Firm-level determinants of SME´s financing decisions. Evidence from Argentina

Abstract

This paper studies the determinants of small and medium enterprises (SMEs) financing decisions, which we characterise through three cases: trade-off behaviour, pecking order and extreme aversion to debt. We test our hypotheses using a dataset of firms from Bahía Blanca (Argentina) for two years: 2006 and 2010. We find that firm characteristics related to information asymmetries, such as firm age, size and legal form, and personal factors, as owner's age and education, and perception of emotional bankruptcy costs, are relevant variables in SME' financing behaviour. The recognition of extreme aversion to debt leads to reconsider the underleverage problem of SMEs.

INTRODUCTION

Small and Medium Enterprises (SMEs) development is itself an interesting concern in developing economies (Dong and Men, 2014). In these firms, the problems of asymmetric information, adverse selection, and moral risk can severely affect access to external financing. Thus, this constitutes one of the main research lines that can promote the development and survival of SMEs, especially in emerging countries where the financial constraints are stronger. Therefore, the aim of this paper is to study financing decisions in Argentinian SMEs, considering the particular characteristics that arise in this context.

Capital structure theory considers the importance of two main theories: the pecking order theory (PO) and the trade-off theory (TO). The first theory considers that companies are exposed to information costs arising from these asymmetries (Myers, 1984; Myers and Majluf, 1984). SMEs privileges internal financial sources that are least subject to information costs and at the same time involve less risk. Hamilton and Fox

(1998), also show the preference of SMEs for internal funds, based on the idea of control and flexibility of their owners. The second theory, named the trade-off theory, considers industry-wide effects (taxes, bankruptcy cost, and agency problems) and predicts a target optimal structure, as a result of balancing costs and benefits of issuing debt and equity. This theory, considers that the optimal capital structure is a result of balancing the benefits of leverage (mainly tax savings), and the costs of financial distress. In this regard, if the company takes debt, tax savings are expected to be larger, but also higher costs arise from default risk.

Previous empirical evidence coincides with both trade-off and pecking order predictions in SMEs. Authors such as Lopez-Gracia and Sogorb-Mira (2008), Degryse, de Goeij, and Kappert (2010), Aybar-Arias, Casino-Martinez, and López-Gracia (2011), and Serrasqueiro and Maças Nunes (2012) conclude that TO and PO should not be considered mutually exclusive explanations for financing decisions. Our work inserts within this line of studies.

In addition, we consider a third complementary description for SMEs´ financing decisions, which is particularly relevant in emerging economies: extreme aversion to debt (AV) (Briozzo and Vigier, 2009). In this case, leverage is considered to be highly disadvantageous, and owner-managers will not take debt even if they pass up an attractive investment by doing so.

The problems related with capital structure require a deep analysis of the real capital structure and the preferable one (Kumar and Purnima, 2015). In the first case, it requires analysing the SMEs choices respect to the financial sources; and in the second one, it refers to all available sources of funds in the market. In this study, we balance both perspectives, as we focus on how firms take financing decisions, instead of analysing the observed capital structure.

We test our hypotheses using a dataset of SMEs from Bahia Blanca, Argentina, with data collected in years 2006 and 2010. We select different subgroups of variables as explanatory factors. First, regarding firm-specific variables, we consider size, firm age, legal form, industrial sector, and reinvestment rate. Moreover, owner characteristics are also considered: owner's age, education, goals for his or her firm, and perception of bankruptcy costs. The results show that demand-side characteristics can severely affect financing decisions and sometimes lead to extreme aversion to debt.

This paper makes at least three contributions to the topic of SME financing decisions. First, in the way we characterize the problem under study, with a focus on the financing decision instead of on the observed capital structure. Second, the consideration of both firm and owner´s characteristics, which is rarely considered in previous studies given the unavailability of such data. Finally, this study contributes to the scarcity of studies on SME financing decisions in developing countries.

The remainder of the paper is organised as follows. In the next section we review the main theories and previuos studies on SME financing and present our hypotheses. Moreover, we present a brief review related to the macroeconomic conditions in Argentina during the years of analysis. Section III, describes the data and methodology, and Section IV shows the empirical results and discussion. Finally, the main conclusions of this paper are summarised in Section V.

LITERATURE REVIEW

Conceptual framework and hypotheses

In this section, we briefly describe the capital structure and financing behaviours approaches considered in this study: trade-off theory, pecking order theory, and extreme aversion to debt. For each approach we present the hypotheses of this study.

Trade-off Theory (TO)

Trade-off theory considers industry-wide effects (taxes, bankruptcy costs, and agency problems) and predicts a target optimal structure as a result of balancing the costs and benefits of issuing debt and equity. Under the TO approach, we expect a positive relationship between debt ratios and tax-shield-related factors, such as profitability and corporate tax rates, as well as a negative relationship between the variables associated with bankruptcy costs and information asymmetries. In this sense, small-sized, young, high-growth firms are expected to use less debt (Frank and Goyal, 2009).

Dynamic trade-off models (DTO) consider the adjustment costs of changing the leverage ratio (Fischer, Heinkel, and Zechner 1989; Goldstein, Ju, and Leland 2001; Strebulaev, 2007; among others). Firms whose leverage ratios do not coincide with their targets will only adjust their capital structure if the benefits outweigh the adjustment costs. These deviations from optimal leverage may create problems in interpreting the empirical research results (Hennessy and Whited 2005).

Thus, according to TO theory, we can identify the following financing behaviour:

Case Trade-off (TO): Leverage is considered advantageous under certain conditions, and owner-managers choose to use debt even if internal funds are available.

Considering the effect of diverse factors on the benefits and cost of debt, we formulate the following hypotheses regarding firm financing according to TO behaviour:

H1 *-Firm´s size and age:* The relative impact of bankruptcy costs should decrease with firm size, so a direct relationship between firm´s size and TO financing behavior exists. Older firms face less uncertainty, so the expected value of tax shields should be higher, leading to a direct relationship between firm´s age and TO financing behavior.

