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The Financial Performance of European Companies: Explanatory Factors in the Context of Economic Crisis

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Abstract. Financial accounting information plays an important role in assessing and forecasting firms' financial performance. But besides that, there are other external factors affecting the performance of firms, such as economic and financial crises, which cause imbalances over the economy and affects the business environment. Thus, based on financial statements data, in this paper, the determinants of financial performance are examined, and the impact of a financial crisis on these factors is analyzed, using the fixed and random effects panel estimators. A sample of non-financial firms from European countries considering annual data for the period of 2006 to 2015 was used for this research. The results achieved by panel data analysis show that a crisis exerts a significant positive effect over financial performance as well as liquidity, assets turnover, and labor productivity, meaning that firms tend to put in greater efforts to maintain financial performance in the face of a crisis. Financial performance is significantly and negatively influenced by leverage independently of the crisis effect, showing return on assets to be lower than the average interest rate.
Keywords: Return on Assets; Return on Equity; Leverage; Liquidity; Crisis.

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1. Introduction

In a company, the accounting information provided by financial statements foresees the critical judgments that influence the decision to facilitate information for management control (Bushman, Chen, Engel, & Smith 2004). The accounting information has, as a starting point, two different and uneven sources in terms of quality: (i) information coming as a result of transactions carried out on various markets being seen during the financial year, having a rigorous and objective character, and (ii) information known at the end of the year that is largely the result of estimates and reflects the accounting policies of the firm's management (Danos, Holt, & Imhoff 1989).

Managers primarily use accounting information to develop knowledge of their work environment in order to prepare for future decisions and activities (Hall 2010). For investors, accounting information has a valuation role, providing them with information for making informed investment decisions. Private-equity firms require accounting information to control the conflicts of interest both within the private-equity firm and among their investors (Zimmerman 2015). Also, the role of accounting information can be viewed as shaping user perceptions by providing new evidence that the descriptive valence of accounting constructs can impact consumer purchase decisions (Tian & Zhou 2015).

The usefulness of accounting information increases if it is comparable, verifiable, readily available, and understandable. But the relevance and faithful representation of accounting information are considered to be fundamental qualitative characteristics considering their use in calculation of a wide range of indicators in financial analysis and diagnosis of financial performance.

The financial performance shows the success of a company and the attractiveness of shares on financial markets. It helps investors in making investment decisions in stock markets and managers in making financial decisions (investment, funding and profit distribution) for firm development. Financial performance is usually measured through return on equity (Khan, Khan, & Azad 2015) and return on assets (Nawaz, Salman, & Shamsi 2015), return on sales (Waddock & Graves 1997), return on capital employed (Chetty, Naidoo, & Seetharam 2015), and earnings per share (Cochran & Wood 1984). Financial performance is affected by certain factors, such as liquidity, ownership, age, and size (Deitiana & Habibuw 2015), leverage, assets turnover, capital cost, etc. But other factors may affect financial performance as well, and these may even change in face of economic crisis.

The quality of accounting information can reduce a firm's exposure to systematic liquidity risks and may affect its valuation and capital cost through their impact on different aspects of liquidity, especially when particular events, such as an economic crisis, may arise. Thus, the important role of accounting information during liquidity events is confirmed (Sadka 2011).

An economic and financial crisis causes imbalances over the economy and affects the business environment. By spreading to other countries, companies' financial conditions and performance will be affected on a micro level. Thus, this work also intends to analyze

the factors that influence financial performance accounting for two different financial performance measures; this is done to ensure different model specification effects and taking into account the financial crisis period of 2007–2009. The decline of capital markets, a recession in the housing market, and a rise in unemployment have been observed in many countries across the world, where the UE-28 countries were no exception.

Besides accounting for different factors that able to affect financial performance, this research intends to observe which factors change their influence in the face of a economic and financial crisis, taking into account two financial measures: return on equity (*ROE*) and return on assets (*ROA*).

The present article is distinguished from previous studies in several different ways:

(i) by dealing with a larger data set of accounting data on large non-financial companies from the EU-28 countries;

(ii) by reliable results achieved from analyzing indicators calculated based on standardized accounting information, as provided by the Amadeus Database;

(iii) by including a dummy *Crisis* as an exogenous variable to account for the effects of the financial and economic crisis felt by European countries in 2007 and mostly 2009;

(iv) by using an econometric approach that allows for a simultaneous interaction among variables and panel models considering random and fixed effects that allow us to identify heterogeneous influencing variables and to validate the main factors of influence. The methodology allows to infer the relations between them and the dependent variables, offering a regression-type relation that could also be used for future forecasts and for understanding the existent dynamics.

