



Determinants of Leverage in Emerging Markets: Empirical Evidence

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ABSTRACT

The purpose of this paper is to investigate the relationship between leverage and its main determinants in the Argentine context, using the trade-off theory and the pecking order theory. Studies that have addressed this issue in emerging economies are still quite rare and the results are incomplete and controversial. To identify the companies to be analyzed, we used a stratified sampling methodology, following an economic criterion. The balance sheet data were collected through a questionnaire and were normalized to neutralize the effects of high inflation. The period analyzed is 3 years and concerns 181 companies. The research hypotheses were tested using a static fixed effects (FE) model. The results of this paper contribute to the existing literature, providing further empirical evidence on the financial behaviour of firms in an as yet unexplored economic context. Furthermore, empirical findings can be useful for Argentine entrepreneurs and managers of companies to improve their financial decisions.

Keywords: Capital Structure, Leverage, Profitability, Business Risk, Emerging Markets

JEL Classifications: G32, M16, M21

1. INTRODUCTION

The capital structure, represented by the combination of debt and equity, highlights the sources used by the company to finance its investments. Given the relevance of this topic in the financial literature, over the last few decades, many scholars have sought to provide a theoretical framework for explaining how firms make their financing decisions. Starting from the seminal papers by Modigliani and Miller (1958; 1963), a lot of theoretical and empirical research has been produced that have tried to explain and verify the financial behaviour of firms (Aggarwal, 1981; Myers, 1984; Myers and Majluf, 1984; Harris and Raviv, 1991; Rajan and Zingales, 1995; Michaelas et al., 1999; Fama and French, 2002; Faulkender and Petersen, 2006; Titman and Tsyplakov, 2007; Frank and Goyal, 2009; Chakraborty, 2010, among others). Although the literature has produced a large number of studies, developed in different economic contexts, there is still no agreement among scholars on what are the determining factors

able to reliably explain the financial behaviour of firms. Probably, this circumstance is due to several reasons.

Firstly, companies differ from each other, as they make different strategic and operational decisions, capable of influencing profitability, capital structure, level of risk, survival and development opportunities (Hall et al., 2004; Sensini, 2017; Chalmers, 2020a). These decisions are also conditioned by the structural and functional characteristics of the sector to which they belong (Chen et al., 2019).

Furthermore, the size represents a relevant factor in the financing decisions of companies (Cosh and Hughes, 1996; Berger and Udell, 1998; Cassar and Holmes, 2003; Sogorb, 2005; Frank and Goyal, 2009; Mac an Bhaird and Lucey, 2010; Palacin-Sánchez et al., 2012; Benkraiem and Gurau, 2013; Chen et al., 2014; Mannetta et al., 2017; Rao et al., 2019). Therefore, the theories and empirical results obtained for large enterprises cannot always be applied to SMEs.

Secondly, the legal, social, economic and fiscal context of the country of origin can play a fundamental role in influencing the company's choices.

In this regard, the literature has extensively verified the validity of the theories by focusing attention on companies in developed countries, where data are more readily available (Allen, 1993; Rajan and Zingales, 1995; Wald, 1999; Ozkan, 2001; Bevan and Danbolt, 2002; Fama and French, 2002; Psillaki and Daskalakis, 2009; Sensini, 2020; Fan et al, 2011; Al-Najjar and Hussainey, 2011; Chen et al., 2014a).

However, such theories have rarely been tested in emerging economies and developing countries (Booth et al., 2001; Abor, 2008; Md-Yusuf et al., 2013; Saarani and Shahadan, 2013; Handoo and Sharma, 2014; Rao et al., 2019).

Booth et al. made one of the first studies on the financial behaviour of some developing countries. The results showed that the determinants of the capital structure are the same as in developed countries, but specific national policies determine differences in behaviour (Booth et al., 2001; De Jong et al., 2008).

In the context briefly outlined, this study aims to investigate the determinants of the capital structure of Argentine manufacturing SMEs. The choice of this theme is based on several reasons.

First, the literature on financial behaviour in emerging economies is incomplete and presents controversial and unreliable results (Fama and French, 2002; Tong and Green, 2005). Therefore, delving into this theme in the Argentine context can contribute to enriching the literature, providing further empirical evidence.

Secondly, we have decided to focus attention on SMEs, because these companies represent the backbone of the economy and are the main drivers of growth and innovation (Chalmers et al., 2020b).

