

Trade Credit and Profitability in Small and Medium Enterprises

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ABSTRACT

Small and medium enterprises (SMEs) play an important role in economic growth, which increasingly draws public attention in recent decades. Previous literature discusses the reasons why SMEs offer and receive trade credit. However, it lacks empirical evidence to confirm the relationship between trade credit and profitability. This paper focuses on how trade credit, from both the supplier side and the demand side, influences the profitability of SMEs. We investigate 71 SMEs in Netherlands from 2009 to 2013. The findings suggest that SMEs can establish a long-term relationship with their suppliers to gain credits since accounts payable is positively related to the profitability. Meanwhile, I find that there is no clear relationship between accounts receivable and profitability.

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Keywords

Trade credit Accounts revivable Accounts Payable Profitability SMEs Transaction theory

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1. INTRODUCTION

Small and Medium Enterprises (SMEs) play important roles in the economic growth, which increasingly draws public attention in recent decades. Different financial approaches¹ have been proposed to raise capital for SMEs in the financial growth cycle. Theories and Empirical investigations show a clear overview about how SMEs finance themselves (Berger and Udell, 1998; Gregory et al, 2005). This paper focuses on trade credit which is regarded as one of the most important financial approaches for SMEs. Trade credit is defined as “a loan that is tied in both timing and value to the exchange of goods” (Ferris, 1981:243). In other words, suppliers allow their customers to delay their payments within the stipulated period. Specifically, we can analyze trade credit on two different perspectives. Firstly, firms can offer trade credits to their buyers in terms of accounts receivable in the balance sheet. Secondly, firms can acquire trade credit from their suppliers in terms of accounts payable as well. As a regular component of the market transaction and short-term finance, trade credit shows a great influence on business development. Empirical data show that over 80% of business-to-business transactions in United Kingdom are made on credit (Tirole, 2006). Comparing to big enterprises, SMEs have a higher dependence on the trade credit because SMEs have manifold constraints to the traditional capital market (Berger and Udell, 1998). According to Elliehausen and Wolken (1993), trade credit represents about 35% of total assets in non-financial SMEs. SMEs use trade credit as certain investment to improve firm’s value and profitability. (Emery, 1987; Garc á-Teruel and Martínez-Solano, 2014). Thus, if the owners of SMEs profoundly understand the relationship between trade credit and profitability, it would significantly promote the business development of SMEs.

Several theories explain the determinants of trader credit (Ferri, 1981; Long et al 1993; Ng et al, 1999), and they establish a theoretical model to evaluate trade credit. For example, the transaction theory points out that trade credit can reduce exchange costs by separating goods exchanges from money exchanges (Ferri, 1981). Nevertheless, those trade credit theories lack empirical evidence to support them and there is little research which specifically focuses on the understanding of the relationship between trade credit and firm’s profitability. In this paper, I try to bridge this gap. I use a dataset of 71 SMEs from the Netherlands during the period of 2009-2013 to test the relationship between trade credit and profitability based on the theoretical framework. The main research question of this paper is: **How does trade credit influence the profitability of SMEs?** This research question can be decomposed into the following two sub-questions:

- **How does trade credit offered by firms (accounts receivable) influence the firms’ profitability?**
- **How does trade credit received by firms (accounts payable) influence the firms’ profitability?**

The rest of this paper is organized as follows. Section 2 describes the theoretical framework and predicts the relationship between trade credit and profitability. Section 3 discusses methodology, data and variables for empirical research. The empirical results and conclusions follow in the last section.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Stiglitz (1947) demonstrates that if the market is under a perfect condition, firm’s value would not be affected by their financial decisions. However, the perfect market condition does not practically hold. Lewellen et al. (1980) illustrate that under the imperfect market condition, trade credit decisions affect the firm value and profitability. Moreover, transaction theory demonstrates that trading partners use trade credit to economize costs of exchanges. Trading partners cut down their transaction costs which are associated with trading uncertainty (Ferris, 1981). In other words, trade credit plays an intermediary role in the transaction because it separates the payments role from business cycles, both suppliers and customers save transaction costs by collective payment instead of paying every time. Hence, the benefits of trade credit can be identified on both supply-side and demand-side.