The rest of the article develops as follows. Section 2 presents the relevant literature and our study hypotheses. Section 3 presents the methodology and data, while in Section 4 we present and discuss the achieved results. Section 5 concludes this work by pointing out some policy implications.

2. Relevant Literature and Hypotheses

In this article, we account for factors that are able to influence financial performance in non-financial large firms from the EU-28 countries, taking into account the crisis period effect. We may think about many risk factors that able to affect the financial performance of firms, but we selected only some. Except for crisis, the variables selected are firm, specific factors that have been shown to be significant determinants of firm performance (Egbunike and Okerekeoti 2018).

Liquidity may be interpreted as the degree to which an asset can be converted into cash, depending on the asset demand and supply. Liquidity risk is also one of the major causes of financial crises and should thus be considered as an important factor in financial performance. A high *Liquidity* shows the financial strength of the company, and in the literature, we found a significant positive relationship between *Liquidity* variables and the profitability of the firm (Holz 2002; Khidmat & Rehman 2014; Lasisi et al. 2017).

Thus, companies that are liquid are able to meet short-term obligations, and a company with a higher current ratio indicates that it will have better performance. Therefore, it will be able to face any short- or long-term financial problems. The opposite is true for weak companies; they have a low current ratio because they have less liquidity (Ramli et al. 2019). As Europe was affected by the financial crisis first, we expect a significant impact relationship between *Liquidity* and performance.

The *asset turnover ratio* is a measure of how efficiently a company's assets generate revenue. In general, a low asset turnover ratio suggests problems with excess production capacity, poor inventory management, or weak collection receivables methods. Increases in the asset turnover ratio over time may indicate the company's growth and a high profitability. Also, firms with high labor productivity are more performant. In this sense, we formulate the first hypothesis:

H1: Financial performance is positively influenced by Liquidity, Assets turnover, and Labor productivity.

Profitability and *Solvency* are the results of medium- and long-term strategies of firm development. Since the higher the leverage, the more in-depth is the control undertaken by lenders, there is a positive relationship between *Leverage* and firm performance (López and Lima 2010). It means that firms with higher financial leverage perform better due to the positive leverage effects, manifested when the ROA is higher than the average interest rate. A high leverage means also a high capital repayment ratio and a low *Solvency* calculated as total assets divided by total debts. There are many studies developed in diverse sectors and countries that highlighted a positive relation between profitability and leverage (Roden & Lewellen 1995; Odit & Gobardhun 2011; Nawaiseh 2015; Ramli et al. 2019). As such, we formulate the second hypothesis:

H2: ROE is positively correlated with the degree of debts.

This hypothesis is explained by a positive correlation of ROE with financial leverage and capital repayment ratio and an inverse correlation with Solvency.

We found in the literature that the debt to equity ratio has a statistically significant inverse impact on the ROA (Al-Qaisi 2010; Chen 2004; Khidmat & Rehman 2014; Majumdar & Chhibber 1999; Nawaz et al. 2015; Lasisi et al. 2017). Morandi and Paulet (2019) found a significantly negative relation between profitability and the debt to equity ratio, while Ibhaguia and Olokoyob (2018), while studying small-sized firms from Nigeria, found that the negative effect of leverage on firm performance is most eminent and significant in these companies. Their study shows that the evidence of a negative effect of leverage diminishes as a firm grows, eventually vanishing when the firm's size exceeds its estimated threshold level. Considering these findings, we study this relationship in large European companies, and we consider the third hypothesis:

H3: ROA is negatively correlated with the degree of debts.

This hypothesis is explained by an inverse correlation of ROA with the financial leverage and capital repayment ratio and a direct correlation with Solvency.

Finally, the direct impact of the financial crisis was a reduction in profitability. The companies immediately responded to the crisis with more prudent financial management; curtailing expenses, cutting dividends, reducing bank borrowings, increasing equity; and to the extent of disposing of assets to mitigate losses (Ying Lai et al. 2014).

