

## Impact of Financing on Sales Growth: A Case from Pakistan

Muhammad Irfan<sup>\*</sup>, Ali Asad<sup>†</sup> and Mehak Ali<sup>‡</sup>

### Abstract

*The purpose of the study is to examine the impact of credit supply and long term financing on sales growth in manufacturing sector. It is causal study; in which secondary data from audited annual reports of manufacturing firms are included. It is proved that long term financing has significant negative effect on sale growth. While, trade credit and lagged sales growth are found to increase sales. It has practical implication from manager's perspectives. It is beneficial for managers to increase their firm's growth efficiently by managing the supply of trade credit. It will also enhance their skill to manage long term loans so that firm's sales can't effect badly. It is the unique study as it provides evidence that how sales growth of the manufacturing sector can be effected by granting trade credit and taking long term financing followed by trade-off theory.*

**Keywords:** Financing, Sale Growth, Supply of Trade Credit, Long Term Financing and Firm Size

### Introduction

The decision of implementing cash sales or credit sales system in the organization is based upon trade-off theory. In accordance with trade-off theory manager can able to select most profitable system i.e. either cash sales or credit sales. The trade-off theory depends on the concept that firms should choose between debt or equity funding in order to keep balance among firm's costs and benefits. Kraus and Litzenberger (1973) explained it further that if the company wants to optimize its overall value then it should maintain balance between its costs of bankruptcy and benefits of tax-shield which receive as the result of debt financing. The basic goal of this theory lies under the implementation of the fact that the firms can fulfill their financial needs by the combination of debt and equity financing. Financing through debt benefits the company by providing tax shield and can balanced its costs of financial distress in order to save the company from bankruptcy. Hence, this study provides an insight that if marketing department of any company is not much

---

<sup>\*</sup> Dr. Muhammad Irfan, Institute of banking and finance, Bahauddin Zakariya University Multan Pakistan. E-mail: [dr.mirfan@bzu.edu.pk](mailto:dr.mirfan@bzu.edu.pk)

<sup>†</sup> Ali Asad, National College of Business Administration & Economics, Lahore, Pakistan. E-mail: [aliasadncba@gmail.com](mailto:aliasadncba@gmail.com)

<sup>‡</sup> Mehak Ali, National College of Business Administration & Economics, Multan Pakistan. E-mail: [mehk.ali3030@gmail.com](mailto:mehk.ali3030@gmail.com)

efficient then manager of finance department can increase its sales growth through trade-off theory. Which helps the finance managers to decide that how much volume of credit should grant to their customers and how much they can get debt financing so that against it sales volume of the company can affect positively. This decision can only be possible through tradeoff theory because tradeoff theory expects that if firms take more debt its profitability also increases due to gain of tax shield.

Hence, according to Mian&Smith in 1992 trade credit is an agreement between two parties in which seller allows the buyer to purchase goods on account and make the payment on later date. The buyer, records this as a current liability on the passive side of balance sheet. Whereas, the supplier considers this as an investment in current assets in terms of accounts. Mostly, firms grant trade credit in order to keep its sales protected from competitors and also for attracting the prospective customers to buy its products at complimentary terms. The investment in trade credit positively affects the SME's profitability, and the value of account receivable differs according to firm's characteristics(Martinez-Sola et. al, 2014). On the other hand Deloof in 2003 found that profitability of Belgian firms have negative impact on trade credit in terms of accounts receivable.

In general, research in the field of trade credit can be classified into three strands. First strand emphasizes on the demand side of trade credit. While, the second strand focuses on the trade credit's supply side (Petersen and Pike et al. 2005). And, the third one recognizes trade credit from both demand and supply sides (Petersen and Rajan, 1997). From the perspective of second strand, current study focuses on the supply side investigating the impact of trade credit in terms of accounts receivable in sales growth among manufacturing sector. Terziovski(2010) argued that manufacturing sector is one of the significant contributors in the economy. Therefore, manufacturing sector is the main focus of this study due to its utmost importance.