2.1 Accounts receivable and profitability

On the supply side, trade credit is considered as an investment in terms of accounts receivable. The benefits of trade credit are on the following four aspects: (i) the decreases of operational costs, (ii) the increases of sales, (iii) the emerging of implicate rate on return and (iv) the establishing of stable commercial relationships with buyers.

Firstly, trade credit reduce the operational costs (Ferri, 1981). In fact, trade credit increases operating flexibility. Relaxing the credit terms, suppliers can reduce storage costs for uncertain demands of merchandises as well as costs of changing their production levels when demand varies (Garc á-Teruel and Martínez-Solano, 2010). This is consistent with empirical data which reveals that firms with a variable demand would like to offer a longer trade credit period to decrease the operational uncertainty, and thus decrease the operational costs (Long et al. 1993).

Secondly, firms use trade credit to boost sales simultaneously. Meltzer (1960) recommends that firms use trade credit instead of direct price reduction to increase sales especially during periods of tight money. Similarly, Emery (1987) implies that when firms’ sales are sensitive to the demand fluctuations, trade credit is an especially important method to stimulate customers to acquire merchandises in a period of low demand. Furthermore, according to Brennan et al. (1988), trade credit can be used as price discrimination between cash and credit customer as well. “This will be advantageous whenever the elasticity of demand of cash customers exceeds that of credit customers or whenever cash customers’ reservation prices are systematically higher than those of credit customers” (Brennan et al. 1988: 1128). Actually, Firms change the credit term and discount for prompt payment according to the demand elasticity of customers and customers may pay different prices for the same merchandise according to whether buyers delay the payment or not. Firms whose profit margins are relatively high are more tolerant to delays on the payment or longer credit period. (Petersen and Rajan, 1997). This is due to the fact that these firms can use higher marginal earnings to incur additional costs which are used to generate new sales and increase profitability. Although some SMEs do not have high profit margins, they still regard trade credit as an efficient way to boost sales and increase profitability (Garc á-Teruel and Martínez-Solano, 2014). As stated in non-price competition theory, SMEs in general have less market power comparing with large enterprises. SMEs do not have advantages to permeate market via price war since large enterprises gain benefits from economies of scale and huge capital supports

¹ Insider financing, trade credit and angel finance, venture capitalist, mid-term loan

(Nadiri, 1969). As a result, SMEs, in order to increase their market shares and profitability, prefer to provide trade credit.

Thirdly, in addition to accelerating demands, Hill et al. (2012) point out that interest income is another reason that suppliers gain revenues from trade credit. Once the implicit rate of return earned on accounts receivable surpasses that of the marginal investment, suppliers would have interests to offer trade credit to their customers (Emery, 1984). Suppliers normally offer the credit terms of 2/10 net 30² and the implicit interest rate reaches to 43.9% in a net period ending on day 30 when customers forgo the discount (Ng et al. 1999). Here the discount for the early payment is considered as implicit interest rate for the late payment. It shows that implicit rate of return on trade credit is more than 40%, which means trade credit is generally a lucrative investment for supplier, especially when customer default risk is low (Hill et al. 2012).

Finally, trade credit helps SMEs to establish a stable commercial relationship in long run (Wilner, 2000). Wilner (2000) confirms that trade credit may increase customers' dependence on their suppliers, which may result in a higher implicit interest rate. This argument is also supported by the resource dependency theory, claiming that firms may have troubles to access all critical resources, and they rely on suppliers to offer partial critical resources (Hermes et al. 2011). Correspondingly, trade credit here can be considered as a switching barrier. Buyers may lose access to short-term finance if they want to change suppliers as suppliers only offer trade credit to whom that they have established mature understanding with (Hermes et al. 2011). As the result, suppliers are tied with customers in a stable commercial relationship via trade credit.