With respect to the relationship between crisis and financial performance ratios, Seilsepoor & Ahmadi (2016) showed that the profitability ratio, leverage ratio, liquidity ratio, and activity ratio are the main indexes with respect to the impact of the financial crisis of 2007. They found that return on asset, return on equity, the current ratio, the leverage ratio, and the asset turnover ratio were more affected by the financial crisis. So, we formulate our fourth hypothesis:

H4: A crisis changes the effects of independent variables on financial performance.

Because our goal is to find whether crises influenced *ROE* and *ROA*, and if a crisis changes the effects of factors over financial performance, we will analyze each of the first three hypotheses concomitantly with the fourth hypothesis.

3. Data Description and Methodology

3.1. Variables and Their Description

Variables selected for the study are described in Table 1. We analyzed the dependent variables (*ROE* and *ROA*), which were regressed using the following independent variables: financial leverage (*Fin. Lev.*), Liquidity ratio (*Liquidity*), Solvency ratio (*Solvency*), assets turnover ratio (*Ass. Turn.*), capital repayment ratio (*Cap. Repay.*), labor productivity (*Labor Prod.*), and the exogenous dummy crisis (*Crisis*).

Table 1. The described variables.

Description	Abbreviation	Calculation
ROE (%)	ROE	Net income / Shareholder funds
ROA (%)	ROA	EBIT / Total Assets
Financial Leverage (%)	Fin. Lev.	Total Liabilities / Shareholders funds
Liquidity ratio	Liquidity	(Current assets – Inventories) / Current liabilities
Total Solvency ratio	Solvency	Total assets / Total liabilities
Asset turnover ratio	Ass. Turn.	Turnover / Total assets
Borrowed capital repayment ratio	Cap. Repay.	Financial long-term debts / Self-financing capacity
Labor productivity (ThEur/employee)	Labor Prod.	(Turnover/1000) / Number of employees
Crisis	Crisis	Dummy: 2006 and 2010–2015 = 0 and 2007–2009 = 1

Note: Self-financing capacity = Net income + Depreciation and amortization.

Source: Amadeus Database provided by Bureau van Dijk Electronics; calculations made by the authors.

3.2. Model Specification

The model used for estimation follows a panel data approach (an unbalanced panel), combining time-series with cross-section data, analyzed through time (years) and for several companies. The standard static model with $i = 1,...,N$, $t = 1,...,T$ is presented in Eq. 1:

$$y_{it} = \beta_0 + X'_{it}\beta + \varepsilon_{it}. \quad (1)$$

where y_{it} will represent our dependent variables, X'_{it} is a K-dimensional vector of explanatory variables without a constant term, β_0 is the intercept, independent of i and t, β a (K×1) vector the slopes, i and t are also independent, and ε_{it} is the error that varies over i and t, where i refers to the company and t to the year. Individual characteristics, which do not vary over time, z_i, may also be included, as is presented in Eq. 2:

$$y_{it} = \beta_0 + X'_{it}\beta_1 + z'_i\beta_2 + \varepsilon_{it}. \quad (2)$$

Moreover, when using panel data, we may use two basic models, one of fixed effects and another of random effects. To find which model is more appropriate, we have performed the Hausman test (Hausman 1978). Having rejected the null (p-value < 0.05) takes us to the conclusion that random effects are inconsistent and that fixed effects are the most adequate model (Kyereboah-Coleman 2007; Manole & Spatareanu 2010). Then, we have run the panel vector autoregression models to examine empirically the interaction between company performance measures (one for *ROE* and one for *ROA*) and both financial and non-financial measures accounting for crisis effects.

3.3. Data Description

Our data source is the Amadeus Database, provided by Bureau van Dijk Electronics. Large, non-financial companies from the EU-28 countries were selected that operated across all sectors of activity during the period 2006–2015. The selection criteria applied for the year 2015 were the following: a number of employees greater than 250, total assets greater than €43 million, and turnover greater than €50 million. We have found 22 581 active companies matching these criteria. After checking data for availability, inconclusive values, and outliers, 106 510 valid year-observations remained in the study. We have organized the data as a panel, and we have obtained an unbalanced panel.

The data descriptive statistical analysis and correlation values are presented in Tables 2 and 3. As reported in Table 2, the average *ROE* (13.9%) is higher than the average *ROA* (7.4%), which shows the positive effect of leverage on *ROE* (*ROE* increases when leverage increases). The firms are marked by average performance and registered on average high levels of *Solvency* (2.07), *Liquidity* (1.27), and *Asset turnover* (1.55), which shows that firms have the capacity to pay debts.