H2 - *Limited liability:* This variable captures limited liability and also the tax system, as limited liability implies a fixed profits tax rate (35%) in Argentina. Because of the tax effects, a direct relationship with TO financing behavior exits.

H3- *Sector*: Belonging to the manufacturing sector acts as a proxy for tangible assets, which moderates the magnitude of bankruptcy costs, thus a direct relationship with TO financing behavior exists.

In developing countries, macroeconomic and regulatory uncertainty can be particularly strong. Recent capital structure models study the effect of changing financial constraints and credit risk in financing decisions (Korajczyk and Levy 2003, Hackbarth, Miao and Morellec 2006). A particular form of economic instability is inflation. The tax advantage is due to the time value of money, and therefore increases in periods of high inflation and high nominal interest rates (Myers, Dill and Bautista, 1976). Several studies (from Jaffe, 1978 to Frank and Goyal, 2009) reveal that, during an inflationary period, firms employ more debt in their capital structure as the real cost of debt falls.

H4: *Macroeconomic conditions*: Given the lower cost of debt in real terms due to increasing inflation, firms in year 2010 (a year with higher inflation) have stronger preference for TO behaviour.

Pecking Order Theory (PO)

Pecking order theory describes a hierarchy in financing choices instead of predicting the existence of an optimal structure. Firms first use internal funds (retained earnings), then

issue debt, and as a last resort, issue new equity. Myers (1984) and Myers and Majluf (1984) explain the negative signaling effect of new equity issues. Hamilton and Fox (1998) also show a preference for internal funds based on the owner's desire for control and flexibility. While the original proposition of the financing hierarchy results from the undesirable signaling effect of new equity issues, this argument can be considered a demand-side explanation for private firms.

Following PO theory, we can identify the following financing behaviour:

Case Pecking order (PO): Because leverage is considered to be disadvantageous compared with internal sources, owner-managers choose to use internal funds first. If internal financing is exhausted and attractive investments remain, they use debt to avoid losing an investment opportunity. Similarly, as soon as internal funds become available, they choose to cancel debt before maturity.

Romano, Tanewski, & Smyrnios (2000) find that equity is less likely to be a consideration for older family business owners in Australia. This result agrees with PO, as outside equity is the last source of financing. Moreover, older and more educated SME owners are less likely to seek or use external financing (Vos, Yeh, Carter and Tagg, 2007). This result is in line with PO, where internal financing is the first preferred source of financing. Thus, we formulate the following hypotheses regarding firm financing according to PO behaviour:

H5- Owner´s age: Owner´s age has a direct relation with PO financing behaviour.

H6- Owner's education: Higher education is positively related to PO financing behavior.

Berger and Udell (1998, p. 622) explain the small firm's financial structure using a financial growth cycle "(…) *in which financial needs and options change as the business grows, gains further experience, and becomes less informationally opaque*".

These authors show that capital structure varies with firm size and age. Smaller and younger firms rely on initial insider finance, trade credit, and angel finance if available. As firms grow, they gain access to other financing sources: first banks and finance companies, and eventually public equity and debt markets. This sequence can be seen as a dynamic view of the PO where information asymmetry strength decreases as the firm gains experience, as we postulate in the following hypothesis:

H7 -Firm´s size and age: These variables capture the financial growth cycle of the firm, and act as an inverse proxy for information asymmetries, thus an inverse relationship with PO financing behaviour exists.

Fama and French (2002) note that under PO hypotheses, firms have no incentive to issue debt if they still have internal funds to finance investments. This behaviour assumes that firms use debt only if attractive investment opportunities remain.

On the one hand, pecking order theory predicts a positive relationship between the debt ratio and firm size and growth but a negative relationship between the debt ratio and profitability. Empirical studies on small firms around the world support these hypotheses (e.g., Petersen and Rajan 1994, Romano, Tanewski and Smyrnios 2000, Sorgob-Mira 2005, Van Caneghem and Van Campenhout 2012). Haileselasie (2009) finds that PO holds for less-educated owners in Ethiopia, owners with a higher degree of entrepreneurial skills, and firms with less involvement in the form of ownership. On the other hand, empirical evidence coincides with both trade-off and pecking order predictions in SME. These authors conclude that TO and PO should not be considered mutually exclusive explanations for financing decisions (see Lopez-Gracia and Sogorb-Mira 2008, Degryse, de Goeij, and Kappert 2010, Aybar-Arias, Casino-Martinez, and López-Gracia 2011, and Serrasqueiro and Maças Nunes, 2012). Thus, we formulate the following hypotheses:

***H8** - Limited liability:* This variable may capture the degree of informality because according to Argentinean regulation, these firms must present financial statements. Thus, through the reduction of information asymmetries an inverse effect with PO financing behaviour exists.

***H9-** Sector*: Belonging to the manufacturing sector acts as a proxy for tangible assets, which moderates the intensity of information asymmetries, thus an inverse relationship with PO financing behaviour exists.

Extreme aversion to debt and personal lifecycle approaches

Briozzo and Vigier (2009) describe the existence of extreme aversion to debt in small firms: firms that willingly pass up attractive investments if they have to resource to debt to finance them[1]. This leads us to postulate the following case of financing behaviour:

Case Aversion to debt (AV): Leverage is considered highly disadvantageous, and owner-managers will not take debt even if they pass up an attractive investment by doing so. This situation is a case of extreme aversion to debt.

Briozzo and Vigier (2009) take a demand-side view of financing decisions and propose the managerial view and the life cycle of the owner-manager approach, which are an application of the upper echelons theory (Hambrick and Mason, 1984) to SMEs. The managerial view considers the impact of the owner-managers' personal characteristics and the way they run their organizations on financing decisions through a set of different variables.

First, the owner's business goals, as investment and financing decisions may differ if the owner has a traditional financial objective instead of family oriented goals. Carland, Carland, Carland, and Pearce (1995) suggest differences in the risk propensities of founders who primarily focus on profit and growth, owners of small business who focus

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[1] Although aversion to debt in small firms has been described in other countries (e.g., Norton, 1990), we do not have evidence this extreme case has been previously documented.

on more personal goals and family income, and corporate managers. Because SMEs are not subject to capital markets scrutiny, preferences and objectives of owner-managers in these firms strongly affect capital structure decisions (Barton and Matthews, 1989). For instance, Romano, Tanewski, and Smyrnios (2000) find that firms whose owners' objectives are to create a lifestyle business are likely to use capital and retained profits as a source of business finance.