However, the emerging of trade credit is accompanied with several detrimental effects for suppliers. Suppliers would pay more administrative costs, such as default debts and screening and monitoring costs (Sartoris and Hill, 1981). Each time suppliers should keep eyes on the financial condition of the buyers. This requires both direct money costs and human resource costs. When these costs exceed the benefit from revenue growth, suppliers are unlikely to offer trade credit to their customers. Also, accounts receivable which is shown on the balance sheet implies direct financing costs and opportunity costs (Mian and Smith, 1992). The money on the accounts receivable may invest on high profitability projects rather than meaningless figures. Prolonged payment implies the decreased present value of revenues, especially in a period of serious inflation.

Therefore, there is a trade-off between the benefits and costs on trade credit. Emery (1984) proposes an idea of optimal trade credit policy. It claims that when the marginal costs are equal to marginal revenue in terms of trade credit, accounts receivable reaches the optimal level. Thus, Lewellen et al. (1980) expect a non-monotonic (concave) relationship between trade credit and firm value. They demonstrate that certain level of trade credit can maximize firm value. Nevertheless, there is no empirical evidence to support this theory. By contrast, Hill and Lockhart (2012) investigate 10,648 companies during the period of 1973-2006, and they find that there is a linear positive relationship between shareholders value and accounts receivable. Furthermore, Kestens et al (2012) study how trade credit influence company performance. They examine the non-financial Belgian companies during the period of 2006- 2009 and they conclude that "companies that increased trade

receivables during the 2008 financial crisis compared to pre-crisis periods have a relatively higher profitability during crisis years" (2012:1132). Similarly, Garc á-Teruel and Martínez-Solano (2014) explore the relationship between profitability and accounts receivable with 71, 635 firms in Spain during the period of 2000-2007. They find a positive linear relationship between investment in trade credit and firm profitability as well. In addition, due to the fierce market competition, SMEs are forced to offer trade credit. Trade credit is a tool to boost sales and their essential goal is to penetrate market for those SMEs in growth process. Thus, it is more likely that trade credit has a linear positive relationship with profitability in the SMEs. According to the discussions above, I propose the following hypothesis:

Hypothesis 1: Firms' profitability is positively related with trade credit offered by firms.

2.2 Accounts payable and profitability

On the demand side, trade credit can be considered as short-term debts in terms of accounts payable. The benefits of trade credit are as follow.

Firstly, trade credit is an efficient approach to address SMEs' financial frictions in short term (Meltzer, 1960). Considering limited informational transparency, banks are reluctant to offer debts to SMEs or banks require high interest rates to compensate high risk (Berger and Udell, 1998). Trade credit can be more accessible, especially over the period of a tight monetary policy. During the period of a tight monetary policy, customers are more likely to switch to trade credit since at that time the effective loan interests exceed the effective costs of trade credits. This is due to the fact that the trade credit terms are relatively stable, which means implicit interest rate is consistent. Meanwhile, the interest rates of bank loans are increasing during a tight monetary period, which leads to more expensive costs of bank loan than that of trade credit (Mateut, 2009). Firms, reducing the cost from raising capital, will earn more profitability.

Secondly, according to credit rationing theory, SMEs cannot access to the traditional financial system. The serious information asymmetry between SMEs and potential creditor makes it difficult for firms to raise capital. However, suppliers as a trade partner are able to access customers' private information such as product quality, operational condition cheaper than financial institutions. Suppliers accurately analysis the current and future financial condition of buyer firms and then decide whether to provide credit. Information advantage over the banks may allow suppliers extend credit with less risk. Moreover, trade credit in fact plays a signaling role for banks. Many scholars argue that there is a positive relationship between trade credit and bank loan (Biais and Gollier, 1997; Cook, 1999). Agostino and Trivieri (2014) investigate 4,543 firms in Italian, and they confirm this positive relationship. Biais and Gollier(1997) argue that if suppliers are willing to offer trade credit and then bear default risk, for banks, it would mean that suppliers have acquired information affirming that buyer firms have the ability to pay back the debts. As a result, banks have a positive attitude towards buyers, and therefore provide debts to buyers. "In other words, trade credit enables the private information of the seller to be used in the lending relationship, and this additional information can alleviate credit rationing due to adverse selection" (Biais and Gollier, 1997). SMEs receive more capital from market, gaining more investment and growth opportunities.