In contrary to the research related to accounts payable, the current study provides insights into the impact of accounts receivable and long term financing on firm's sales growth that will be useful to managers, owners, and debt holders as well as to academic researchers and policy makers. By the help of this study, manager will be able to increase their firm's growth efficiently by managing the supply of trade credit to their customers and also able to make the policy that how much long term loan should company take that does not affect its sales growth. In previous studies, theoretical approaches to trade credit are usually classified as financial, operational, and commercial (Martinez - Sola et al., 2014). Therefore, the current study is based on the commercial

approach, emphasizes the relationship of accounts receivable and sales growth. According to the commercial approach, supplier use trade credit for establishing favorable long - term interaction with buyer and also to motivate sales (Emery, 1984). From this study managers can make policy that how much volume of account receivable can increase or decrease the sales of the manufacturing sector. And it is also useful for managers to decide either long term financing effects positively or either negatively on its sales growth, which leads to the continuity or discontinuity of long term financing in future.

Considering this research gap, the objectives of the current study are as following:

- To identify the impact of trade credit supply in terms of account receivable on sales growth.
- To identify the impact of long term financing on sales growth?
- To identify the impact of lagged sales growth on current sales growth.
- To identify the impact of firm size on sales growth.
- To identify the impact of firm's age on sales growth.
- To identify the impact of industry affiliation on sales growth.

### **Literature review**

#### **Supply of Trade Credit and Sales Growth**

Mian and Smith, (1992) described trade credit as a shared agreement between two or more parties for delaying payments, enabling the purchasers to buy products on account (without paying money at the time of delivery) and pay the cash to supplier later. The buyer records this under the head of current liability on the balance sheet's passive side. Whereas, the supplier treats this trade credit as an accounts receivable and record at the active side of the balance sheet under the head current assets. Emery (1984) said that when the marginal income through the trade credit supply becomes equal to its marginal cost, then this situation presumed as optimum credit period. Also, Emery (1984) posed a view that by increase the sales, trade credit can enhance income through the implicit interest rates. Similarly, Deloof, (2003) showed in its study that firm's performance can enhance by giving the trade credit. It means that if any firm give trade credit its performance increases with its sales. Deloof and Jegers, (1999) suggested that the supplier when allows a buyer to take trade credit it means that supplier permits its buyer to makes the payment at the later date and after quality control, in this way the relationship between the parties improved and also it supports sales. Hill et al. (2012) observed the direct relationship among trade credit & firm value it means that if supplier's firm grants high volume of trade credit the exceed from its cost then firm's value also increases.

Yazdanfar et al. (2015) argued that due to the supply of trade credit firm's sales growth increases. Martinez-Sola et. al, (2014) proposed that if the benefits from trade credit surpass vendor's financing costs then it results in the direct and positive association between investment in trade credit and firm profitability. Hence, there exists less empirical research on the issue of Trade credit in terms of accounts receivable and firm's sales growth. That's why On the basis of previous studies this study also uses supply of trade credit in terms of account receivable as independent variable.

**Long term financing and Sales growth:**

According to Athreya (2008) Long term financing is the long term loan that taken for more than one year from any financial institution. And for which specific terms and conditions can be decided between creditor and debtor mutually. Athreya also said that long term financing should have low issuance cost so that more funds generated from Long term loans and could use more in investing perpetual working capital. It means that to facilitate borrower, lender should keep its issuance cost low so that borrower can take more loans and invest more for productive propose. Moreover, Hammes (2003) examined the influence of long term financing on firm performance by comparing Polish & Hungarian organizations of developed countries. And proposed that the relationship amongst long term financing and firm performance is negative in firms of selected developed countries. It means that if any firm in the developed country take more long term loan then its performance affected negatively. Similarly, Ghosh (2006) studied effect of long term financing on World Bank's performance and indicated that long term loans and firm performance in term of ROA are inversely related with each other, it means that if firm involve in more long term financing then it's performance i.e. profitability also decreased. Salim&Yadav (2012) explored the connection between capital structure & firm's performance (such as ROA, ROE and earning per share) and argued that long term debt and short term debt affects negatively with firm's performance. Which means that no matters either firm take more long term debt or short term its financial performance declines in both cases. Similarly, Abor (2007) studied SMEs firms of Ghanaian & South Africa and posed a view that there lies negative linkage between ratios of long term debt and firms performance. It means that due to long term loan, firm performance will leads to low profitability. Hence, by studied all the previous literature it seems that there lies no contradiction among the researchers about the relationship of long term financing with firm's performance. On the basis of previous literature this study uses long term financing as an independent variable.

