

TCS	Coef.	St.Err.	t-value	p-value	Sig.
ROE	0.002	0.001	1.59	0.112	
SG	0.000	0.000	-1.15	0.252	

AGE	-0.849	0.383	2.22	0.026	**
CAP	0.000	0.000	5.18	0.000	***
Constant	55.423	15.604	3.55	0.000	***

Mean dependent var	21.405	SD dependent var	19.375
R-squared	0.212	Number of obs	3239.000
F-test	9.023	Prob> F	0.000
Akaike crit. (AIC)	24069.383	Bayesian crit. (BIC)	24099.799

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Data processed by the author

At a 0.05 percent level, the correlation coefficient between trade credit and the company's ROE is positive and substantial, confirming the earlier trade credit results. SG represents the firm's growth and the results reveal that trade credit has a negative and insignificant relationship with growth, resulting in negative growth, representing the performance of a company with declining sales and profits. Wage growth is slowing, and the money supply is declining in a negative growth economy. The firm's size shows a negative and negligible relationship with TCS, implying that companies with access to institutional funding are less likely to participate in trade credits. On the other hand, larger businesses benefit more from the enormous amount of credit extended to clients (Danielson & Scott, 2004). Small businesses avoid requesting their suppliers for extra credit because the investment in trade credit must be financed.

A clear association between trade credit and company size contradicts earlier trade-credit findings, such as the firm's age having a positive and substantial relationship with trade credit, contradicting the previous study, and financial distress influencing trade credit. The previous study found that net trade credit is positively connected with annual sales growth and company size. However, these findings reveal that trade credit has a negative and insignificant relationship.

On the other hand, annual sales growth and company size have a favourable association with ROE, company seniority, and financial issues (distress); net trade credit has nothing to do with ROA.

$$\mathbf{TCS_{i,t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}(\mathrm{ROE})_{\mathbf{i,t}} + \boldsymbol{\beta_2}(\mathrm{CAP})_{\mathbf{i,t}} + \boldsymbol{\beta_3}(\mathrm{Age})_{\mathbf{)i,t}} + \boldsymbol{\beta_4}(\mathrm{SG.})_{\mathbf{i,t}} + \boldsymbol{\varepsilon_{i,t}} \ldots\ldots\ldots\ldots\ldots (\mathbf{3})$$

TCS scores were used as predicted variables, and ROE, CAP, AGE, and SG are used in the regression equation as reference variables, to which β_0 refers to an interception that calculates the average response when it depends on the variable is 0 (zero). β_1, β_2, β_3, and β_4 talk about changes in a predicted variable when a unit changes in the independent variable, trade credit supply, ROE, CAP, SG, and AGR, respectively.

The current study revealed the relationship between credit supply and profitability and the expansion of all non-financial enterprises. This relationship must be kept in mind while performing everyday tasks. The data revealed that ROE does not affect trade credit. ROE is a financial performance indicator computed by dividing net income by equity. It is possible to calculate a return on net assets by subtracting the company's assets from its liabilities.

The return on investment (ROI) is a metric that assesses how efficiently a company's resources are used to generate profit. It means that non-financial enterprises' ROE in Pakistan has a negative and minor impact on trade credit. The relationship between trade credit and a company's size (CAP) is considerable, and it supports the prior study; however, in this case, firm size has had no meaningful impact on trade credit. Due to the company's scale, more companies would be able to employ institutional financing, ultimately enhancing trade credit

investment. On the other hand, big businesses make more money by expanding their generosity and providing credit to clients (Danielson & Scott, 2004).
The results of prior trade credits, such as the indirect correlation between the trade credit and the company's size, do not support the results of previous trade credits (Deloof, 2003). Trade credit has a minor negative link with annual sales growth delay (SG). The findings suggest that trade credit investment decreases when business sales increase, supporting the theory that a decrease in sales accompanies a fall in trade debt. Accounting clients Petersen & Rajan, (1997) and Niskanen & Niskanen, (2000) found a positive relationship between credits and sales growth. Molina & Preve, (2012) transformed corporate credit policy into a targeted growth rate of sales, and the impact is limited; there are more debts to be paid. It is considered more expensive than bank credit (Yang, 2011), and companies cannot affect you negatively. Sales and profitability (Love et al., 2005).

$$\textbf{Trade Credit Supply}_{i,t} = \beta_0 + \beta_1(\text{Profitability})_{i,t} + \beta_2(\text{Size})_{i,t} + \beta_3(\text{Age})_{i,t} + \beta_4(\text{Growth})_{i,t} + \beta_5(\text{Distress})_{i,t} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots (2)$$

The Altman Z-score was employed as a credit test to assess the failure likelihood of publicly traded industrial companies in this regression. The Altman Z-score is computed using five financial indices found in the company's 10-K annual report. Profitability, liquidity, leverage, and assets are used to determine if a company is likely to fail and its solvency.