Finally, as stated in the transaction theory, customers benefit from the reduced costs by "circumventing the need to produce the double coincidence of wants required in barter exchange"

² 2/10 net 30 means that buyers can receive 2% discount if the payment is made in 10 days while buyers cannot get any discount if payment is made in 30days.

(Ferri, 1981:244). Trade credit is used as an instrument that stands as a payment or contractual alternative to immediate money use. It reduces uncertainty via transaction pooling.³ Taking uncertain delivery as an example, volume and timing of money flows are uncertain in the flow of the goods. Money needs to be held and prepared in a complete transaction process. This stochastic money indicates great holding costs and opportunity costs (Ferri, 1981). By eliminating these costs via trade credit, the operational cash flow is more feasible and flexible in the transaction and customers can invest money on other high rate return projects to keep profitability. Besides, trade credit is used as an evaluation tool as well for customers to analyze quality of product. Smith (1987) claims that prolonging payment grant buyers to verify quality of product. Buyer can refuse the payments if products have quality problems, which result in a lower transaction costs. In return, buyers make purchasing decisions according to credit terms and other conditions of trade credit. Long et al (1993) confirm this product-quality grantee theory. Thus in the practical transaction process, buyers would save time which spend on evaluating product quality and it would reduce costs on defective product as well via trade credit.

In summary, SMEs are extremely sensitive to the suppliers financing as the result of constraints on raising capital in traditional market. As mentioned above, trade credit helps firms solving financial frictions and decreases the operational costs. SMEs to large extant enjoy the benefits from trade credit. In addition, trade credit does not show obvious detrimental effects on the firms' profitability according to the existing literature. Thus, I expect there is a linear relationship between firm profitability and accounts payable. Therefore I propose the following hypothesis:

Hypothesis 2: Firm's profitability is positively related with trade credit acquired by firms.

3. METHODOLOGY AND DATA

3.1 Methodology

As discussed in the hypothesis part, there is a linear relationship between trade credit (both in terms of accounts receivable and in terms of accounts payable) and profitability. Moreover, firm leverage, growth opportunities and size influence firms' profitability as well (Deloof, 2003, Garc á-Teruel and Mart ínez-Solano, 2014). Thus, in order to gain accurate relationship between trade credit and profitability, this study will thus introduce control variables– firm leverage, growth and size. Debt influences firm profitability through taxation shields but firms with excessive debts may lead to higher agency costs or even lead to bankruptcy (Jensen, 1986). Abor (2007) investigates 160 SMEs in Ghana and 200 in South Africa during the period of 1998-2003 and he finds that debts is negatively related to the firm performance. However, Nguyen and Ramachandran (2006) investigate 558 SMEs in Vietnam but gain opposite conclusion. Therefore, the relationship between leverage and profitability is unclear according to recent literature. When it comes to growth opportunities, firms with high growth rate generally have more investment opportunities and they are more likely to receive higher return than others (Niskanen and Niskanen, 2006). I expect positive relationship between growth opportunities and profitability. Firm size is also

³ “The rationale of reducing costs by pooling transaction was first identified by Ferri(1981) and subsequently tested by Elliehausen and Wolken(1993) and Summers and Wilson(2002) . Trade credit in this view is an instrument that facilitates trade by providing a contractual alternative to immediate money use.”(Seifert et al.2013:250)

used to investigate firm profitability. However, there are opposite conclusions on firm value and size. Lang and Stulz(1994) and Leng (2004) find a negative relationship between size and profitability, which contradicts with that of Berger and Ofek (1995) who find a positive relationship. Therefore, the relationship between firm size and profitability is still unclear.