H10-Owner´s business goals: Owners who focus more on business related goals are less willing to pass up positive-net, present-value projects than owners focused on personal goals, thus an inverse relation with Aversion to debt (AV) financing behaviour exists.

Second, capital structure decisions are influenced by the firm owner´s attitude towards debt. The entrepreneur´s prior experience and knowledge about capital structure lies among the factors that influence this attitude (Matthews, Vasudevan, Barton, and Apana, 1994). Then, attitude toward debt financing and previous debt experiences (personal and for the firm), influence financing decisions, as owners with this experience may have less aversion to debt risk (a demand effect). Moreover, relationship banking studies (Binks and Ennew, 1997; Boot, 2000; among others) show that previous records can soften information asymmetries with banks (supply effect).

H11- Experience with debt at personal level: The owners' lack of experience with debt at the personal level has a direct relationship with AV financing behaviour.

Third, the owner's education level: the owner's education can signal management professionalization, which can be associated with better access to financing sources. Conversely, according to Vos, Jia-Yuh Yeh, Carter and Tagg's (2007) contentment hypothesis, older and more educated owners are expected to be more satisfied with their

firm's situation, to be less prone to entrepreneurial activity, and to be less interested in searching for external financing.

H12 *-Owner's education*: A direct relationship between owner's education and AV financing behaviour exists.

Moreover, Sheperd, Wiklund, and Haynie (2009) acknowledge that there are emotional as well as financial consequences from business failure. In particular, personal costs of bankruptcy appear because of the owner-firm intertwinement typically present in SMEs. These costs involve the socio-economic and emotional consequences of the firm's bankruptcy for the owner, even with limited liability. As banks and other financing institutions often require personal guarantees from SME owner-managers, this personal collateral is equivalent to the entrepreneur investing their own equity in the business (Thorne, 1989).

H13 **-***Emotional costs of bankruptcy*: Owners that consider emotional costs of bankruptcy are higher than the economic-financial consequences, for the firm and for themselves, will be less prone to undertake financial leverage (AV financing behaviour).

The *lifecycle of the owner-manager* considers the owner-manager's risk aversion to increase with age. The owner-manager's goals evolve during his or her lifetime as well (from the pursuit of profit and growth to more family-oriented objectives). A relationship between the firm's financial growth cycle and the owner-manager's lifecycle also exists. As the firm and its owner age, information asymmetries decrease, granting easier access to debt (a supply side effect captured in H5), whereas the owner's risk aversion and emotional bankruptcy costs increase with age, which create the desires to use less leverage (demand-side effect).

H14- *Owner´s age:* Risk aversion increases with age so older owners will be less inclined to face the higher risk of a leveraged firm, thus a direct relationship with AV financing behaviour should exist.

Finally, family businesses may use less debt than non-family businesses because of aversion to financial risk and the owner's fear of losing the freedom to dictate business policies (Gallo, Tàpies and Cappuyns 2004).

H15- *Family firm:* Firms that follow AV financing behaviour will be predominantly family firms.

Three cases of financing behaviour: a model

The three cases we propose (TO, PO and AV) represent a choice in changing the total debt level (ΔTD) as a consequence of choosing to finance a new project. Mathematically, this choice can be expressed as follows:

$$\Delta TD_t = TD_t - TD_{t-1} = \begin{cases} f(\lambda, D^* - D_{t-1}) \ \rightarrow \ \text{TO, DTO} \\ f(CFD) \ \rightarrow \ \text{PO} \\ 0 \ \text{ and } D_t = 0 \text{ (always), even though } D^* > 0 \rightarrow \text{Extreme aversion to debt} \end{cases} \quad (1)$$

Where:

D_t = Ratio of total debt to total assets in moment t.

D^* = Ratio of total debt to total assets that maximizes firm value, which is the objective optimal debt ratio.

λ = Velocity of adjustment to the optimal debt ratio

CFD = Cash flow deficit.

Traditional theories (e.g., TO and PO) can explain the first two cases. Under trade-off arguments, in case TO (i.e., internal funds are still available), a firm can choose to use debt if the firm value is expected to rise with this decision. If the firm has reached the

optimal capital structure, new debt will be issued to finance new projects to maintain the optimal ratio.

Dynamic trade-off models state that the firm will issue debt only if it is underleveraged ($D < D^*$) and if the benefits outweigh the debt issue costs. Empirical studies (e.g., Aybar-Arias, Casino-Martinez and López-Gracia, 2011) find that SMEs adjustment speed is different from zero, which means that ΔTD_t cannot always be zero. Therefore, DTO cannot explain extreme and constant aversion to debt (case AV).

For case PO, internal funds are always selected first. This hierarchy relates to credit rationing because the firms that expect to be rationed (or were previously rationed) in the debt market will prefer to avoid this unproductive process and use their internal funds first.

The firms belonging to case AV choose to avoid financial debt at all costs even if they must pass up an attractive investment to do so. In this case, extreme aversion to debt can result from a very high aversion to risk, large expected bankruptcy costs (both financial and emotional), and the owners' belief that macroeconomic conditions are highly unstable (this fear can be particularly strong in developing countries).

2. Previous evidence

Several prior studies analyse PO and TO predictions in SME, mainly in developed countries[2]. Table 1 shows that in general results agree with a complementary role of PO and TO in financing decisions. For emerging countries, the financing hierarchy, described by the PO, appears as a clear pattern of financing behaviour.

(Insert Table 1)

3. National context

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[2] The search for studies focused on Latin-American countries was made in SCOPUS, SCIELO and DIALNET databases.

Argentina is of special interest for several reasons: i) it is the third economy by Gross Domestic Product (GDP) in Latin America, after Brazil and Mexico, ii) SMEs account for 70.2 percent of formal employment and 53.7 percent of Argentinean GDP (Cohen Arazi and Baralla, 2012) and iii) the percentage of SMEs with a bank loan or line of credit is similar to the Latin-American average (World Bank, 2013). Thus, while our results are specific to Argentina, we expect that similar results will be found in other emerging economies.

