A Work Project, presented as part of the requirements for the Award of a Masters Degree in Finance from the NOVA School of Business and Economics

ENTITIES DELAYING PAYMENTS IN TIMES OF CRISIS AND ITS IMPACT ON PROFITABILITY

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07/01/2013

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Abstract

The current crisis has brought to the forefront the importance of managing components of working capital efficiently. This study addresses the impact of the crisis in two of its components, trade credit offered and demanded, and the subsequent effect on profitability. For a sample comprising listed firms in Greece, Italy, Portugal and Spain, for the period of 2004 – 2011, it is found that an economic downturn affects the days a firm takes to collect its receivables and to pay its suppliers and that there is a significant relation between those variables and the firm´s profitability.

Key Words: Trade credit offered; Trade credit demanded; Recession; Profitability

1. INTRODUCTION

The current crisis and the insolvency of major corporations such as General Motors have enlightened firms on the importance of managing resources efficiently. Therefore, the management of working capital, the capital in current use in the operation of a business, has gained special relevance. Deloof (2003) mentions that statistics for 1997 from the National Bank of Belgium indicate that inventories and accounts receivable represent 10% and 17% of total assets and accounts payable represent 13% of total liabilities of all nonfinancial firms in Belgium. Summers and Wilson (2002) observe that transactions on credit terms in the corporate sector of UK account for more than 80% of the daily business transactions. As a consequence, research has been conducted in order to understand the relation between working capital, measured in the majority of the studies by the cash conversion cycle, and profitability. The cash conversion cycle can be decomposed in three measures: inventories cycle, number of days accounts payable and debtors´ collection period that are used as proxy for inventories, trade credit demanded from suppliers and trade credit offered to customers. However, for the purpose of this study, special attention is given to the impact that the last two items have on profitability. If on the one hand trade credit can be a cheap source of finance, by increasing, for instance, days to pay suppliers, companies can lose prompt payment discounts that would turn in very high rates of return (Fazzari and Peterson, 1993). Consequently, the performance of studies using a sample of firms that operate in different markets under different economic conditions (crisis vs. booms, e.g. Enqvist et al. (2012)) has led to different conclusions regarding the impact that the length of time firms take to pay their suppliers and to get paid from their customers has on profitability.

Recently, the European Payment Index (2009) reported that the recent economic downturn has led companies to increase the delay in getting paid on the agreed term. According to the same report, this situation "strains cash flow and fuels uncertainty and, as a result, it impedes the development, competitiveness and profitability of firms". Earlier literature makes a bridge between economic cycles and the length of the trade credit offered and demanded (see e.g. Merville and Tavis (1973), Yang (2011)). However, as long as I now, only Enqvist et al. (2012) explain profitability using as independent variables receivables and payable days impacted by the business cycle (with data from Finnish firms). In this study I analyze the impact of the current crisis on debtors´ collection period and on the days firms take to pay their suppliers. Complementary, I study the consequent effect on firms´ profitability.

The sample includes the listed firms of the countries that, according to the European Payment Index (2009 and 2010), are paid with highest delays comparatively to the contract terms. Therefore, I include firms listed in Greece, Italy, Portugal and Spain, and collect data for the last eight years (2004-2011).

Results indicate that during an economic downturn firms tend to extend the credit terms by giving customers the chance of paying their bills in a longer period. Furthermore, the negative impact that such extension has on profitability is lower during a recession than during a "normal economic cycle". An analysis of the payment periods to suppliers show these are also extended during an economic downturn. However, this has no effect on profitability. This contrasts with the negative effect that such an extension has during a "normal economic cycle".

The paper is structured in the following way: in the next section a brief literature review on the topic is provided; in section 3 the methodology is presented; a discussion of results is exhibited in section 4 encompassing descriptive statistics, correlation analysis and regression results; section 5 concludes with the final remarks.