However, especially in emerging economies, these firms are heavily dependent on the banking system, also due to the limited development of financial markets (Cressy and Olofsson, 1997; Sanchez and Sensini, 2017). Furthermore, the problems of information asymmetry (Stiglitz and Weiss, 1981), the high transaction costs (Beck and de la Torre, 2007) and the greater structural and operational fragility can increase the financial constraints of these firms (Beck and de la Torre, 2007; Chen et al, 2014b), resulting in often obligatory financing decisions. Therefore, given their greater vulnerability, these companies must make informed financing decisions to aid their survival and development and reduce the risks of financial distress (Gaud et al., 2007; Amendola et al., 2011; Sanchez and Sensini, 2013; Newman et al. 2012; Campos et al., 2014; Sensini, 2016). In this perspective, therefore, the results of this research can be useful to owners and managers of SMEs to improve their financing decisions.

The companies analyzed were selected following a stratified sampling methodology based on an economic criterion. The balance sheet data were collected through a questionnaire and were normalized to neutralize the effect of inflation. The analyzed period

is 3 years and goes from 2016 to 2018. Overall, 181 companies participated in the survey. The research hypotheses were tested using a static fixed effects (FE) model. The results of this paper have been suitably tested with a robustness check.

The rest of the paper is organized as follows. The next section presents the literature review. The third section discusses the main drivers of leverage and research hypotheses, while the fourth contains the methodology. The fifth section analyzes the findings and the last section highlights the concluding remarks.

2. LITERATURE REVIEW

After the seminal papers by Modigliani and Miller (1958; 1963), many research papers have been published that have tried to explain the financial behaviour of firms. These studies have favoured the development of different theories that have been tested on companies of different sizes and in different economic contexts (Kraus and Litzenberger, 1973; Jensen and Meckling, 1976; Myers, 1984; Myers and Majluf, 1984; Berger and Udell, 1998; among others). In this paper, among the various theories developed, we considered it appropriate to refer to the two main theories suggested by the literature, that of the trade-off and that of the pecking order. Such theories are best suited to explain the financial behaviour of SMEs in an emerging economy.

The trade-off theory focuses on the fiscal benefits of debt, the costs of bankruptcy and agency costs (Kraus and Litzenberger, 1973; Jensen and Meckling, 1976). This theory suggests that optimal leverage can be obtained by balancing all three variables just mentioned.

The pecking order theory suggests that firms finance themselves following a hierarchical order, preferring first internal resources, then financing debts and, lastly, new equity. In this case, there is no optimal leverage ratio (Myers, 1984; Myers and Majluf, 1984)

Numerous empirical studies have tested both theories to verify what are the specific firm factors that can influence the financial behaviour of companies. Among the various determinants suggested by the literature, in this study we focus attention on the factors considered most significant, such as size, profitability, assets tangibility, growth and business risk. (Michaelas et al., 1999; Watson and Wilson, 2002; López-Gracia and Sogorb-Mira, 2008; Daskalakis and Psillaki, 2008; Frank and Goyal, 2009; Hovakimian and Li, 2011; Aybar-Arias et al., 2012; Degryse et al., 2012).

3. RESEARCH HYPOTHESES

3.1. Size

The two main theories suggest a positive relationship between size and debt. According to the trade-off theory, the larger size favours access to credit at lower costs, reducing information asymmetry and the risks of financial difficulties (Ang et al., 1982; Rajan and Zingales, 1995; Michaelas et al., 1999; Fama and French, 2007).

Therefore, our research hypothesis is as follows:

H1: Size has a positive relationship with debt.

3.2. Profitability

The trade-off theory holds that the most profitable companies prefer to use more debt to obtain tax benefits, suggesting a positive relationship between profitability and debt (Graham, 2000; Fama and French, 2002; Delcoure, 2007). However, from a dynamic perspective, some authors suggest a negative relationship (Gaud et al., 2005; Hennessy and Whited, 2005; Flannery and Rangan, 2006; Huang and Ritter, 2009; Haron and Ibrahim, 2012).

The Pecking Order Theory suggests that more profitable companies prefer to use retained earnings to finance their investments and therefore predicts a negative relationship between profitability and debt (Norton, 1991; Van der Wijst and Thurik, 1993; Chittenden et al., 1996; Michaelas et al., 1999; Petersen and Rajan, 2002; Sogorb, 2005; Vos et al., 2007; Degryse et al., 2012).

Following the latter theory, our research hypothesis is as follows:

H2: Profitability is negatively correlated with debt.