Table 2. Data descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
ROE	106,510	0.1388	0.2163	-0.9996	1.0000
ROA	106,510	0.0742	0.0935	-0.9005	0.9750
Fin. Lev.	106,510	2.0684	1.8384	-2.9977	9.9993
Liquidity	106,510	1.2716	0.8531	0.0000	4.9984
Solvency	106,510	2.0668	1.1390	0.6601	9.9697
Ass. Turn.	106,510	1.5487	1.0130	0.0102	9.9235
Cap. Repay.	106,510	0.7342	1.2545	-5.0000	5.0000
Labor Prod.	106,510	0.3978	0.6348	0.0001	9.9858
Crisis	106,510	0.2677	0.4428	0.0000	1.0000

Source: performed by the authors, based on data extracted from the Amadeus Database.

Table 3. Pearson correlation coefficients for all firms.

	ROE	***ROA***	**Fin. Lev.**	**Liquidity**	**Solvency**	**Ass. Turn.**	**Cap. Repay.**	**Labor Prod.**	**Crisis**
ROE	1								
ROA	0.701***	1							
Fin. Lev.	0.091***	-0.136***	1						
Liquidity	0.044***	0.154***	-0.335***	1					
Solvency	-0.091***	0.071***	-0.576***	0.492***	1				
Ass. Turn.	0.163***	0.158***	0.212***	-0.112***	-0.247***	1			
Cap. Repay.	0.005*	-0.076***	0.096***	-0.092***	-0.167***	-0.126***	1		
Labor Prod.	0.036***	0.017***	0.079***	-0.046***	-0.074***	0.239***	-0.021***	1	
Crisis	0.014***	0.007**	0.029***	-0.015***	-0.034***	0.026***	0.002	-0.004	1

Source: performed by the authors, based on data extracted from the Amadeus Database; Notes: The table displays the Pearson correlation coefficient values, variables descriptive statistics are shown above the correlation values, while ***, **, and * indicate a significant at 0.01, 0.05, and 0.10 level, respectively.

Also observable is a high correlation between the two financial performance measures, a negative correlation between *Solvency* and all other variables except *ROA* and *Liquidity*. *ROE* is only negatively correlated with *Solvency*, while *ROA* with *Fin. Lev.* and *Cap. Repay.* The correlation between *Crisis* and *Liquidity*, *Solvency* and *Labor Prod.* is negative, being positive with respect to *ROE* and *ROA*.

4. Results and Discussions

The results obtained by panel estimations for both financial performance measures and using both random and fixed effects are presented in Table 4, with the data coefficients and statistical significance attained considering all firms in the sample. Results from the Hausman test are presented in Table 5. Despite the fact that for all model specifications the Hausman test results reveal that the fixed effects model is the one to be applied, we decided to present both model estimation results in Table 4.

Table 4. Panel data estimations for all firms in the sample, considering fixed effects and random effects.

			Independent variables - All companies									
			Fin. Lev.	**Liquidity**	**Solvency**	**Ass. Turn.**	**Cap. Repay.**	**Labor Prod.**	**Crisis**	**Constant**		
ROE	Fixed Effects	Coef.	-0.006	0.014	-0.007	0.067	0.013	0.032	0.008	0.020	F-test	435.38
		t-stat	-10.88***	10.91***	-6.37***	43.25***	21.39***	14.28***	7.37***	5.05***	p-value	0.000
	Random Effects	Coef.	-0.002	0.021	-0.010	0.050	0.011	0.014	0.007	0.045	Wald chi2	3315.69
		z-stat	-4.19***	19.48***	-11.08***	46.24***	20.01***	8.93***	6.41***	13.04***	p-value	0.000
ROA	Fixed Effects	Coef.	-0.008	0.009	0.001	0.042	0.000	0.016	0.002	0.005	F-test	1249.65
		t-stat	-34.93***	18.59	1.69*	72.84***	0.76	18.58***	4.59***	3.28***	p-value	0.000
	Random Effects	Coef.	-0.008	0.011	0.000	0.031	0.000	0.007	0.002	0.025	Wald chi2	8813.03
		z-stat	-40.95***	26.47***	-0.53	70.91***	-0.8	10.82***	4.46***	18.26***	p-value	0.000
ROE	Fixed Effects	Coef.	-0.006	0.014	-0.007	0.067	0.013	0.031		0.022	F-test	498.58
		t-stat	-10.52***	10.83***	-6.54***	43.50***	21.42***	13.90***		5.58***	p-value	0.000
	Random Effects	Coef.	-0.002	0.021	-0.010	0.050	0.011	0.014		0.047	Wald chi2	3273.36
		z-stat	-3.95***	19.43***	-11.2***	46.39***	20.04***	8.69***		13.58***	p-value	0.000
ROA	Fixed Effects	Coef.	-0.007	0.009	0.001	0.042	0.000	0.015		0.005	F-test	1454.08
		t-stat	-34.74***	18.54***	1.59	73.03***	0.79	18.36***		3.61***	p-value	0.000
	Random Effects	Coef.	-0.008	0.011	0.000	0.031	0.000	0.007		0.026	Wald chi2	8791.47
		z-stat	-40.80***	26.43***	-0.61	71.03***	-0.78	10.65***		18.62***	p-value	0.000