2. LITERATURE REVIEW

The importance of working capital management on the liquidity and profitability of a company and, as a result, on its value, was brought to light by Smith (1980). If on the one hand, a strategy that enhances liquidity tends to reduce risk, on the other hand, riskier strategies are likely to potentiate profitability. Therefore, according to Fazzari and Peterson (1993) the main issue, when it comes to design an efficient working capital strategy, is to balance this trade-off and find out the optimal investment level in current assets and financing by current liabilities.

Many studies have addressed this issue in an attempt to figure out the real impact that working capital policies have on profitability in different markets. The recognition of the importance of the cash conversion cycle on the working capital management (Gitman, 1974), has led most of these studies to adopt this measure as a proxy for working capital. Company decisions on trade credit conceded to customers and demanded to suppliers as well as on investment in inventories are reflected in the cash conversion cycle, "the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods" (Deloof, 2003). As a result, the aim of those studies has been to analyze how profitability can be augmented by

managing cash conversion cycle components (debtor´s collection period, days accounts payable and inventory days).

The pursuance of a strategy focused on a low investment in working capital is supported by most of the research as a mechanism to boost firms´ profitability. Studies carried out by Joe et al. (1996) and Shin and Soenen (1998) analyze US listed companies, Deloof (2003) investigates large Belgian companies, Wang (2002) studies Japanese and Taiwanese firms, Garcia and Solano (2006) use data from for small and medium-sized Spanish firms, and Lazaridis and Tryfonidis (2006) analyze the case of firms listed in the Athens Stock Exchange. All these authors find a strong significant negative relation between the cash conversion cycle and the measures used to access profitability, such as return on assets and gross operating profit. These findings are substantiated in the fact that an aggressive working capital strategy leads to a low investment in current assets, which contributes to a lower amount of total assets and, therefore, to an increase in profitability (Garcia and Solano, 2006). At the same time, a low cash conversion cycle contributes to reduce the need of a firm for external finance, and so borrowing costs are reduced and profitability is augmented (Uyar, 2009).

One interesting fact is the absence of a consensus on the impact that different components of the cash conversion cycle have on profitability even within those empirical studies that support an aggressive working capital strategy. For instance, Garcia and Solano (2006) find evidence of a significant negative relation between the number of days accounts payable and profitability, a result that is consistent with the Deloof (2003)´ s belief that less profitable firms have a tendency to delay payments to their suppliers. On the other side, consistent with the fact that delays in payments boost the efficiency of working capital by giving ability to the firm to take advantage of

opportunities to foster profitability, is the positive and significant relation between days of payments outstanding and gross operating profit found by Lazaridis and Tryfonidis (2006) for Greek companies. Nevertheless, Wang (2002) does not find this relation to be significant.

Empirical evidence favoring a conservative approach is also found in the literature. Zainudin (2006), examining a sample of small and medium-sized Malaysian companies, finds a significant positive relation between liquidity and profitability. Afza and Nazir (2009) also find a significant negative relation between an aggressive working capital investment strategy, measured by total current assets/ total assets, where a lower ratio is related to a more aggressive strategy, and return on assets as a measure of profitability, for a sample of non-financial firms listed on the Karachi Stock Exchange. Therefore, in opposition to the conventional belief, investing deeply in working capital by increasing, for instance, debtor´s collection period, can be a way of fostering sales during periods of low demand (Emery, 1987) and strengthening long term relations with clients (Ng et al., 1999), thus increasing profitability. It should be stressed that such positive effect just happens if it was able to compensate the negative outcome created by the increase of current assets.

Regarding the impact of business cycles on working capital, literature proves that especially during low economic states, working capital management is relatively more important. Peterson and Rajan (1997) provide empirical evidence that when firms are presented with restrictions in the access to credit from banks, they require more trade credit. Therefore, it is in periods of monetary contractions or macroeconomic uncertainty that companies ask more for suppliers´ financing (Nilson (2002); Baum et al. (2003)). Basto and Pindado (2012) highlight the credit contagion effect in the supply

chain that takes place during economic shocks. They find a significant positive relation between the trade credit offered, measured by days of sales outstanding, during periods of financial crisis, and trade credit received, measured by number of days accounts payable. This finding suggests that during periods of economic downturn, companies with high levels of accounts receivable tend to postpone payments to suppliers, suppliers in turn postpone payments to their suppliers in order to avoid insolvency, and a snowball effect takes place in the economy.