In order to understand the underlying context of Argentina in general and of each year of our study in particular, in Table 2 we present a summary of the main economic and business indicators. Argentina´s economy experienced high growth of the Gross Domestic Product (GDP) during this period, with a GDP per capita rising from U$6783 (year 2006) to U$11460 (year 2010), a sign of recuperation from the severe 2001-2002 crisis. Macroeconomic indicators of domestic credit to private sector remained stable, but the increasing inflation led to higher interest rates in nominal terms (from 13% to 16.5%). This fact can be observed in the increase of the percentage of SMEs declaring that interest rates were the main reason to avoid credit financing (from 23% to 45%). Interestingly, the real interest rate turned into negative values in year 2010 (24% inflation rate versus 16-17% lending interest rate), which favoured debtor positions for those that could afford the financial costs, leading to higher leverage (36% of SMEs had a credit line in year 2006, versus 48% in 2010). In addition, SMEs relied more on internal funds in year 2006 (in year 2006, 53% of firms that did not apply for a loan declared they had sufficient capital, versus 27% in year 2010), a change probably derived from the deterioration of profitability due to inflation-caused price distortions and increases of the cost structure.

(Insert Table 2)

~~Respect to the intrinsic characteristics of the city of Bahía Blanca, where the SMEs surveyed are located, is a relative big city of 301.572 habitants. The main sectors that contribute to the Geographic Gross Product (2003) are the manufacturing industry (32.2%), followed by the real state property services and renting services (13.9%) and for the wholesale trade and less and repairs (11.7%). Moreover, relative to the financial institutions established in the city, it is possible to count around 31 banks (Association of Public and Private Bank of Argentina; 2015).~~

DATA AND METHODOLOGY

Data

The data was collected by an *ad hoc* questionnaire and conducted by personal interviews, in two different years: 2006 (110 firms) and 2010 (112 firms), in the city of Bahía Blanca, Argentina. With this study, we developed a dataset of SMEs with information on variables with no previous records in Argentina, such as personal bankruptcy costs, owner-managers' goals for their businesses, and experience with debt at the personal level. To check for internal consistency, we included several follow-up questions[3]. We also compared our results with national level reports from Observatorio PyME (2006, 2010) and World Enterprise Surveys (2006, 2010).

Methodology

The three cases of financing decisions can be represented through a qualitative nominal variable, which can assume three values:

$$(2) \quad Y = \begin{cases} 1, \text{ if firm belongs to case TO} \\ 2, \text{ if firm belongs to case PO} \\ 3, \text{ if firm belong to case AV} \end{cases}$$

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[3] The full questionnaire is available upon request.

We use the Multinomial Logit Model (MNLM) to model the proposed relations, which can be written as (Long, 1997):

$$\Pr(y_i = 1 | x_i) = \frac{1}{1 + \sum_{j=2}^{J} \exp(x_i \beta_j)}$$

(3)

$$\Pr(y_i = m | x_i) = \frac{\exp(x_i \beta_m)}{1 + \sum_{j=2}^{J} \exp(x_i \beta_j)} \quad \text{for m>1}$$

Where *y* is the dependent variable, *J* represents nominal outcomes, and $\Pr(y = m | X)$ is the probability of observing outcome *m* given *X*.

X represents the vector of independent variables: Firm age, Size, Limited liability, Manufacturing, Year 2010, Owner's age, Owner's education, Percentage of reinvested gains, Business goal, Experience with debt at the personal level, Emotional costs of bankruptcy, Family firm.

Pr(.) is a function of the linear combination $X\beta_m$, where β_m (the vector of coefficients) differs for each outcome.

The MNLM can also be expressed as an odds model:

(4)
$$\Omega_{m|n}(x_i) = \frac{\Pr(y_i = m | x_i)}{\Pr(y_i = n | x_i)}$$

which allows us to interpret the relative risks ratio or odds ratio:

(5)
$$\frac{\Omega_{m|n}(X, x_k + \delta)}{\Omega_{m|n}(X, x_k)} = e^{\delta \cdot \beta_{k,m|n}}$$

as a unit change ($\delta = 1$) in x_k, the odds of *m* versus *n* are expected to change by a factor of $\exp(\beta_{k,m|n})$.

We describe the operational definitions of the variables in Table 3. We also add interaction terms between Year 2010 and the other variables.

(Insert Table 3)

RESULTS

Descriptive Statistics

In Table 4, we show the descriptive statistics considering the global mean values and each year of the sample, for the three cases of financing decisions. We observe that financial liabilities use is higher for TO compared to PO firms in year 2006, but debt use is quite similar for year 2010. This result responds to the changing macroeconomic conditions, in particular the increase in the inflation rate that favours debtor positions.

It is interesting to note a decrease of firms from case AV and an increase of case TO firms between 2006 and 2010. This can be explained through the natural aging of the sample and generational change, given that 31% of the firms are present both years, and because of the increasing inflation rate that lowers the real cost of debt.

Some characteristics remain stable despite the migrations of some firms between cases, such as the predominance in case AV of micro-sized firms, older owners with lower education, low experience with debt at personal level and high perception of emotional costs of bankruptcy.

(Insert Table 4)

Multivariate Analysis

Our MNLM estimations show problems with two variables: use of personal debt and manufacturing sector, which have very few observations for case 3 firms. Discarding these variables, we try different variations of the basic model to analyse the robustness of the results. We present the final MNLM results (in terms of odds ratios, eq. 5) in Table 5.

(Insert Table 5)

In the first panel of Table 5, we show the odds of belonging to case TO relative to case PO (holding all other variables constant). We find that the odds are smaller for each additional year in owner's age. They are greater for each additional year of firm age, for micro-sized firms, for the firms with limited liability, and for firms in year 2010. Owner´s education, family firm, business goals, emotional costs of bankruptcy, and reinvested gains, all have no significant effects. Considering the interaction effects, in year 2010 the impact of business goals, limited liability and size are smaller than in year 2006. In particular, the effect of limited liability in year 2010 is of 2.82 x 0.145= 0.41. and the impact of size in year 2010 is of 3.10 x 0.11= 0.36. As the odds ratio turns to be less than 1, this shows that the direction of the relation changes between the two years for both variables, an effect that also appears in Table 4.