Source: performed by the authors, based on data extracted from the Amadeus Database; Notes: The table displays the coefficient of independent variables, *t-statistic* are shown in the lines below coefficients, while ***, **, and * indicate a significant at 0.01, 0.05, and 0.10 level, respectively.

Table 5. Hausman test results.

Model	Hausman test results	Decision
ROE / crisis	Chi2 (7) = 840.93 Prob > chi2 = 0.0000	Use fixed effects
ROA / crisis	Chi2 (7) = 1477.54 Prob > chi2 = 0.0000	Use fixed effects
ROE	Chi2 (6) = 824.71 rob > chi2 = 0.0000	Use fixed effects
ROA	Chi2 (6) = 1472.08 Prob > chi2 = 0.0000	Use fixed effects

Source: performed by the authors, based on data extracted from the Amadeus Database.

4.1. Hypotheses H1 and H4

Liquidity has a positive statistical influence over *ROE* and *ROA*, except when considering fixed effects in the latter and when *Crisis* loses significance. Our results confirm those of Holz (2002) and Khidmat & Rehman (2014), among many others, which found a positive relationship, but contradict the body of literature pointing to a negative relationship (Saleem & Rehman 2011). According to Aminu (2012), the stable growth and survival of a firm is linked to the maintenance of an appropriate balance between Liquidity and profitability in compliance with the firm's strategies and core objectives. The optimal level for Liquidity would be obtained by trade-offs between the low return of current assets and the benefit of minimizing the need for external finance, as pointed out by Kim, Mauer, & Sherman (1998).

Ass. Turn. has also a positive and statistical significant impact over *ROE* and *ROA*. *Labor Prod.* was initially expected to exert a positive influence over firm performance, and this is verified through the results attained. More productivity reinforces firms' capacity to increase financial performance, and this statistically significant effect is verified considering and not considering *Crisis* impact periods.

We are therefore able to validate H1, but there is still evidence of significance lost when the crisis effect is not taken into account, but only for the variable liquidity. If a crisis reveals that firms are able to increase financial performance doing higher efforts to survive under the crisis impact, they will also be able to raise more liquidity, and more liquidity drives to market confidence and higher posterior performance (Fuertes-Callén and Cuellar-Fernández 2019). Not considering crisis, liquidity loses significance but keeps the positive sign. Considering the outset of a crisis, a highly likely explanation results from the lenders' unwillingness or inability to finance growth opportunities during the crisis, thus not leading to financial performance. This is due to the erosion of capital and the vague future for economic prospects and related uncertainty. Meanwhile, more growth opportunities emerge, and if higher efforts are to be done in order to be able to raise money from external sources, it is possible that a firm may continue to evidence financial performance even under a crisis (Moradi and Paulet 2019).