3.3. Tangibility

Both theories, although with partially different motivations, suggests a positive relationship between assets tangibility and leverage, as these assets represent a guarantee for creditors (Myers and Majluf, 1984). Consequently, the presence of tangible assets reduces the cost of financing and the risk of financial difficulties (Titman and Wessels, 1988). Furthermore, when such assets can be used as collateral for funding, agency costs are reduced (Myers, 1977; Booth et al., 2001; Frank and Goyal, 2009; Poornima and Manokaran, 2012; Andres et al., 2014; Dang and Garrett, 2015; Mannetta et al., 2017).

Therefore, in line with the literature, our research hypothesis is as follows:

H3: assets tangibility has a positive relationship with debt.

3.4. Growth

The trade-off theory predicts a negative relationship between growth and leverage (Jensen, 1986; Fama and French, 2002; Barclay et al., 1996).

Conversely, pecking order theory suggests a positive relationship between growth and leverage (Gaud et al., 2005; Chang et al., 2009; Guney et al., 2011; Andres et al., 2014; Dang et al., 2014). However, the results are often controversial, as several studies have found a negative relationship, as predicted by the trade-off theory.

In line with the latter theory, we hypothesized the following relationship:

H4: growth has a negative relationship with debt.

3.5. Business Risk

According to both theories, there is a negative relationship between corporate risk and debt. The volatility of the company's earnings increases the risk of default, reducing creditors' confidence and increasing the financial cost of loans. Furthermore, the higher risk

results in a lower level of indebtedness that does not allow to fully exploit the tax benefits (Booth et al., 2001; Drobetz and Fix, 2003; Delcoure, 2007; De Jong et al., 2008; Frank and Goyal, 2009).

Consequently, our latest research hypothesis is as follows: the risk negatively affects the debt.

H5: business risk has a negative relationship with debt.

4. METHODOLOGY

The paper aims to investigate the financial leverage of SMEs, studying the relationship between the main determinants of the capital structure, as described above, and debt. To identify the companies to be analyzed, we followed a stratified sampling methodology (Bradburn et al., 2004; Brasini et al., 2002; Chen et al., 2020), using an economic criterion. This approach has the advantage of improving the efficiency of estimates and allows to include a significant number of different companies, in terms of size and turnover (Amendola et al., 2020).

The overall sample size, $n = 1,000$, was calculated to ensure an error level of $|\epsilon| \leq \text{level}$ for the estimate with a probability $1 - \alpha$ robabi

$$n = \frac{n_0}{1 + \frac{n_0}{N}} \quad (1)$$

where N is the population size and n_0 is given by:

$$n_0 = \frac{z^2(0.975)p(1-p)}{\epsilon^2} \quad (2)$$

The data was collected through a questionnaire which was intended to collect all the relevant balance sheet data for our analysis. Given the high inflation that characterizes the Argentine economy, all balance sheet data have been normalized and converted into dollars. The analyzed period is 3 years and goes from 2016 to 2018.

The sample included 500 manufacturing companies headquartered in the province of Buenos Aires. Overall, 181 SMEs participated in the research. The variables used to explain firms' leverage were determined as shown in Table 1.

The research hypotheses were tested using a static fixed effects (FE) model.

Table 1: Variables

Dependent variable	
Leverage	Ratio Total Liabilities/Total Assets
Explanatory variables	
Size	Logarithm of Total Assets
Profitability	Ratio EBITDA/Total Assets
Tangibility	Ratio Fixed Tangible Assets/Total Assets
Growth	Ratio $(\text{Total Assets}_{i,t} - \text{total Assets}_{i,t-1}) / \text{Total Assets}_{i,t-1}$
Business Risk	Standard Deviation EBIT

Table 2: Descriptive statistics

Variables	Mean	StDev	LEV	SIZE	PROF	TANG	GROW	RISK
LEV	0.41	0.36	1					
SIZE	9.44	1.32	0.246*	1				
PROF	0.14	0.08	-0.141*	-0.132*	1			
TANG	0.36	0.21	0.238*	0.271*	0.191*	1		
GROW	1.12	0.23	0.009	0.007	0.457*	0.137*	1	
RISK	0.03	0.04	-0.064*	-0.169*	0.079*	0.031*	0.011	1

* ** and *** show significance at 10%, 5% and 1%, respectively

To analyze the relationships between the variables, we used the following static regression model:

$$LEV_{it} = \beta_0 + \beta_1 SIZE_i + \beta_2 PROF_{it} + \beta_3 TANG_{it} + \beta_4 GROW_{it} + \beta_5 RISK_{it} + \varepsilon_{it}$$

Where LEV is the accounting leverage of firm *i* in year *t*, with firm-specific determinants such as size (SIZE), profitability (PROF), assets tangibility (TANG), growth (GROW) and business risk (RISK) and ε_{it} represents the stochastic error.