This paper extends the findings discussed above as it analyzes the relation between the three variables discussed (profitability, working capital policies, and business cycles) instead of focusing on the two pairs of associations.

Although there is limited evidence in this area, a study performed by Enqvist et al. (2012) for listed Finnish companies, attests that an aggressive working capital policy is especially relevant during economic downturn periods by regressing the cash conversion cycle during periods of crisis in gross operating profit. It finds that more profitable firms tend to offer more trade credit during poor economic states. However, it does not find a statistical significant relation between trade credit demanded during economic downturns and profitability, meaning that the impact of days accounts payable on profitability is not linked to the business cycle.

My expectation is that a period of recession leads to an increase on the collection period and payment period, which will in turn affect negatively firms´ profitability. Therefore I state my hypotheses as follows:

H_{1a}: There is a negative relation between debtors´ collection period and profitability.

H_{1b}: The significance of the relation between debtors´ collection period and profitability is augmented during economic downturns.

H_{2a}: There is a positive relation between days a firm takes to pay its suppliers and profitability.

H_{2b}: The significance of the relation between days a firm takes to pay its suppliers and profitability is augmented during economic downturns.

3. METHODOLOGY

I) Regression Model

In order to evaluate the impact that the recent crisis has had on the length of time companies take to collect receivables and to pay their suppliers, and the consequent impact on profitability I adapt Enqvist et al.´s (2012) model. I use two equations, as follows:

$$\text{Profitability}_{it} = \beta_0 + \beta_1 RD_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 CR_{it} + \beta_5 DEBT_{it} + \beta_6 RECESSION_t + B_7 [RD_{it} \times RECESSION_t] + \mu_{it} \quad (1)$$

$$\text{Profitability}_{it} = \beta_0 + \beta_1 PD_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 CR_{it} + \beta_5 DEBT_{it} + \beta_6 RECESSION_t + B_7 [PD_{it} \times RECESSION_t] + \mu_{it} \quad (2)$$

II) Variables

I use two alternative dependent variables, to measure profitability: Return on Assets (ROA) and Net operating profit less adjusted taxes (NOPLAT). These are computed as following: ROA = NOPLAT / Total Assets; NOPLAT = Operating Profit x (1 – t). NOPLAT is used not just as an independent measure of profit, but also as part of the computation of ROA, an overall indicator of profitability. I prefer it over Net Income, as it removes the effects of the capital structure.

Debtors´ collection period, measured by receivables' days (RD) is calculated as follows: [Accounts Receivable/ Sales] x 365. It is expected to have a negative relation with profitability as long as an increase in accounts receivable augments the total assets of a firm.

The variable days accounts payable (PD) is computed applying the following formula: [Accounts Payable/Cost of Goods Sold] x 365, and it is expected to display a positive relation with profitability. That expectation is based on the belief that by lengthening the period of paying off accounts payable, firms increase their ability to pay suppliers, which would turn in a lower probability of entering in financial distress and, in the meantime, firms could also use the conserved cash to earn profitability.

In accordance with previous studies in this area (see e.g. Deloof 2003, Lazaridis and Tryfonidis 2006), I control for the size of the company (SIZE), using the natural logarithm of sales, and firm´s growth (GROWTH), using as a proxy $[sales_1 – sales_0] / sales_0$, expecting both variables to display a positive relation with profitability. I also control for the liquidity of the company with the current ratio (CR) computed as current assets divided by current liabilities and I believe it impacts profitability positively.

In order to understand the impact that a recession period has on profitability, I create a dummy variable (RECESSION) and code it as 0 for the period from 2004 to 2007 and as 1 from 2008 to 2011. This variable is included in the model and I expect its coefficient to be negative.