### **Lagged Sales growth and Sales growth**

Lockett et. al, (2011) said that lagged sales growth means partly variations in existing sales growth. Also, it found that firms that already developed rapidly have a capacity to grow higher and can able to access the resources bitterly. Baum and Locke, (2004) indicated that higher the previous sales growth that firm experienced, highest will be its current sales growth. It means that if firm's lagged sales growth increases it positively affects its current sales growth. Hence, there doesn't found any contradiction regarding the effect of lagged sales growth. Therefore, on the basis of previous researches this study uses lagged sales growth as a control variable, in order to investigate the impact of supply of trade credit and long term financing on sales growth.

### **Firm Size and Sales growth**

Jermias (2008) suggested that largest firms has more interest in taking gain from economies of scale and that's why have high price of its shares in market, more expert technology usage, and also have better strategies for its product diversification in contrast to smaller ones. Beck et al. (2005) argued that firm size had positive impact on firm's sales growth. Which means that larger firms have more sales growth as compare to smallest firms. On contrary, Bottazzi and Secchi (2003) observed the reverse relationship that is firm size have negative affect on sales growth. Schiffer and Weder (2001) found that firm's size seems to be very essential factor that helps in achieve firm growth. And also indicated that small firm's face more tough difficulties in order to obtain finances, access legal system, or deal with the corruption. Chittoor & Das (2007) proposed that as firm's size rises, family firms become more professionalize, establish agency cost and attain high performance in terms of gaining both economic and non-economic goals. Moreover, Gómez Mejía et. al, (2011) anticipated firm size as an essential contingency factor and suggested that firm's size has direct impact on firm behavior and performance. Like previous studies, this study also uses firm size as a control variable.

### **Firm Age and Sales growth**

The linkage between firm's age and sales growth usually consider complex, and found much contradictions among various previous literature. For that some studies explored a positive effect of firm age on firm's sales growth (Das, 1995; Jovanovic, 1982) whereas, others recognized the negative relation among these combination of variables (Becchetti & Trovato, 2002; Geroski and Gugler, 2004). (Das 1995) implied that firm's age positively influence the sales growth which could be happen due to several reasons i.e. First, either firms are mature or infant they should continue to learn about their competences of time

and also find their niches within the market along with the age. It means that in an infant industry such type of learning may increase firm's efficiency while it could be reduce in case of mature industry. Second, in the case of infant industry, consumers could learn more about the new product's existence along with the age of a producing firm and which have a positive influence on firm's growth. Which means that if firm is at infant level then increasing in consumer's awareness about new product can leads to increase in sales growth. Third, the reputation of firm can be boosted along with the age. On the basis of previous researches this study also uses firm age as a control variable, in order to investigate the impact of supply of trade credit on sales growth.

#### **Industry Affiliation and Sales growth**

Gilbert et. al, (2006) pointed out that firm's growth not only affects by firm level variables, but as well as by industry affiliation. Also, Fisman and Love (2003) indicated that the sales growth of an industry depends on the following variables i.e. technology type, competition, and the cost of labor. Due to which sales growth level is likely to diverge across industries. That's why the use of trade credit seems to be linked with characteristics of industry. The influence of industry affiliation on employment has controlled in order to manage the industry specific dissimilarities among various firms, and a dummy variable has been used as a proxy for every industry. On the basis of previous studies this study also uses industry affiliation as a control variable, in order to investigate the impact of supply of trade credit on sales growth.