$$Z - Score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E \ldots\ldots\ldots\ldots (4)$$

Where,
"A = working capital / total assets

B = retained earnings / total assets

C = earnings before interest and tax / total assets

D = market value of equity / total liabilities

E = sales / total assets"

As TCS*FD revealed, table 6 displays the intersecting term with financial hardship, such as the intersectional term between trade debt and financial distress. Some asset-related securities had higher credit ratings than they should have had Altman Z score. In 2007, the average Altman Z-score for corporations was 1.81, according to Altman. These businesses were given a B credit rating, implying that 50% should have lower rates and be more likely to fail. In this case, TCS (Account Receivables ratio to current assets) regress on the dummies of ROE (ROE_FD), growth(SG_FD), firm size (CAP_FD), and age(AGE_FD) of the firm by multiple each Variable with FD (Dummies 0,1 of financial distress or not). Results indicate that all independent variables are significant except ROE (ROE_FD), growth (SG_FD) of the firm and R, squares value improve 0.342, and the max Beta values are in the negative, which shows FD has a moderator effect on TCS. The firms need to increase ROE and Growth of a firm to overcome financial distress. It means this model is fit for analysis. Finally, it can be concluded that TCS significantly impacts firm profitability, size, and age.

Table 6.GMM Regression Results

TCS_FD	Coef.	St.Err.	t-value	p-value	Sig.
ROE_FD	-0.007	0.006	-1.25	0.210	
SG_FD	0.000	0.000	-0.90	0.368	

AGE_FD	0.417	0.012	35.28	0.000	***
ACP_FD	0.000	0.000	4.97	0.000	***
Consant	2.430	0.312	7.79	0.000	***

Mean dependent var	12.403	SD dependent var	18.087
R-squared	0.329	Number of obs	3239.000
F-test	350.929	Prob> F	0.000
Akaike crit. (AIC)	23103.276	Bayesian crit. (BIC)	23133.691

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Data processed by the author

Conclusion

Contribution

The current study contributed to two fields of research: trade debt and financial stress. Firstly, it examined the effects of financial stress on trade credit by using a set of criteria to determine if the rise in credit is necessary or a result of supply. Furthermore, it also found and assessed the costs of financial stress that were not considered previously. Trading debt from suppliers is common among financially distressed companies; it is costly and contributes to the expense of financial stress. In theory, this research showed that culture plays an important part in explaining these discrepancies and aids in a better understanding of the trade of short-term bank debt transactions.

Conclusion

The current study examined how financial difficulties affected the seller's debt (trade credit). Significant evidence was found that financially stressed enterprises use more trade credit from suppliers than healthy firms using standard panel data methodologies for 14 years of non-financial firm data from Pakistan corporate data. These findings are similar to those (Petersen & Rajan, 1997), who showed that enterprises with limited access to financial debt utilized more commercial debt in a distinct dataset. According to the findings, when businesses go into financial difficulties, the supplier's trading debt is exploited as another source of capital. Since commercial debt is a costly source of revenue, it is logical to predict that financially challenged businesses that rise their spending will incur more costs, lowering their efficiency. The measurement was performed by using a paradigm comparable to (Molina & Preve, 2009). The financial crisis influenced trade credit. The drop in performance of enterprises was confirmed in the financial trouble described in the literature; however, the additional costs of financial stress were further emphasized for firms that use commercial debt more frequently. In general, it can be claimed that the increased usage of commercial credit providers explains a large percentage of the expenses of financial suffering (Moro et al., 2021).

The findings demonstrate the non-financial company's determinants in Pakistan in detail. With 3976 fixed annual observations, multiple regression analysis would examine the 386 imbalanced panels listed on the PSX between 2004 and 2017. The findings support the notion that business credit policy is influenced by individuals' characteristics and operational conditions in society. Moreover, the findings also reveal that the corporation offers extended credit terms to consumers who want to minimize inventories. The findings show that ROE and firm growth (SG) have a negative and minor impact on trade credit, contradicting prior findings and supporting the alternate hypothesis. However, company size and age positively and significantly impact trade credit. Firms must boost ROE and Growth to overcome financial hardship, and FD has a substantial moderating effect on TCS. It denotes that this

model is suitable. Finally, it can be said that it significantly impacts business profitability, size, and age.

Limitations & Recommendations

The current research, however, has certain limitations. Due to data confinements (restricted input country); the conclusions cannot be "sicet simpliciter" widely applied in Asian, African, or American countries and could be worth looking into more. The current study argued, however, that the impact of culture on trade credit should be compared to other countries with similar financial systems so that foreign use and trade credit provision can be specified in culture without affecting legal status, economic development, macroeconomic conditions, political conditions, or institutional level development.

Declaration/Competing Interest

The authors state that they have no conflicting interests in the publication of this research.

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Ethical approval

All other writers' intellectual contributions, tables, graphs, and data sources are appropriately cited, and no unethical stuff is included.

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