Two variables that result from the interaction between receivables´ days and the recession dummy variable (Recession_RD) and between the recession dummy variable and days accounts payable (Recession_PD) are also introduced in the model in order to analyze if a downturn economic period influences trade credit offered and demanded and to figure out the consequent impact on profitability. The sign of the coefficients of the interaction variables are expected to be consistent with the sign of the coefficients of the variables from which they result. Therefore, I expect a negative coefficient for the variable that results from the interaction with receivables´ days and a positive coefficient for the variable that results from the interaction with payable days.

III) Sample

Our initial dataset includes all listed firms in Athens, Lisbon, Madrid and Milan Stock Exchanges, for the period of 2004 – 2011, for which financial information was present in the Thomson Reuters´ DataStream. These are the firms that are listed in the Euro countries, that considering the delays in the receipt of payments in relation to the agreed terms, have been most severely affected by the recent crisis (European Payment Indexes 2009 and 2010). The 8-year period covers four years before the beginning of the crisis and four years of crisis. From the initial sample of 616 firms, firms in the financial sector and in the utilities sector were left out, given the specificities of their operations.

Some firms do not have information for the entire period analyzed, either because they became listed after 2004 or because they ceased to be listed before 2012 or simply because there were some missing values for a given year. As a result, I end up with a balanced panel set of 544 companies, and 4,352 observations.

In order to eliminate possible outliers 1% of the extreme observations for the debtor´s collection period and payable days were also excluded.

4. RESULTS

I) Descriptive Statistics

Table 1 presents descriptive statistics on the variables gathered. The average net trade credit cycle is 24 days. The sample firms, on average, wait 150 to collect their accounts receivable and take 126 days to pay their suppliers. They present an average operating income after adjusted taxes of 79 million Euros and an annual growth rate of 8%. It is worth mention that assets of the sample firms are, on average, financed with 61% of debt. Comparing those results to the previous studies´ results, differences can be noticed especially on the average period of trade credit offered and demanded. For instance, the average debtors´ collection period and the number of days accounts payable are inflated in the studied carried out by Charitou et al. (2010) for listed firms in Cyprus (248 days and 210 days respectively) whereas Deloof (2003) refers lower periods for large Belgium firms (55 days and 57 days), suggesting that trade credit periods differ across countries.

Therefore, given the distinctive characteristics of firms operating in different countries and different industries, it makes sense to conduct a more detailed analysis, segmenting

firms according to their countries and industries. By looking at table 2, one can notice that Spain presents, on average, the highest profitability and experiences the highest sales growth. Greece is the country where firms wait more to get paid, by presenting a debtor´s collection period of 180 days. When compared to the debtors´ collection period (148 days) mentioned in the study carried out by Lazaridis and Tryfonidis (2006) for listed companies in the Athens Stock Exchange in the period of 2000-2004, this value is considerable high, which can be a consequence of the crisis. It is in Italy that firms take longer to pay their suppliers (188 days). Portugal, on its turn, is the country where firms´ assets are most funded by debt.

The industry in which each firm operates also has a significant influence on the values of the variables in analysis, as can be noticed in table 3.[1] The mining industry is, on average, the one associated with the highest profitability given by NOPLAT and return on assets. Firms in the agriculture, forest and fishing industry tend to be the firms that take more time to collect their accounts receivable (258 days) in contrast with companies in the retail trade industry that tend to be the ones that take less time to collect money from their customers (76 days). The days firms take to pay suppliers do not vary as much between industries as days firms take to get paid. The highest delays in paying suppliers are observed in the construction industry (183 days) whereas the quickest firms in meeting their obligations with suppliers are found in the wholesale trade sector (86). Terual and Solano (2006), when conducting an analysis by industry, find similar results even though they conclude that construction firms are the ones that wait more to receive payments from customers (145 days) and firms in the retail trade sector are the fastest in paying suppliers (57 days).

[1] Industries are classified according to the SIC (Standard Industrial Classification) Division Structure displayed at http://www.osha.gov/pls/imis/sic_manual.html.