Trade credit have significantly positive impact on sales growth i.e. (Deloof, 2003; Hill et al. 2012; Yazdanfar et al. 2015; Martinez sola et. al, 2014). The long term financing seems to have negatively influence the sales growth of firm (Hammes 2003; Ghosh 2006; Salim&Yadav 2012; Abor 2007). Also, lagged sales growth after studied the previous literature seems to have positive or sometime partially impact on sales growth of firm i.e. (Baum and Locke, 2004; Lockett et. al, 2011). Whereas, Beck et al. (2005); Chittoor& Das (2007) and Gómez Mejía et. al, (2011) proposed direct positive relationship of firm size on sale growth. On contrary to it Bottazzi and Secchi (2003) found that firm size negatively effects the sales growth. For firm age some studies discovered the positive effect on firm's sales growth (Das, 1995; Jovanovic, 1982), and others recognized the negative relation among these combination of variables (Becchetti&Trovato, 2002; Geroski and Gugler, 2004). Moreover, many studies found that sales growth of firm also varies from industry to industry that's why impact of industry characteristics measures over sales growth of a firm (Fisman and Love 2003; Gilbert et. al, 2006).

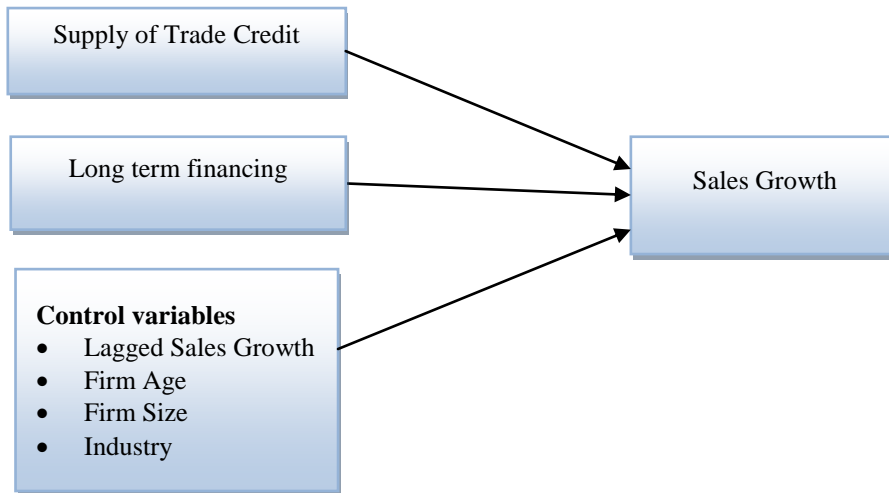


Figure 1: Conceptual framework of the research

**Specifications of the Econometric Model:**

This study employs 3SLS regression & multivariate regression analysis in a panel data framework to measure the impact of trade credit in terms of account receivables on sales growth. The panel data analysis helps to explore cross-sectional and time series data simultaneously.

The Equation for each industry sector:

$$Growth_{i,t} = \alpha_t + \beta_1 \text{Accounts receivable}_{i,t} + \beta_2 \text{Long-term financing}_{i,t} + \beta_3 \text{Lagged growth}_{i,t} + \beta_4 \text{Size}_{i,t} + \beta_5 \text{Age}_{i,t} + \mu_{it}$$

Equation for the total sample:

$$Growth_{i,t} = \alpha_t + \beta_1 \text{Accounts receivable}_{i,t} + \beta_2 \text{Long-term financing}_{i,t} + \beta_3 \text{Lagged growth}_{i,t} + \beta_4 \text{Size}_{i,t} + \beta_5 \text{Age}_{i,t} + \beta_6 \text{Indus}_{i,t} + \mu_{it}$$

Where;

$Growth_{i,t}$  = Sales growth

$\text{Accounts receivable}_{i,t}$  = Trade Credit in terms of account receivable

$\text{Long-term financing}_{i,t}$  = Long term financing of the firm i for the time t

$\text{Lagged growth}_{i,t}$  = The annual percentage change of sales in the prior year

$\text{Size}_{i,t}$  = The size of firm i at time t

$\text{Age}_{i,t}$  = The age of firm i at time t

$\text{Indus}_{i,t}$  = industry dummy variable.