4.2. Hypotheses H2 and H4

Based on our model estimation results, we verify that *ROE* is significantly and negatively influenced by *Fin. Lev.* independently of the *Crisis* effect. This crisis effect is by inherence statistically significant and exerting a positive influence over firms' financial performance. However, correlation values pointed to a positive relationship with respect to *ROE* but a negative one with *ROA*, which may be attributed to the crisis effect. Previous correlation values pointed to a negative *Solvency* and positive *Cap. Repay.* correlation with *ROE*, and panel estimation results confirm these signs whenever statistically significant. Thus, it is not possible to validate our H2. A positive effect of *Fin. Lev.* over financial performance may be attributed to higher control undertaken by lenders. Highly leveraged firms may be at risk of bankruptcy if they are not able to make payments over liabilities, and it will be hard for them to find new available lenders in the future. It may be seen as a positive aspect, considering that a firm's leverage increase the shareholder's return on their investment. As such, results presented here for the sample of firms from EU-28 reveal that *ROE* is negatively influenced by *Fin. Lev.*, showing that firms issuing high debt are less profitable, the impact being higher when *Crisis* is accounted for as well. These negative effects of financial leverage affect the value of firms with growth opportunities, considering underinvestment theory (Lopez Iturriaga & Crisostomo 2010). The positive effect of *Cap. Repay.* is associated to the negative impact found through *Fin. Lev.* meaning that when firms exceed a certain degree of debts, *ROE* decreases due to the negative leverage effect, a situation also explained by the crisis effect.

During economic crisis periods, companies need to adjust their strategies for the challenges presented to them in order to gain a competitive advantage and survive (Fuertes-Callén and Cuellar-Fernández 2019). Therefore, our results indicate that under a crisis, firms have turned to be slightly more profitable than they were, and a possible justification here might be due to the higher amount of available liquidity.

4.3. Hypotheses H3 and H4

ROA is significantly and negatively influenced by *Fin. Lev.* independently of the *Crisis* effect. This enables us to confirm our H3. With respect to *Fin. Lev.*, our results are consistent with those of Al-Qaisi (2010), Thippayana (2014), Khidmat & Rehman (2014), and Nawaz et al. (2015), among others, which also found a negative relationship. Previous correlation values pointed to a positive *Solvency* correlation with respect to *ROA*, and panel estimation results confirm these signs whenever statistically significant.

In the previously presented correlation analysis, *Cap. Repay.* reveals a negative relationship with *ROA*, not confirmed by empirical estimations through panel data analysis. Moreover, not considering the *Crisis* variable into estimations turned this impact into non-significant over firm performance. Considering *Solvency*, it shows a negative and statistical significant effect over *ROE* independently of the *Crisis* effect, but it is only significant and positive over *ROA* when considering *Crisis*. Therefore, we can also provide reasoning for our assumed hypothesis H4, since results seem to point that crises change the effects of independent variables on financial performance.

5. Conclusions

This study shows that all the analyzed factors are important in explaining ROE if considering *Crisis* or not, while only *Liquidity* is not significant over *ROA* when we consider *Crisis*. The impact of *Liquidity*, *Ass. Turn.*, and *Labor Prod.* on financial performance is positive independently of the *Crisis* effect. *Solvency* is significant and positive over *ROA* when considering *Crisis,* turning the *Crisis* variable into an important one to be included whenever this financial performance measure is considered. Moreover, capital repayment and *Solvency* do not seem to be statistically important to account for *ROA* variations independently of the crisis effect, except when considering fixed effects estimations.

The main results of the study are: (i) crisis exerts a significant positive effect over financial performance, showing that in a crisis period, the underperformance of companies is determined by other factors, independent of crisis; (ii) crisis exerts a significant positive effect over liquidity, which may be interpreted in two ways: the increasing of sales using a large trade credit period or the existence of a weak policy of cashing receivables and the reducing of commercial debts due to reducing the activity; (iii) crisis exerts a significant positive effect over assets turnover explained in two ways: increasing the turnover due to sales on trade credit or extending the trade credit period, and decreasing total assets due to reducing investments; (iv) crisis exerts a significant positive effect over labor productivity, explained by the increase of turnover through extending trade credit, but especially due to reducing the number of employees because of dismissals; (v) financial performance is significantly and negatively influenced by leverage independently of the crisis effect, showing the negative leverage effect that appears especially when the average interest rate is higher than the return on assets of the companies.

This work might be expanded in the future by including some of its present limitations into the analysis. One of the main limitations is with respect to the available data. Considering that we have annual observations, using time series models, to account for each company/country under analysis would be hard. Therefore, a country analysis and comparison among EU-28 countries would improve our conclusions and would allow to make policy comparisons. However, we need to take into account differences between countries and include them into the analysis. Another possibility would be to analyze the data with respect to financial crisis impact but separating the data into two or three groups in order to see the pre-crisis, during-crisis, and post-crisis effects. Although we would need more annual data observations for that. Other panel data models within this context would be an additional possibility. An analysis based on economic activity sectors would provide other interesting results, provided that some sectors were more affected than others by the financial crisis.

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