II) Correlation analysis

Table 4 presents Pearson´s correlation analysis for all variables included in the study. Receivable days present a significant negative correlation with both measures of profitability meaning that the lower the period suppliers take to collect their accounts from customers the higher the profitability. This is according to my expectations. Payable days are significantly and positively correlated with ROA. This is as expected and means that the longer the period that a firm has to pay its suppliers the higher the profitability. However, when NOPLAT is used as a measure of profitability the correlation is not statistically different from zero. The indicator variable for recession years is positively correlated with payables' days, as expected. However, and contrary to expectations, the relation between receivable days and the recession dummy variable is not statistically significant.

III) Regression Results

In order to use the type of panel data model that is more indicated for the data I performe the Hausman (1978) test for fixed/random estimators for both equations. As long as this test assumes the random estimator to be efficient under the null hypothesis, and the overall statistics for both equations presented a p-value close to zero, the null hypothesis was rejected and a model of fixed effects was applied. That means that the effects of unobserved heterogeneity were assumed to be fixed parameters. The advantage of this method over the random effects model is that the correlation between individual and/ or time specific effects and explanatory variables is allowed. However, in opposition to the random effects model, it does not allow to estimate coefficients of

time-invariant regressors. (Cameron and Trivedi, 2009). Therefore, country and industry dummy variables could not be introduced in the model.

I also use a cluster-robust estimate of the variance-covariance matrix that is consistent in the presence of heteroskedasticity and autocorrelation (Cameron and Trivedi, 2009).[2] The existence of those "anomalies" would lead to biased standard errors that would translate in biased inferences.

Table 5 presents results from the regression of debtors´ collection period on profitability. The p-value (0.00) of the F-statistics indicates the significance of the model. From the analysis of the table it can be inferred that debtors´ collection period has a significant negative impact on both measures of profitability, which is consistent with the findings of Deloof (2003), and Ajilore and Falope (2009), among others. The negative relation can be explained by the fact that as firms lengthens the period of getting paid, accounts receivable increase as well as total assets and as a result profitability goes down. A period of recession also presents a significant negative impact on profitability as long as recessions are associated with periods of drops in sales.

The variable of interest is the one that results from the interaction between debtor´s collection period and a period of recession. It was designed to investigate if the management of debtors´ collection period was of special relevance in periods of crisis. Looking at the p-value (0.00) on the ROA regression, one can conclude that, in reality, the time companies take to collect their receivables deserve particular attention during economic downturns. However, the variable has a positive estimated coefficient,

[2] Firms are used as clusters.

contrary to my expectations. In fact, the negative impact that debtor´s collection period has on profitability is reduced during a recession (coefficient in regular years = - 2.5; coefficient during recession = - 1.26). This contrasts with the finding of Enqvist and al. (2012) for Finnish firms. This effect is probably a consequence of the trade credit extension that is given to customers in times of low demand in order to increase sales, thus contributing to a boost in profitability. This way, even if the increase in sales does not fully offset the negative impact that the increase in assets has on profitability, the truth is that the increase in the length of the trade credit contracts in periods of economic downturn is not as devastating as during an economic boom. Nevertheless, when the interaction variable is regressed on NOPLAT its coefficient is not significant. Regarding the significance of the control variables, just the firm´s size does not significantly influence profitability, a relation that was found to be significant in previous studies. All other control variables are significant and display the relation with profitability that was found in prior investigations. Firms´ growth, that can be a sign of business opportunities, appears to favor profitability as well as the current ratio.

In table 6 I present the output of the regression of trade credit demanded on profitability. The length of time firms take to pay their suppliers has a significant negative impact on both profitability measures. Although this result contradicts my expectation that by increasing the days of accounts payable profitability would be augmented, it is in line with some previously studies, see for instance Deloof (2003) and Charitou et al. (2010). Therefore, that negative relation can be an indication that by decreasing the term of payment, firms can enjoy prompt payment discounts which will turn in higher profits.