$\alpha_t$  = Constant

$\mu_{it}$  = The error term

**Hypothesis:**

On the basis of previous literature following hypothesis can be drawn:

**H<sub>1</sub>:** The trade credit supplied by a firm will increase its sales growth.

**H<sub>2</sub>:** The long term financing of a firm will decrease its sales growth.

**H<sub>3</sub>:** Lagged sales growth has significant influence on sales growth.

**H<sub>4</sub>:** A firm's size will enhance its sales growth.

**H<sub>5</sub>:** A firm's age will enhance its sales growth.

**H<sub>6</sub>:** A firm's industry affiliation is expected to influence its sales growth.

**Operationalization of variables:**

Firm's supply of trade credit measured as accounts recoverable in the balance sheet (Yazdanfar&Öhman 2015). Long term financing measured as Noncurrent liabilities / Total assets (Barbuta&Deari 2016). Lagged sales growth can explain changes in current sales growth (Lockett et al., 2011) i.e. the annual percentage change of sales in the prior year. According to previous studies, firm size plays a significant role in explaining firm growth (e.g. Beck et al., 2005). Firm size measured by using following proxies i.e. assets, sales, and number of employees (e.g. Berger et.al 2006). Hence, here firm size measured as the natural logarithm of the book value of firm over total assets. Firm Age measured as the natural logarithm of number of years since firm commenced to the year of data collection (Yazdanfar and Öhman 2014). The annual percentage of change of sales, as measured by Garcia et.al (2010). So, here sales growth measured by using the formula i.e.  $(=Qs1 - Qs0 / Qs0 \times 100)$ . The use of trade credit is found to be associated with an industry's characteristics (Fisman et.al 2003). Therefore, the impact of industry affiliation measured as industry-specific differences between various firms, and a dummy variable has been used as a proxy for every industry (Yazdanfar&Öhman 2015).

**Methodology and Research Design**

This study analyze the casual link between the variables. The sample will be the manufacturing sector of Pakistan, but due to unavailability of data of a few years in some companies, these companies were eliminated from the sample. After eliminating such companies, the data taken from 100 manufacturing firms related to 15 different sectors that are listed on a Pakistan stock exchange (formerly PSX), which are as follows;

Food & personal care products, Paper & board products, Automobile Assembler, Automobile parts & accessories, Pharmaceuticals, Fertilizers, Glass & Ceramics, Chemicals, Cable & electrical goods, Sugar, Cement, Textile, Tobacco and Vanaspati industries.

For the analysis of Panel data Regression model, E-views used to quantify the relationship between explanatory (accounts receivable, long term financing, lagged growth, size, age, industry affiliation) and dependent variable (sales growth). Hausman test was applied to differential between the suitable fixed effect or random effect model.

ADF unit root was applied to check stationary in data while log transformation was done to remove normality issues.

**Results and Discussion:**

**Table1:** Regression Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNLONG_TERM_FINANCING	-0.184311	0.060985	-3.022259	0.0027
LNLAGGED_SALES_GROWTH	0.203307	0.039066	5.204263	0.0000
LNTRADE_CREDIT	0.717756	0.044990	15.95357	0.0000
C	-7.594941	0.699280	-10.86108	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.657675	Mean dependent var	4.537412	
Adjusted R-squared	0.580842	S.D. dependent var	1.586033	
S.E. of regression	1.026836	Akaike info criterion	3.056106	
Sum squared resid	474.4762	Schwarz criterion	3.853174	
Log likelihood	-741.4852	Hannan-Quinn criter.	3.367537	
F-statistic	8.559811	Durbin-Watson stat	0.858511	
Prob(F-statistic)	0.000000			

As we know, Hausman test can be used to decide either random effect or fixed effect model apply on analysis of panel data. Therefore, if null hypothesis proves then random effect model applies if alternative hypothesis proves then fixed effect model applies. In this study table 1 shows ‘p’ value comes significant so we can say that alternative hypothesis proves and we use fixed effect model. Whereas, the Durbin watson statistics normally use to test the auto-correlation of residuals that can be originated from the regression analysis. The acceptable value of durbin-wats on statistic is between 0 and 4. Hence, this study shows value of 0.858511 for durbin-watson statistic in table 1 which means that our sample has no autocorrelation. Further, for checking the stationary in the time series data unit root tests are applied which are shown in appendix.

The results of above table proves the hypothesis and shows that long term financing has significant negative effect on sale growth. The reason may be the banking policies in the country. If any company increase long term finances in Pakistan then its sales growth decreases. Whereas, trade credit and lagged sales growth has positive significant effect on Sales growth. It means that if any company in Pakistan increases its trade credit then sales growth also increases. Similarly, if lagged sales growth of any company increases in Pakistan its current sales growth also increases.