In order to logically put all variables together, I use a multi-variable linear regression model to evaluate how a set of explanatory variables affect a dependent variable:

$$\text{Profitability}_{it} = \alpha_0 + \beta_1 \text{REC}_{it} + \beta_2 \text{PAY}_{it} + \beta_3 \text{LEVERAGE}_{it} + \beta_4 \text{GROWTH}_{it} + \beta_5 \text{SIZE}_{it} + \varepsilon_{it}$$

where Profitability_{it} is the dependent variable, i and t being the firm and the corresponding period of time, respectively. REC_{it} and Pay_{it} are independent variables while Leverage_{it}, Growth_{it} and Size_{it} are control variables. Moreover, ε stands for the error term and α₀ is the constant term. β₁ and β₂ are the main purposes of this study and this two coefficients present the relationship between dependent variable and independent variables. β₃, β₄ and β₅ are other three coefficients which present the relationship between dependent variable and control variables. Lastly, ordinary least squares (OLS) is a method to estimate the regression model in this study. OLS estimator can be defined as “minimum variance in the case of linear unbiased estimators” (Özkale, M. R, 2014:999).

3.2 Variables

The dependent variable ROA is defined by the ratio of earnings before interest and taxes (EBIT) to total assets, which measures the profit of per unit cash of assets (Garc á-Teruel and Mart ínez-Solano, 2014; Michaelas et al. 1999; Titman and Wessels 1988,). The two independent variables are REC and PAY. REC is defined as the ratio of accounts receivable to total assets while PAY is defined as the ratio of accounts payable to total debts (Rodr ́guez-Rodr ́guez ,2006; Boissay and Gropp,2007;Yang, 2011; Kestens et al, 2012; Garc á-Teruel and Mart ínez-Solano, 2014). The control variable LEVERGE is defined as the ratio of total debts to total assets (Garc á-Teruel and Mart ínez-Solano, 2014). The control variable GROWTH (asset growth) is defined as the ratio of Asset_t- Asset_{t-1} to Asset_{t-1} (Forte et al, 2013; Huyghebaert, 2006). Lastly, the control variable SIZE is defined as the Logarithmic (ln) of the total assets, which is used to avoid the symmetric distribution of total assets (Garc á-Teruel and Mart ínez-Solano, 2014).

Table 1: List of variables

Variables	Definition
Dependent variable	
<i>ROA</i>	EBIT/ Total assets
Independent variables	
<i>REC</i>	Accounts receivable/Total assets
<i>PAY</i>	Accounts payable/Total debts
Control variables	
<i>LEVERAGE</i>	Total debts/Total assets
<i>GROWTH</i>	Asset _t - Asset _{t-1} /Asset _{t-1}
<i>SIZE</i>	ln(Assets)

3.3 Data

This study uses the data of SMEs from Reach database and it mainly focuses on the data from 2009 to 2013 in Netherlands. According to the European Commission's recommendation,

small and medium-size enterprises should fulfill the following requirements for at least three years. Firstly, the number of employees should be fewer than 250. Secondly, the turnover should be less than 50 million Euros. Thirdly, the total assets are below 43million Euro as well. Besides these requirements, we filter firms with anomalies and with the extreme number in their balance sheets⁴. In addition, data in this study should be contained in balance sheet on the following aspects: total asset, total debts, and income before taxes, accounts receivable and accounts payable. Linking with the requirement above, 71 numbers of firms in Netherlands are left. The detail procedure of data filter is presented in the Table 2. Moreover, I calculate original data to gain independent, dependent and control variables and we delete meaningless data⁵ and outlier. At last, there are 328 observations left in this study.

Table 2: Data procedure

	Step result	Search result
1. All active companies(not in receivership nor bankruptcy)	2,566,114	2,566,114
2. Total assets(Euro):2013,2012,2011,2010,2009,2008,min=0,max=4,300.000,for all selected periods	53,110	52,493
3. Receivables(Euro):2013,2012,2011,2010,2009,min=0, for all the selected periods	51,484	47,180
4. Total debts(Euro): 2013,2012,2011,2010,2009,min=0,for all the selected periods	56,130	46,319
5. EBIT: All companies with a known value, 2013,2012,2011,2010,2009, for all the selected periods	3,823	3,208
6. Trade debtors(Euro): 2013,2012,2011,2010,2009, min=0,for all the selected periods	1,644	1,244
7. Sales(Euro): 2013,2012,2011,2010,2009,2008,min=0,for all the selected periods	999	716
8. Size: Medium small, Small, very small	24,553	156
9. Number of employees(based on A.R.): 2013,2012,2011 min=1,max=250,for all the selected periods	24553	73
10. Industry group: O-Finance services, P-insurance companies	123752	2
Boolean search:1And2 And3 And4And5And6And7And8And NOT 9		Total: 71