When one analyzes the effect of the number of days accounts payable, during a recession period, on NOPLAT, which is given by the sum of the coefficient of AP with

the coefficient of the variable that results from the interaction between AP and the recession dummy variable, the relation, at a first glance, seems to be positively significant (coefficient = 1%). That outcome diverges from the non significant relation observed by Enqvist and al. (2012) for Finnish firms during an economic downturn. However, since the coefficient is low (1%), it makes sense to test if during a recession the effect of payables on profitability is not actually zero. Therefore, the sum of AP and Recession*AP is tested to be zero and given that the p-value of the test equals 0.75, it can be deduced that the coefficients of both variables offset each other. This finding can be supported by the fact that during times of crisis, firms tend to see their suppliers as a greater source of credit, as long as financial institutions tend to cut the supply of credit. This way, accounts payable increase and the period demanded to pay those accounts also increase in order to be possible for firms to comply with their obligations. Therefore, that positive impact that occurs during an economic downturn period offsets the negative effect of the wasted prompt payment discounts, resulting in a null impact of days accounts payable on profitability. Worth mention is the fact that the interaction variable does not have a significant effect on profitability if ROA is used as the profitability measure. As expected, the other variables of the model present the same relation with profitability as in the previous model, and the overall model is found to be significant.

5. CONCLUSION

The downturn that hit the economy in 2008 brought to the forefront the importance of managing resources efficiently, especially components of working capital given the dimension that they have on the total assets of a firm. Many studies have been conducted in order to link working capital strategies, using cash conversion cycle as its measure, and profitability and others linking components of cash conversion cycle with business cycles. However, a gap in the literature linking those three variables exists.

This study fills that gap by assessing the impact that a period of recession has on receivable and payable days and the consequent impact on profitability. I find that a short debtors´ collection period enhances profitability. However, during an economic downturn period, the negative impact that an augment in receivables´ days was expected to have on profitability is reduced. One possible explanation for this result is that during a recession period, characterized by low demand, firms extend the length of the trade credit offered to customers in order to stimulate sales, thus boosting profitability.

On the other hand, and according to most empirical studies conducted in this area (see for e.g. Deloof (2003); Charitou (2010)), payable days are found to negatively affect profitability. However, during a recession period, their impact on profitability turns to be null. This is probably justified by the substitution effect enlightened by Paul and Wilson (2007). During crisis, companies facing restricted credit from banks, use suppliers as the main source of financing to keep their business running. On the other hand, it can also result from the fact that as companies increase accounts receivable to boost sales, they have to increase the period to pay their suppliers in order to not enter in financial distress. Therefore, those positive effects that take place during an economic

downturn cancel the negative impact that results from the lost of prompt payment discounts, leading to a null impact of days accounts payable on profitability. However, it should be stressed out that if on the one hand this study, taking into account an economic downturn to explain the relation of two of the three components of cash conversion cycle with profitability, seems to corroborate the findings of Bastos and Pindado (2012) regarding a trade credit contagion in the supply chain during times of crisis, on the other hand, as long as the significance of the interaction variables varies according to the measure of profitability in use, that result is inconclusive.

Overall results attest the importance of the trade credit on profitability, especially during a recession period. Therefore, debtors´ collection period and time firms take to pay their suppliers should be of special concern when managers draw business strategies in order to enhance firms´ performance.

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Table 1

Descriptive Statistics: 544 Firms, 2004 - 2011

	Obs	Mean	St.Dev	Min	Max
Profitability					
NOPLAT	4177	78,643	579,603	-4,095,473	10,732,116
ROA	4164	0.01	0.09	-0.79	0.63
Trade Credit					
Receivable Days	3964	150	114	10	989
Payable Days	4047	126	126	11	1337
Control variables					
Ln Sales	4163	11.93	1.98	2.63	18.50
Sales Growth	4352	0.08	0.71	-1	26.39
Current Ratio	4096	1.45	0.80	0.25	6.17

Note: NOPLAT is measured in thousand Euros.

Table 2

Descriptive Statistics by Country (mean values): 544 Firms, 2004 - 2011

COUNTRY	Obs	NOPLAT	ROA	Receivable Days	Payable Days	Ln Sales	Sales Growth	Current Ratio
Greece	1776	10,203	0.003	180	114	11	0.043	1.572
Italy	1416	114,300	0.008	130	188	12	0.077	1.399
Portugal	336	63,064	0.003	140	68	12	0.042	1.114
Spain	824	173,021	0.032	125	118	13	0.176	1.396

Note: NOPLAT is measured in thousand Euros.