**Conclusion:**

The purpose of this study was to measure the impact of credit supply and long term financing on sales growth in the manufacturing sector.

Evidence from this study confirms the assumption that by supplying more trade credit and lessor dependent on long term financing a firm can increase its sales growth. This study confirms the hypothesis that trade credit has positive significance impact on sales growth and long term financing has significant negative impact on sales growth of the manufacturing firms of Pakistan. Whereas, the impact of lagged sales influencing negatively on the sales growth the manufacturing firms of Pakistan.

The findings supports the studies of trade credit (Deloof, 2003; Hill et al. 2012; Yazdanfar et al. 2015 and Martinez sola et. al, 2014) who proved a positive relationship between trade credit and sales growth. Likewise, long term financing are also concur with the previous literature i.e. negative relationship among long term financing and sales growth (Hammes 2003; Ghosh 2006; Salim&Yadav 2012; Abor 2007).in case of, lagged sales growth Lockett et. al, (2011) proved its partial effect on existing sale growth and Baum and Locke, (2004) found positive impact of lagged sales growth on current sales growth like our findings in manufacturing sector.

The reason of positive results of trade credit in terms of account receivable in Pakistan is that here mostly firms make an account sales to increase sales. People feel convenient to buy on credit due to lack of cash at hand. Because most people come from agriculture background who have income twice a year on monthly basis. Also, there seems a trend in Pakistan that due to invest in long term financing the firm's sales growth decline that's why our study proves negative relationship. As, related with Pecking order theory that proved long term debt financing as a costly element which enhances the proportion of capital structure that leads to low profitability. Whereas, the reason of positive results of lagged sales growth is that in Pakistan, the firm which have high sales growth for previous years also expected to grow more in term of sales in recent years. Because it has branded its product in the market and people become aware to it, this creation of word of mouth leads to boost up the sales.

Hence, it is recommended that managers should use the results of this study, in order to increase their firm's growth efficiently through managing the supply of trade credit to their customers and also to make the policy that how much long term loan should company take that does not affects its sales growth.

**References**

- Abor, J. (2007), “Debt policy and performance of SMEs: evidence from Ghanaian and South African firms”, *Journal of Risk Finance*, Vol. 8 No. 4, pp. 364-379.
- Athreya, K. B. (2008): “Default, insurance, and debt over the life-cycle,” *Journal of Monetary Economics*, 55(4), 752–774.
- Barbuta-misu, n., & deari, f. (2016). Determinants of trade credit in European Construction firms: a preliminary study. *Ekonomika*, 95(2), 139.
- Baum, J.R. and Locke, E.A. (2004), “The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth”, *Journal of Applied Psychology*, 89(4), 587-598.
- Beck, T., Demirgüç-Kunt, A. and Maksimovic, V. (2005), “Financial and legal constraints to growth: does firm size matter?”, *The Journal of Finance*, 60(1), 137-177.
- Becchetti, L. and Trovato, G. (2002), “The determinants of firm growth for small and medium sized firms: the role of the availability of external finance”, *Small Business Economics*, 19 (4), 291-306.
- Berger, A.N. and Udell, P. (2006), “Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry”, *Journal of Banking & Finance*, 30(4), 1065-1102
- Bottazzi, G. and Secchi, A. (2003), “A stochastic model of firm growth”, *Physica A: Statistical Mechanics and its Applications*, 324(1/2), 213-219.
- Chittoor, R., & Das, R. (2007). Professionalization of management and succession performance—A vital linkage. *Family Business Review*, 20(1), 65-79.
- Das, S. (1995), “Size, age and firm growth in an infant industry: the computer hardware industry in India”, *International Journal of Industrial Organization*, 13(1), 111-126.
- Deloof, M. (2003), “Does working capital management affect profitability of Belgian firms?” *Journal of Business Finance & Accounting*, 30 (3/4), 573-588.
- Deloof, M. and Jegers, M. (1999), “Trade credit, corporate groups and the financing of Belgian firms”, *Journal of Business Finance & Accounting*, 26 (7/8), 945-96
- Emery, G.W. (1987), “An optimal financial response to variable demand”, *Journal of Financial and Quantitative Analysis*, 22 (2), 209-225.