4. RESULTS

Table 3 shows a primary description about the dependent variable, independent variables and control variables. The average ROA is about 35%. Moreover, the accounts receivable average occupies almost 40% of total asset and accounts

⁴ For example, it should be no negative value in total assets. The value of trade credit should be showed in the balance sheets.

⁵ When I get the ratios for independent, dependent and control variable, I find that some ratios do not make sense. For instance, the ratio of accounts receivable to total assets do not make sense when it is bigger than 1 since accounts receivables are belong to total assets.

payable average is over 30% of total debts, which shows a great importance of trade credit in the SMEs. Meanwhile, the firms investigated have average leverage rate of 74%, which means that SMEs in Netherland rely heavily on the external financing. These firms, on average, are accompanied with negative growth rate (-0.04%) in assets annually.

Table 3: The description of statistics

Variables	Min	Max	Mean	SD	Observations
ROA	-1.79	1.61	0.35	0.24	328
REC	0.00	1.00	0.40	0.28	328
PAY	0.00	0.99	0.30	0.25	328
LEVERA GE	0.02	3.45	0.74	0.46	328
GROWTH	-0.73	2.33	-0.04	0.32	328
SIZE	4.75	10.90	8.74	1.20	328

Table 4 shows the correlation between different variables. Notice that ROA and REC shows a negative correlation (-0.13). That is, a company gains less profitability when it supplies trade credit. The costs associated with supplying trade credit exceed the benefits. However, this result is not significant with a p value equal to 0.81, and moreover it does not include the control variables yet. Beside, PAY shows a significant positive correlation with ROA, the coefficient reaching to 0.31. Trade debts offer firms more capital, and thus accompany with more investment opportunities. More investment opportunities and less transaction costs support firm to increase their profitability. Meanwhile, control variables GROWTH and SIZE show non-significant positive correlation with ROA, represented 0.07 and 0.01 respectively. However, control variable LEVERAGE shows the strong significant negative correlation with ROA (-0.28). SMEs exist serious information asymmetry and creditors may need to require higher interest rates to compensate high risk. Thus, SMEs bear relative high interest rate debts which lead to a low profitability (Jensen, 1986).

Table 5 reports the OLS estimates. When it comes to Model 1, the adjusted R squared value is 0.14, which means that 14% of the variation in profitability can be explained by the model which combines the effects of REC, PAY, leverage, growth and size.

What's more, Table 5 Model 1 shows that ROA is negatively related to REC, because coefficient β_1 is a negative number (-0.03). However, this result is not significant because the p value reaches to 0.59 which is much larger than alpha value 0.01. Hence we cannot conclude that accounts receivable is negatively related to the profitability. Notice that although we cannot conclude negative relationship, it does not show any positive relationship as well. The reason is that the trade-off between benefits and costs of supplying trade credit are uncertain in Netherlands. Some firms show a phenomenon that benefits excess the administrative costs while other companies are contrary. As discussed above, trade credit on the supply side can decrease operational costs and increase sales to improve profitability, but it increase administrative costs as well, such as default debts and screening and monitoring costs (Sartoris and Hill, 1981; Emery, 1984). These two opposite conditions dampen the influence of accounts receivable and profitability, leading to an unclear relationship. Moreover, this result may influenced by the factor industry. On one hand, firms in the same industry face a similar market condition while market conditions vary among different industries. Different market

Table 4: Correlation Matrix (Pearson correlation)