Table 3

Descriptive Statistics by Industry (mean values): 544 Firms, 2004 - 2011

INDUSTRY	Obs	NOPLAT	ROA	Receivable Days	Payable Days	Ln Sales	Sales Growth	Current Ratio
Agriculture, Forest and Fishing	80	5,423	-0.025	258	145	10.325	0.069	1.493
Construction	344	48,725	0.000	219	183	12.661	0.105	1.374
Manufactoring	2240	40,524	0.013	137	110	12.002	0.065	1.534
Mining	72	911,184	0.037	153	128	12.937	0.126	1.379
Retail Trade	224	51,660	0.026	76	110	12.056	0.043	1.444
Services	712	15,122	-0.002	188	159	11.115	0.115	1.365
Transportation and Communication	376	378,291	0.017	119	153	12.607	0.122	1.120
Wholesale Trade	304	8,667	0.009	155	86	11.672	0.028	1.490

Note: NOPLAT is measured in thousand Euros.

Table 4

Pearson Correlation Coefficients: 544 Firms, 2004 - 2011

	NOPLAT	ROA	Payable Days	Receivable Days	Current Ratio	Sales Growth	Ln Sales	Recession
NOPLAT	1.000							
ROA	0.642***	1.000						
Payable Days	-0.006	0.038**	1.000					
Receivable Days	-0.193***	-0.229***	-0.142***	1.000				
Current Ratio	0.125***	0.221***	-0.059***	0.049***	1.000			
Sales Growth	0.150***	0.210***	-0.009	-0.102***	0.034**	1.000		
Ln Sales	0.041***	0.055***	0.046***	0.046***	-0.009	0.029*	1.000	
Recession	-0.132***	-0.155***	0.075***	0.016	-0.130***	-0.164***	0.040***	1.000

Notes: * 10% Significance level; * * 5% Significance level; * * * 1 % Significance level

Table 5

Impact of a recession period on the relation of Trade Credit Offered - Profitability

		ROA		NOPLAT	
	Exp. Sign	**Coef.**	**P-value**	**Coef.**	**P-value**
RD	-	-2.50	0.00	-1.38	0.00
Recession	-	-479.28	0.00	-283.13	0.00
Recession_RD	-	1.24	0.00	0.16	0.70
Sales	+	0.00	0.98	-0.01	0.84
Growth	+	0.13	0.00	0.08	0.00
CR	+	0.10	0.00	0.06	0.07

Notes: ROA Equation: R-sq = 0.1246; Number of observations = 3887; Number of firms = 541;
F (7, 540) = 37.33; Prob > F = 0.000. P-values robust to heteroskedasticity.
NOPLAT Equation: R-sq = 0.0522; Number of observations = 3896; Number of firms = 541;
F (7, 540) = 20.16; Prob > F = 0.000. P-values robust to heteroskedasticity.
Fixed Effects Model

Table 6

Impact of a recession period on the relation of Trade Credit Demanded – Profitability

		ROA		NOPLAT	
	Exp.Sign	**Coef.**	**P-value**	**Coef.**	**P-value**
PD	+	-0.02	0.09	-0.03	0.01
Recession	-	-345.71	0.00	-452.41	0.00
Recession_PD	+	0.01	0.59	0.04	0.04
Sales	+	0.01	0.72	0.00	0.97
Growth	+	0.16	0.00	0.10	0.00
CR	+	0.09	0.00	0.07	0.03

Notes: ROA Equation: R-sq = 0.1055; Number of observations = 3964; Number of firms = 542;
F (7, 541) = 31.30; Prob > F = 0.000. P-values robust to heteroskedasticity.
NOPLAT Equation: R-sq = 0.0524; Number of observations = 3974; Number of firms = 542;
F (7, 541) = 19.71; Prob > F = 0.000. P-values robust to heteroskedasticity.
Fixed Effects Model