In the second panel of Table 5, we show the odds of belonging to case AV relative to case PO. These odds are greater for each additional year in owner's and firm´s age. The odds are smaller for owners with a college degree. This negative effect of owner's education can show the prevalence of professional management arguments versus the contentment hypothesis. Contrary to what we expected, the observed sign for business goals is positive: the owners with value-creation goals are less likely to behave according to pecking order predictions. Regarding interaction effects, none of the interactions with year 2010 is statistically significant.

Finally, the third panel of Table 5 shows the odds of belonging to case AV relative to case TO; we find that these odds are greater for each additional year of owner´s age, and for owners with emotional bankruptcy costs. They are smaller for owners with college or higher education and for firms in year 2010. The interaction effects show that reinvested gains, limited liability and size have stronger effects for firms in year 2010.

In order to further analyse the non-expected results, Table 6 presents the predicted probabilities for each case, by year and by type of business goals and size. The probability of belonging to case TO is higher for owners who pursue a business goal and for micro-sized firms in year 2006, but this relationship reverses strongly in year 2010. Similarly, the probability of belonging to case PO is smaller for owners who pursue a business goal and for micro-sized firms in year 2006, but it reverses in year 2010. This change in the financing behaviour is probably explained in the different macroeconomic conditions of rising inflation and higher nominal interest rates in 2010. Related to the probability to follow the AV behaviour, is higher for owners who do not pursue business goals during 2006. During 2010 the probability is inverse, investors who follow business goals present higher probability to belong to case AV. Moreover, considering the variable micro-sized firm, the probabilities for both years are higher when the firm is micro-sized.

(Insert Table 6)

Discussion

Table 7 presents a summary of the expected and observed results in terms of the odds ratios. These results show partial support for the contentment hypothesis, as older (H14) but less educated owners (H12) are more prone to belong to case AV of extreme aversion to debt. The effect of education aligns with the management professionalization interpretation (H6). Business goals (H10) and firm size (H1; H7) have a general effect that is contrary to expected, but the analysis of the predicted probabilities in Table 7 show a temporal change in the effect of this variable, which can affect the odds ratio of case AV versus PO and TO, given its definition of ratio of probabilities. Emotional costs of bankruptcy (H13) have a significant effect in case AV firms, leading to extreme aversion to debt. On one hand, firm age (H1; H7) has a

positive effect in case TO firms relative to case PO, and in firms from case AV relative to case PO, which can be interpreted as evidence of information asymmetries faced by PO firms. Moreover, a legal form with limited liability (H2; H8) also has a positive effect in case TO relative to PO, giving further support for information asymmetries for PO firms.

For the variables not included in the MNLM for estimation reasons, i.e. manufacturing sector (H3; H9) and use of personal debt (H11), the descriptive statistics in Table 4 show that AV firm´s owners scarcely use personal credit, and that the composition of industrial sector has changed notably from 2006, with limited participation of AV firms, to 2010, with a balanced distribution among the three cases.

We find no evidence for family firm nature (H15), or for the control variable reinvested gains.

It is interesting to note that we find evidence for the effect of inflation (H4), as the chances for TO behaviour are higher for firms in year 2010, as reported by Frank and Goyal (2009).

In summary, TO firms are older, larger, with a limited liability legal form, and younger owners than PO firms. These result agrees with Serrasquiero and Maças Nunes(2012), who find that young SMEs are more likely to follow a PO, and with Berger and Udell (1998) financing growth cycle. Moreover, Maquieira et al. (2012) also report the inverse relation between firm size and PO.

AV firms are older, with older, less educated owners, who pursue business goals, compared to PO firms. Finally, AV firms are older, and have less educated owners with high emotional costs of bankruptcy, compared to TO firms. This partially agrees with Vos et al. (2007), who report that older but more educated SME owners are less likely to use external financing.

(Insert Table 7)

CONCLUSIONS

This paper articulates important aspects related to the financial capital structure of a set of SMEs in Bahía Blanca, Argentina, during the years 2006 and 2010. We classify financing decisions into three different cases: trade-off behavior, pecking order, and extreme aversion to debt, and we study firm´s and firm-owner's determinants of this classification. The limitations of this study lie in the local nature of the sample, and the impossibility of measuring certain variables, given the constraints to access firm level data.

The key findings of this paper lie in the identification of firm-owner´s characteristics that are relevant in financing decisions. In first place, owner´s age increases the probability of belonging to PO versus TO, and it is positively related to aversion to debt. In second place, the probability of belonging to AV case diminishes when the education degree of the owner is higher. Moreover, business goals and emotional costs of bankruptcy affect extreme aversion to debt. Regarding firm´s characteristics, firms' age presents an inverse relation with PO case.

The conclusions of this paper lead us to reconsider the underleverage problem of SMEs. We find that demand-side characteristics can severely affect financing decisions and sometimes lead to extreme debt aversion. These results can lead policy-makers to partially re-design financial aid instruments to SMEs considering firm-owner´s characteristics, and show the importance of capacitation programs as complement to financial aid policies.