The descriptive statistics of all the variables, dependent and independent, are shown in Table 2.

Observations from the correlation analysis show that there are no multicollinearity problems (Brooks, 2014). To avoid the risk linked to an unobserved effect, we used several tests suggested by the literature (Breusch and Pagan, 1980). Furthermore, we also verified the absence of heteroskedasticity and autocorrelation.

5. RESULTS AND DISCUSSION

Table 3 shows the regression results with fixed effects on leverage, highlighting that all independent variables influence the financial decisions of companies and are statistically significant.

Overall, the results of the analysis offer several interesting reflections.

Size has a positive and significant relationship on leverage, in line with both theories and our first hypothesis. These results suggest that the larger size reduces the problems of information asymmetry and the risk of financial difficulties, favouring easier access to the financial system Ang et al., 1982; Rajan and Zingales, 1995; Michaelas et al., 1999; Fama and French, 2007).

The results show that profitability has a significant negative impact on leverage, according to the pecking order theory and our second hypothesis. Therefore, the most profitable companies prefer sources of internal financing to finance their investments (Van der Wijst and Thurik, 1993; Chittenden et al., 1996; Michaelas et al., 1999; Petersen and Rajan, 2002; Vos et al., 2007; Degryse et al., 2012).

Assets tangibility has a positive and significant impact on leverage, in line with other studies (Rajan and Zingales, 1995; De Jong et al., 2008; Kayo and Kimura, 2011). Therefore, the presence of tangible

Table 3: Panel fixed effects regression

Explanatory Variables	Leverage
SIZE	0.038*** (0.009)
PROF	-0.127*** (0.033)
TANG	0.083** (0.041)
GROW	-0.007 (0.003)
RISK	0.029 (0.079)
Constant	0.512***
R ²	0.069
Adjusted R ²	0.067

* ** and *** show significance at 10%, 5% and 1%, respectively

Table 4: Robustness check

Explanatory Variables	Leverage
SIZE	0.039*** (0.009)
PROF	-0.139*** (0.041)
TANG	0.141*** (0.049)
GROW	-0.005 (0.002)
RISK	0.015 (0.089)
Constant	0.219
R ²	0.057
Adjusted R ²	0.063

* ** and *** show significance at 10%, 5% and 1%, respectively

assets represents an important guarantee for lenders and reduces the problems of information asymmetry. This results confirms that the use of tangible assets as collateral plays a fundamental role in emerging economies, as the protection of creditors tends to be lower than in more developed economies (La Porta et al., 1998).

Finally, empirical findings relating to growth and risk show negative and positive signs, respectively. However, the results are not statistically significant.

To assess the robustness of our results, we considered an alternative measure for the dependent variable, using the ratio of total debt to total capital in our regression model (Rajan and Zingales, 1995). The regression results are showed in Table 4.

In particular, size and assets tangibility confirm a positive and significant relationship with financial leverage, while profitability confirms a negative and significant relationship with debt. Furthermore, growth and business risk are also of little significance in this case.

6. CONCLUDING REMARKS

The purpose of this paper was to study the relationship between leverage and its main determinants in the Argentine context, using the trade-off theory and the pecking order theory.

Although the literature has extensively verified the validity of these theories on companies in developed countries, studies that have addressed this issue in emerging economies and developing countries are still quite rare. Furthermore, the results are incomplete and controversial.

To identify the companies to be analyzed, we followed a stratified sampling methodology, using an economic criterion. This approach has the advantage of improving the efficiency of estimates and allows to include a significant number of different companies, in terms of size and turnover (Amendola et al., 2020). The balance sheet data was collected through a questionnaire. Given the high inflation that characterizes the Argentine economy, all balance sheet data have been normalized and converted into dollars. The analyzed period is 3 years and goes from 2016 to 2018.

Overall, 181 firms participated in the survey.

The research hypotheses were tested using a static fixed effects (FE) model. The results of this paper present some interesting reflections and have been appropriately tested with robustness check.

Size and assets tangibility showed a positive and significant effect on leverage. Profitability showed a significant negative impact on financial leverage, while growth and business risk did not show significant effects.

The results of this paper are important from several points of view. First, empirical findings contribute to the existing literature, providing further empirical evidence on the financial behaviour of firms in an economic context that has not yet been studied. Second, the results can be useful for entrepreneurs and managers of Argentine companies to improve their financial decisions.

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