- Emery, G.W. (1984), "A pure financial explanation for trade credit", *Journal of Financial and Quantitative Analysis*, 19(3), 271-285.
- Ferris, J.S. (1981), "A transactions theory of trade credit use", *The Quarterly Journal of Economics*, 96 (2), 243-270.
- Ferrando, A. and Mulier, K. (2013), "Do firms use the trade credit channel to manage growth?", *Journal of Banking & Finance*, 37(8), 3035-3046.
- Fisman, R. and Love, I. (2003), "Trade credit, financial intermediary development, and industry growth," *The Journal of Finance*, 58(1), 353-374.
- García-Teruel, P.J. and Martínez-Solano, P. (2010), "Determinants of trade credit: a comparative study of European SMEs", *International Small Business Journal*, 28 (3), 215-233.
- Geroski, P. and Gugler, K. (2004), "Corporate growth convergence in Europe", *Oxford Economic Papers*, 56(4), 597-620.
- Ghosh, R. (2006). *East Asian Finance: The Road to Robust Markets*. Washington, DC: World Bank.
- Gómez-Mejía, L.R., Cruz, C., Berrone, P., & De Castro, J. (2011). The bond that ties: Socioemotional wealth preservation in family firms. *The Academy of Management Annals*, 5, 653–707.
- Grandori, A. (Ed.). (2004). *Corporate governance and firm organization: Microfoundations and structural forms*. Oxford: Oxford University Press.
- Gilbert, B. A., McDougall, P. P., & Audretsch, D. B. (2006). New venture growth: A review and extension. *Journal of management*, 32(6), 926-950.
- Hammes, K. (2003), "Firm performance, debt, bank loans and trade credit. An empirical Study", working paper, Department of Economics, Gothenburg University, Gothenburg
- Hill, M. D., Kelly, G. W., & Lockhart, G. B. (2012). Shareholder returns from supplying trade credit. *Financial Management*, 41(1), 255-280.
- Jermias, J. (2008), "The relative influence of competitive intensity and business strategy on the relationship between financial leverage and performance", *The British Accounting Review*, 40 (1), 71-86.
- Jovanovic, B. (1982), "Selection and the evolution of industry", *Econometrica*, 50(3), 649-670.
- Lockett, A., Wiklund, J., Davidsson, P. and Girma, S. (2011), "Organic and acquisitive growth: re-examining, testing and extending Penrose's growth theory", *Journal of Management Studies*, 48(1), 48-74.

- Martinez-Sola, C., Garcia-Teruel, P.J. and Martinez-Solano, P. (2014), "Trade credit and SME Profitability", *Small Business Economics*, 42 (3), 561-577.
- Mian, S.L. and Smith, C.W. Jr (1992), "Accounts receivables management policy: theory and evidence", *The Journal of Finance*, 47 (1), 169-200.
- Niskanen, J. and Niskanen, M. (2006), "The determinants of corporate trade credit policies in bank-dominated financial environment: the case of Finnish small firms", *European Financial Management*, 12(1), 81-102.
- Petersen, M. A., & Rajan, R. G. (1994). The effect of credit market competition on lending relationships.
- Salim, M. and Yadav, R. (2012), "Capital structure and firm performance: evidence from Malaysian listed companies", *Procedia – Social and Behavioral Sciences: International Congress on Interdisciplinary Business and Social Science 2012*, Vol. 65 No. 1, pp. 156-166.
- Schiffer, M., & Weder, B. (2001). Firm size and the business environment: Worldwide survey results (Vol. 43). World Bank Publications.
- Sheikh, N.A. and Wang, Z. (2011), "Determinants of capital structure: an empirical study of firms in manufacturing industry of Pakistan", *Managerial Finance*, 37(2), 117-133.
- Terziovski, M. (2010). "Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: a resource-based view." *Strategic Management Journal* 31(8): 892-902.
- Yazdanfar, D. and Öhman P. (2014), "The impact of cash conversion cycle on firm profitability: an empirical study based on Swedish data", *International Journal of Managerial Finance*, 10(4), 442-452.
- Yazdanfar, D., & Öhman, P. (2015). The impact of credit supply on sales growth: Swedish evidence. *International Journal of Managerial Finance*, 11(3), 329-340.