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Table 1: Literature Review on SMEs financing decisions

Author	Country and sample	Methodology	Results
López-García J. and Sogorb-Mira F. (1997)	3.569 Spanish SMEs over 1995 to 2004.	PO: performance is analyzed by observing the sign and magnitude of the firm´s financial deficit, the level of debt through the cash flow, as a proxy for internal resources. TO: Test the sign impact of a set of variables (effective tax rate, the ratio between depreciation and total assets, debt ratio, firm profitability, rate of real leverage) Econometric tool: Panel data model	Results suggest that both theoretical models help to explain SME capital structure. First they find clear evidence that SMEs follow a funding source hierarchy (Pecking Order model). Then, the results reveal that greater trust is placed in SMEs that aim to reach target or optimum leverage (Trade-off model). This remains true even when SMEs take a long time to reach this level, due to the high transaction costs they have to face.
Shyam-Sunder, Myers (1998)	157 large and small Scotish firms, from 1971 to 1989.	TO: Test empirical hypothesis related to debt ratio towards a target and it predicts a cross-sectional relation between average and debt ratios and asset risk, probability, tax status and asset type. PO: Considering that in this theory there is no well-defined optimal debt ratio, the interest tax shields and the threat of financial distress are selected as explanatory variables. Econometric tool: ordinary least squares (OLS) tests	Consistent with the PO they find that entrepreneurs in start-ups turn to internal sources first. In contradiction to the POH, however, evidence in this paper finds that where external funds are required, the main source is equity rather than debt. In the majority of cases, in depth interviews show that a bridged pecking order applies in that the businesses move from self-funding to external equity in preference to, or instead of bank finance.
Watson and Wilson (2002)	626 SMEs firms from United Kingdom, considering data until 1994.	The TO consider the expected changes in financing of the retained earnings; change in debt and in new share issues. The PO not expected changes of those variables provide evidence consisted with the PO. Moreover, consider a group of independent variables (total assets, accounting balance sheet, changes in the relative proportions of debt and equity) respect the dependent variable growth rate. Econometric tool: Regression Model	This paper test the Pecking Order model implication that when SMEs require additional finance and the use of retained earnings will be preferred over debt and that debt will be preferred over new share issues. The results also suggest that there may be a Pecking Order within debt types since the explanatory power of all the estimated models increases significantly when the change in debt is decomposed into its gears.

Andrew Benito (2003)	Spanish data is from 6.417 firms from 1985 to 2000. United Kingdom data is from 1.784 companies since 1973 to 2000.	PO A negative relation between debt and investment is considered as a key determinant of this theory. TO: a positive relation between debt and cash flow or profitability is expected. Econometric tool: Panel data with fixed effects	The results are consistent with the Pecking Order approach and generally inconsistent with the trade-off approach, suggesting that the behaviour is consistent with the existence of a hierarchy of finance faced by firms in Spain and the United Kingdom.
Degryse, de Goeij and Kappert (2010)	SMEs Dutch firms from 2003 to 2005.	PO and TO: Test different sign effect of some key variables, such as asset structure, net debtors as a proxy of liquidity and profitability. Econometric tool: Panel data model	The results of the firms characteristics analysed are mostly in line with the predictions of the Pecking-Order theory. SMEs use profits to reduce their debt level, since they prefer internal funds over external funds. Also conclude that both inter and intra industry heterogeneity are important drivers of capital structure, in line with both Pecking-Order and Trade-off theories of capital structure. The analysis of inter-industry effects reveals that different industries show different degrees of leverage, in line with the trade-off theory.
Serrasqueiro Zélia and Maçãs Nunes Paulo (2011)	1805 Portuguese SMEs, period 1999-2006	The PO behaviour is studied by observing the sign and magnitude of the firm´s financial deficit as main explanatory variable of the change in debt level between one period and the previous one. On the other hand, the TO behaviour is studied through the determinants of adjustment to optimal debt ratio (profitability, age, size, growth, asset structure, etc.). Econometric tool: Panel Data Models	The results for young and old SMEs suggest that Trade-Off Theory and Pecking Order Theory should not be considered mutually exclusive, since both theories are necessary to understand the SMEs' capital structure decisions throughout their life-cycle. Due to the difficulty in accessing long-term financing sources, young SMEs are more likely to follow Pecking Order Theory than what is predicted by Trade-Off Theory. For old SMEs, financial behaviour appears to be closer to that predicted by Trade-Off Theory than to what is predicted by Pecking Order Theory.
Van Caneghem Tom and Van Campenhout Geert (2012)	79.097 Belgian SMEs	Considering both theories TOT and POT the financial structure of SMEs is controlled for a set of variables such as: firm size, firm age, asset tangibility and profitability. The sign is analysed according the expected result. Econometric tool: OLS Regression model	They test the impact of differences in quantity and quality of information on SME financial structure. The results therefore confirm that lack of information and low information quality inhibits firms from using external funds. Their results indicate that the traditional capital structure theories (Pecking Order Theory, Trade Off Theory and Agency Theory) are all relevant in explaining Belgian SME capital structures.

Maquieira, Preve and Sarria-Allende (2012)	290 LATAM SMEs Compared to 378 USA firms (from Graham and Harvey 2001 data)	The LATAM (not random) sample includes 290 firms from 7 countries: Argentina, Chile, Colombia, Ecuador, Peru, Uruguay and Venezuela, and some observations from other countries. The study consists in a survey on corporate finance taking the structure and questions developed in Graham and Harvey (2001). Statistically significant differences are evaluated comparing LATAN and USA samples, and for LATAM firms for size, leverage, dividends, industry, and CFO age.	Nearly 59% of LATAN firms declare they do not have a target debt ratio. Availability of internal funds has a higher importance for highly levered and small firms (PO). Managers who follow a target debt ratio are more likely to consider factors such as the tax advantage of interest deductibility, and the potential costs of bankruptcy (TO).
Vera-Colina, Melgarejo-Molina and Mora-Riapira (2013)	4168 Colombian SMEs from 2004 to 2009.	A quantitative research was applied as an explanatory objective, in order to identify some of the causes that may be causing problematic situations in the performance of SMEs, especially with respect to their access to resources financial. This order involves exploratory, descriptive and correlational processes. This research is a non-experimental research design (ex post facto), longitudinal (panel data), exploratory and correlational.	The results show that SMEs are mainly financed with own resources, to a lesser degree with short-term liabilities and low proportion with long-term liabilities, following a PO pattern.
Forte, Ayres Barros y Toshiro Nakamura (2013)	19,272 SMEs during 1994-2006; comprising a variety of firms based in the state of Sao Paulo, Brazil.	The econometric analysis employs the System Generalized Method of Moments estimator (GMM-Sys)	The results obtained are strong and show a robust negative relationship between profitability and the leverage ratio, consistent with the pecking order arguments and may also be interpreted as evidence of the limited access Brazilian SMEs have to outside financing. The second an important result is the positive relationship between leverage and the growth rate (besides with smaller magnitudes in the long-term leverage regressions). This result is also compatible with the pecking order theory.