	ROA	REC _{it}	Pay _{it}	LEVERAGE	GROWTH	SIZE
ROA	1 (0.00)					
REC	-0.13 (0.81)	1 (0.00)				
PAY	0.31** (0.00)	0.32** (0.00)	1 (0.00)			
LEVERAGE	-0.28** (0.00)	0.31 (0.31)	-0.23** (0.00)	1 (0.00)		
GROWTH	0.07 (0.21)	-0.09 (0.29)	-0.02 (0.69)	0.023** (0.00)	1 (0.00)	
SIZE	0.01 (0.86)	-0.34** (0.00)	-0.13* (0.02)	-0.23** (0.00)	-0.02 (0.74)	1 (0.00)

** Correlation is significant at the 0.005 level (2-tailed)

*Correlation is significant at the 0.01 level (2-tailed)

conditions may lead to different credit terms. As a result, the trade credit term is consistent in the same industry but differ cross industries (Ng et al. 1999). Different trade credit terms can influence firms' profitability since trade credit term determines the implicate interest rate that significantly influence firm profitability (Hill et al. 2012; Garc ía-Teruel and Martínez-Solan, 2014). One other hand, a firm may lose its market shares if it does not meet the normal industry term, with firm profitability decreasing (Paul and Boden, 2008). Indeed, industry factor to some extent influence the significance of the result in this study according to the previous literature (Ng et al. 1999; Hill et al. 2012; Garc ía-Teruel and Martínez-Solan, 2014). Since we mixed all industries together (excluding financial and insurance industries), the result has certain limitations.

Further, Table 5 Model 1 shows a positive relationship between ROA and PAY and the coefficient β_2 is 0.26 which is significant as the p value 0.00 is much less than alpha value 0.01. As discussed above, trade credit (accounts payable) offers more capital for the development of SMEs and it also helps SMEs to save operational costs. Thus, I conclude that profitability is positively related to the accounts payable both from existing theories (such a transaction theory and credit rationing theory) and from empirical data. Firms can receive more profitability via acquiring trade credit from supplies while suppliers are more likely to offer trade credit to whom they are familiar with. Hence, I strongly recommend that buyer firms establish a long term relationship with their suppliers to increase profitability.

Additionally, control variable LEVERAGE shows a significant negative relationship with ROA (-0.11). Firms associated with higher debts have a lower profitability because firms may generate higher agency costs when they increase their debts. Even worse, SMEs meet high interest rate loan due to the information asymmetry (Jensen, 1986). Therefore, the costs of raising debts surpass the benefits of taxation shield from debts, which leads to a negative relationship between debts and profitability. Control variable GROWTH show non-significant positive relationship with ROA. There is no relationship between profitability and growth. Growth in the asset provides more investment opportunities, which may result in a high profitability. But risk associated with high growth rate may also lead to lower profitability (Carvalho et al., 2013). Thus, in this

study the empirical data neither show positive nor negative relationship. Control variable SIZE shows non-significant negative relationship with ROA. I conclude that there is no clear relationship between size and profitability in this study. According to Chandrapala and Knápková (2013), larger firms enjoy economics of scales while the average cost of a product is relatively lower. Nevertheless, large firms face the problem of hierarchy which may decrease the "incentive for managers to be efficient" (2013:2184). Therefore, the relationship between profitability and size are various according to different empirical data.

Table 5: Trade credit and profitability

	Model 1	Model 2	Model 3
REC	-0.03 (0.59)	0.07 (0.18)	-0.04 (0.43)
PAY	0.26* (0.00)		0.27* (0.00)
LEVERAGE	-0.11* (0.00)	-0.16* (0.00)	-0.11* (0.00)
GROWTH (ASSETS)	0.06 (0.13)	0.06 (0.12)	
SIZE	-0.01 (0.81)	-0.01 (0.57)	-0.01 (0.80)
GROWTH(SALES)			0.01 (0.52)
R ²	0.14	0.08	0.13
Observations	328	328	328

* Correlation is significant at the 0.01 level (2-tailed)

Dependent variable (ROA)