**Appendix**

**Table: 2. Regression Output**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNLONG_TERM_FINANCING	-0.184311	0.060985	-3.022259	0.0027
LNLagged_SALES_GROWTH	0.203307	0.039066	5.204263	0.0000
LNTRADE_CREDIT	0.717756	0.044990	15.95357	0.0000
C	-7.594941	0.699280	-10.86108	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.657675	Mean dependent var	4.537412	
Adjusted R-squared	0.580842	S.D. dependent var	1.586033	
S.E. of regression	1.026836	Akaike info criterion	3.056106	
Sum squared resid	474.4762	Schwarz criterion	3.853174	
Log likelihood	-741.4852	Hannan-Quinn criter.	3.367537	
F-statistic	8.559811	Durbin-Watson stat	0.858511	
Prob(F-statistic)	0.000000			

**Table:3 Unit root test**

---

Null Hypothesis: Unit root (individual unit root process)  
 Series: LNLONG\_TERM\_FINANCING  
 Sample: 2005 2016  
 Exogenous variables: Individual effects,  
 individual linear trends  
 Automatic selection of maximum lags  
 Automatic lag length selection based on SIC: 0 to 1  
 Total number of observations: 839  
 Cross-sections included: 99 (3 dropped)  
 Method

	Statistic	Prob.**
ADF - Fisher Chi-square		
ADF - Choi Z-stat	258.935	0.0023

\*\* Probabilities  
 for Fisher tests  
 are computed  
 using an  
 asymptotic Chi  
 -square distribution. All other tests assume asymptotic normality.

---

Null Hypothesis: Unit root (individual unit root process)  
 Series: LNLagged\_SALES\_GROWTH  
 Sample: 2005 2016  
 Exogenous variables: Individual effects, individual  
 linear trends  
 Automatic selection of maximum lags  
 Automatic lag length selection based on SIC: 0 to 1  
 Total number of observations: 313

---

**Advances in Managing Operations and Sustainability (AMOS 2017)**

---

Cross-sections included: 60 (42 dropped)

Method

ADF - Fisher Chi-square	Statistic	Prob.**
ADF - Choi Z-stat	159.217	0.0096
	-0.58137	0.2805

\*\* Probabilities for

Fisher tests are

computed using an

asymptotic Chi

-square distribution. All other tests assume asymptotic normality.

---

Null Hypothesis: TRADE\_CREDIT has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=21)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-10.10954	0.0000
Test critical values: 1% level	-3.967088	
5% level	-3.414234	
10% level	-3.129230	

\*MacKinnon (1996) one-sided p-values.

---

Null Hypothesis: Unit root (individual unit root process)

Series: LNSALES\_GROWTH

Sample: 2005 2016

Exogenous variables: Individual effects,  
individual linear trends

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Total number of observations: 596

Cross-sections included: 86 (16 dropped)

Method

ADF - Fisher Chi-square	Statistic	Prob.**
ADF - Choi Z-stat	284.439	0.0000
	-0.73989	0.2297

\*\* Probabilities

for Fisher tests

are computed

using an

asymptotic Chi

-square distribution. All other tests assume asymptotic normality.

---

Null Hypothesis: Unit root (individual unit root process)

Series: LNTRADE\_CREDIT

Sample: 2005 2016

Exogenous variables: Individual effects, individual  
linear trends

---

**Advances in Managing Operations and Sustainability (AMOS 2017)**

---

Automatic selection of maximum lags

Automatic lag length selection based on SIC: 0 to 1

Total number of observations: 822

Cross-sections included: 99 (3 dropped)

Method

	Statistic	Prob.**
ADF - Fisher Chi-square	365.973	0.0000
ADF - Choi Z-stat	-5.60466	0.0000

\*\* Probabilities for

Fisher tests are

computed using an

asymptotic Chi

-square distribution. All other tests assume asymptotic normality.

Intermediate ADF

test results

LNTRADE\_CREDIT

---