Mejía-Amaya (2014)	23 medium Colombian firms during 2007-2011	Multiple lineal regression using three different measures of leverage: total liabilities to assets, long-term liabilities to assets, and total liabilities to equity.	Risk, sales growth and ROE have a positive effect on long-term leverage. Asset tangibility has a negative effect on total leverage. Firms preferred own resources first, second short-term debt, and last they used long-term debt.

Table 2: Economic and business indicators for years 2006 and 2010

Variable	2006	2010	2010 LATAN Average
GDP per capita (current US$)*	6783.714	11460.376	8.978,6
GDP growth (annual %)*	8.364	9.136	5.7
Gross capital formation (% of GDP)*	20.802	19.212	13.4
Gross capital formation (annual % growth)*	18.061	38.439	21.3
Domestic credit provided by financial sector (% of GDP)*	24.940	23.253	64.6
Domestic credit to private sector (% of GDP)*	10.545	11.649	40.0
Domestic credit to private sector by banks (% of GDP)*	10.210	11.293	36.7
Inflation rate (Consumer prices index, annual variation)**	6.705	24.274	3.7
Lending interest rate for overdraft (local currency, %)+	15.28	17.31	-
Lending interest rate for mortgage credit (local currency, %)+	12.93	16.54	-
Proportion of firm total purchases of fixed assets that was financed by internal funds or retained earnings (SMEs, %)	72.89	63.29	62.9
Percent of SMEs with a line of credit or loan from a financial institution++	35.75	47.96	45.8
Firms that did not apply for a loan last year because there was no need for a loan - establishment had sufficient capital (SMEs, %)++	52.97	26.91	41.9
Access to finance is major or very severe obstacle (SMEs, %)++	36.81	43.93	31.1

Sources**: *World Bank Development Indicators, + Central Bank of the Republic of Argentina, ** San Luis Province Statistics Institute, ++ World Bank Enterprise Surveys. SME defined up to 200 employees.**

Table 3: Operational definitions of the variables

H	Variable	Operational definition
H1; H7	Firm age	This variable represents the number of years between the firm's inception and the year 2006.
H1; H7	Size micro [¶]	Defined considering the corresponding definition of the Secretary of Small and Medium Enterprises and Regional Development (SePyME)4
H2; H8	Limited liability[¶]	We consider if the legal form of the firm implies limited liability.
H3; H9	Manufacturing [¶]	Defined as belonging to the manufacturing sector.
H4	Year 2010	Binary variable, 1 is assigned to observations from year 2010.
H5; H14	Owner's age	If several owners co-exist, we consider the oldest one.
H6; H12	Owner's education[¶]	Owner with a college (or higher) degree.
H10	Business goal[¶]	Owner-manager states that he or she pursues sales

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[4] This classification is based on annual turnover and it was the metric used by the Central Bank of Argentina and by the SePyME to determine whether a business is an SME in the year of each survey. See Appendix II, Table 7.

H		or value maximization.	
H11	Experience with debt at the personal level[¶]	Owner-manager has used debt for personal purposes. We do not include credit card financing.
H13	Emotional costs of bankruptcy[¶]	Owner-manager considers the emotional costs of bankruptcy to be higher than the economic costs.
H15	Family firm[¶]	We consider a business as a family firm if the ownership and control belong to the members of a single family (Gallo 1997).
Control variable (CV)	Percentage of reinvested gains	This variable represents the percentage of net gains reinvested in the firm during the previous year.

Note:[¶] For binary variables one is assigned to the firms possessing the corresponding characteristic. When several owners co-exist, we consider the larger owner (except for age).

Table 4: Descriptive statistics of the sample

H	Variable	Case TO		Case PO		Case AV		Mean
	Year	2006	2010	2006	2010	2006	2010	
-	Use of financial liabilities (%)[¶]	60.67%	67.86%	48.38%	64.29%	0%	0%	49.5%
H5; H14	Owner's age (years)	47.378	54.625	47.888	56.642	53.937	60.941	52.784
H15	Family firm (%)	85.56	83.04	87.10	78.57	88.89	82.35	84.28
H6; H12	Owner's education (%)	56.92	54.46	59.26	60.71	37.50	29.41	53.36
H10	Business goals (%)	55.56	68.29	42.31	85.71	50.00	75.00	62.45
H11	Experience with personal debt (%)	25.56	16.35	22.58	10.71	0	5.88	17.53
H13	Emotional costs of bankruptcy (%)	25.84	26.13	33.33	28.57	47.06	31.25	28.57
H2; H8	Limited liability (%)	65.56	59.82	58.06	78.57	33.33	52.94	61.20
H3; H9	Manufacturing (%)	23.33	20.54	12.90	21.43	5.56	23.53	20.07
H1;H7	Firm's age (years)	25.633	30.116	24.387	24.444	31.666	31.353	27.805
H1;H7	Size micro (%)	28.89	25.89	20.00	32.14	44.44	47.06	29.19
CV	Reinvested gains (%)	.5932	.5688	.6321	.7160	.4531	.8058	.6077
Sample distribution (cases) (%)		64.75	73.20	22.30	18.30	12.95	8.50	-
Sample distribution (cases) (%)		69.18		20.21		10.62		-

Note: [¶] For Binary variables the shown value is the percentage of the sub-sample with that characteristic.