5. ROBUSTNESS CHECKS

In this section, it mainly focuses on the robustness proof of results. Rodríguez-Rodríguez (2006) investigates small and medium size firms in Canary-Island firms from 1990 to 1996 and points out that the relationship between REC and

profitability is positive. But this result is not significant when PAY is considered as a dependent variable. Thus, I exclude independent variable PAY from linear regression. Table 5 Model 2 shows a non-significant positive relationship, for which p value equal to 0.18 (see Table 5 Model 2). Although I still gain a non-significant relationship, but we need to notified that the coefficient β_1 change from a negative number -0.03 to a positive number 0.07. Combining with Table 4 (Correlation Matrix), I see that independent variable REC and PAY are positively related with each other. According to Seifert et al. (2013), accounts receivables on the balance sheet can improve suppliers' confidence to offer trade debts. Thus, I expect that REC and PAY may influence each other while they affect the firm profitability.

The regression specification is also modified by replacing asset growth to sales growth that is popularly used in many researches. Sales growth can be defined as the ratio of $Sales_t - Sales_{t-1}$ to $Sales_{t-1}$ (Chandrapala and Knápková 2013; García-Teruel and Martínez-Solano, 2014). The Table 5 Model 3 shows how the core coefficients change by replacing asset growth to sales growth. Table 5 Model 3 shows that the result does not change. Similarly, REC is accompanied with a negative coefficient (-0.04) but still this coefficient is not significant after the t-test (p-value equal to 0.43). PAY continually shows a positive relationship with ROA with a positive coefficient 0.27 and this coefficient is significant which confirmed by the t-test (p-value equal to 0.00).

6. CONCLUSION

Trade credit is extremely important to SMEs since it occupied large part of the total assets in terms of accounts receivable. And it represents large percent on the total debts as well in terms of accounts payable. As a result, it is significant to adjust trade credit to increase profitability. Since previous literature direct at theory part rather than empirical research, this study examines 71 SMEs in Netherlands to confirm the relationship between trade credit and profitability both on supply side and demand side to provide empirical evidence.

On the supply side, trade credit is regards as investment in terms of accounts payable. According to the transaction theory and non-price competition theory, I establish a hypothesis that firms' profitability is positively related to trade credit offered by firms. However, the empirical results do not show the relationship as expected. There is neither a positive or negative relationship between profitability and accounts receivable. I attribute this to two main reasons. Firstly, trade-off between costs and benefits dampen the influence between accounts receivable and profitability, which lead to an unclear relationship. Secondly, this study does not consider the influence of variable industries, which leads to a limitation.

On the demand side, trade credit is regards as short-term debts in terms of accounts payable. The transaction theory, credit rationing theory and product-quality grantee theory help me to establish a hypothesis that firm's profitability is positively related with trade credit acquired by firm. After testing 71 firms in Netherland, I find that empirical result is consistent with my hypothesis. Firms acquire more trade credit can gain more investment opportunities and thus gain more profitability. My advice to SMEs is that they should establish a long-term relationship with their suppliers in order to access trade credit in a more easy and fast way.

7. LIMITATIONS AND RECOMMENDATIONS

This study investigates 71 firms to investigate how profitability is influenced by the trade credit. However, it suffers from

several limitations. First and foremost, we use OLS to estimate the regression model in the methodology part. The OLS method itself has several disadvantages. For instance, OLS estimation may fail to control for time-invariant firm-specific heterogeneity and thus process biased and inconsistent result (Huyghebaert, 2006). The further study can use random effects panel estimation to re-estimate model. Furthermore, this study only focuses on the time period 2009 to 2013. It would be better if scholars can investigate a longer period and it would be extremely useful if a study can explore how to adjust trade credit during financial crisis to increase profitability. In addition, I failed to introduce variable industry to this study, which has limits to the result as I already discussed in the result part. Lastly, my dependent variable accounts receivable and accounts payable may influence each other in some way which I do not explore profoundly in this study. In the future study, scholars can investigate how accounts receivable and accounts payables influence each other in order to gain more profitability.

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