Table 5: Odds ratios for the MNLM

H	Variable	TO vs PO	AV vs PO	AV vs TO
		Odds	Odds	Odds
	Global effect			
H5;H14	Owner's age	.961**	1.0574**	1.0985***

H	Variable			
H16	Family firm	.4244	.2071	.4880
H6; H12	Owner's education	.5792	.1924***	.3322*
H10	Business goals	2.1717	4.4657*	2.0563
H13	Emotional bankruptcy costs	.6679	2.1705	3.2497*
H2;H8	Limited liability	2.8221*	.8347	.2957
H1;H7	Firm's age	1.037**	1.0632***	1.0252
H1;H7	Size: micro-firm	3.1047*	3.4795	1.1207
CV	Reinvested gains	.6472	.1265	.1955
	Differential effect for year 2010			
	Year 2010	89.760***	.1680	.0018***
	Interaction effects			
H10	Business goals	.1529**	.5137	3.3597
H2; H8	Limited liability	.14511**	1.0534	7.2595*
H1;H7	Size: micro-firm	.1148**	.8538	7.4333*
CV	Reinvested gains	.2179	10.8523	49.7868**

Note: An empty cell means that the particular variable is not included in the model specification. Statistically significant values are shown in bold (* denotes a 10% significance level, ** a 5% significance level, and *** a 1% significance level). An odds ratio of 1 indicates that the condition or event under study is equally likely to occur in both groups. An odds ratio greater than 1 indicates that the condition or event is more likely to occur in the first group. An odds ratio less than 1 indicates that the condition or event is less likely to occur in the first group. For the interaction effects, the interpretation is in multiplicative terms. For example for Size (case AV-TO), the odds ratio is 7.4333, which means that the effect of this variable is 7.4333 times higher for firms in year 2010.

Table 6: Predicted probabilities for each year, type of business goals and size

Variable	Prob (case=TO)		Prob (case=PO)		Prob (case=AV)	
	2006	2010	2006	2010	2006	2010
Business goals						
No	0.653	0.906	0.305	0.079	0.042	0.014
Yes	0.731	0.743	0.159	0.193	0.111	0.064
Micro-sized firm						
No	0.646	0.861	0.292	0.119	0.062	0.019
Yes	0.796	0.591	0.117	0.224	0.087	0.185

Note: This table shows the predicted probability of belonging to each case for firms with the mentioned characteristic, for each year, holding all other variables in the model at their means

Table 7: Summary of observed effects in terms of the odds ratios

H	Variable	Case TO-PO	Case AV-PO	Case AV-TO
H5; H14	Owner's age	-**	+***	+***
H6; H12	Owner's education¶		-***	-*
H10	Business goal¶		+*	ns
H13	Emotional costs of bankruptcy	ns	ns	+*
H15	Family firm¶		ns	ns
CV	Reinvested gains	ns		ns
	Proxies for information asymmetries			
H1; H7	Firm age	+**	+***	

H2; H8	Limited liability¶	+*	ns	ns
H9	Size: micro¶	+**	ns	ns

Note: Binary variables are marked with a ¶. In this case, the hypothesis represents the effect of possessing the corresponding characteristic versus not possessing it. * denotes a 10% significance level, ** a 5% significance level, and *** a 1% significance level. Ns denoted not statistically significant.

Annex I

AI.1. Measuring the three cases of financing decisions

We adopt a survey approach, such as Graham and Harvey (2001) for US and Canada firms, and Maquieira, Preve, Sarria-Allende (2012) for Latin-American firms, because this allows us to consider a wide range of variables, which cannot be analysed if the study is based only on financial data. This is particularly necessary given our goal of studying the process of financing decisions, and not just the observed capital structure.

Graham and Harvey (2001) include questions such as if the firm has a target debt ratio, and what factors affect the choice of the appropriate amount of debt. Likewise, Maquieira, Preve & Sarria-Allende (2012) include a question about target debt ratio, and they find that 59% of LATAN firms declare they do not have a target debt ratio. Moreover, they ask about "To which extent do you believe these statements are criteria to be taken into account when deciding leverage policies at your firm?", where 54.14% of firms answer that "We issue debt when internal funds are not sufficient", which represents PO. We are not able to compare these quantitative results with ours given the not-random nature of their sample.

Although our questionnaire includes some questions similar to Graham and Harvey (2001) and Maquieira, Preve & Sarria-Allende (2012), the core questions we use to classify firms into groups are different. We follow Fama and French (2002) conclusion that under PO hypotheses, firms have no incentive to issue debt if they still have internal funds to finance investments. Thus, we measure which firm belongs to each case through two questions.

First: Assume you face an attractive (rentable) investment opportunity in fixed assets in your business. You have available all the following financing sources: a) retained earnings, b) current business partners capital disbursement, c) bank credit at a subsided interest rate (lower than the market rate). How would you finance the project? (Indicate percentage of funds used from each category).
If the financing choice includes use of bank credit, then case TO is assigned. If the choice only involves use of internal (a) o external equity (b), then the next question follows:
Assume you face an attractive (rentable) investment opportunity in your business, but you do not have internal or external sources of equity available. Which one of the following happens more often? a) I look for other external financing sources, such as credit; b) I pass up the investment opportunity.
If option **a** is chosen, then case PO is assigned, that is, these are firms that use credit only when equity funds are not available. If option **b** is chosen, then case AV is assigned: extreme aversion to debt.

AI.2 Definition of SME in Argentina

Resolutions 675/2002 and 303/2004 from *Sub-secretaría de la Pequeña y Mediana Empresa y Desarrollo Regional* state that a firm is considered a SME if its annual sales (without internal taxes) belong up to the ranges (in US dollars) shown in Table 5.

A I.3 Definition of SME in Argentina

This table presents monetary values in US Dollars, for year 2006 considering the average exchange rate of Argentine Pesos to US Dollars from July to October 2006 (time of the first survey), for year 2010 considering the average exchange rate of Argentine Pesos to US Dollars from July to October 2010 (time of the second survey).

Table 8: SMEs Clasification

	Agriculture	Manufacturing and Mining	Retail	Services	Construction
Year 2006: Resolutions 675/2002 and 303/2004 of the SePyME					
Micro	U$ 87,379	U$ 291,262	U$ 582,524	U$ 145,631	U$ 129,450
Small	U$ 582,524	U$ 1,747,573	U$ 3,495,146	U$ 1,048,544	U$ 809,061
Medium	U$ 3,495,146	U$ 13,980,583	U$ 27,961,165	U$ 6,990,291	U$ 6,472,492
Year 2010: Disp. 147/2006 of the SePyME					
Micro	U$ 115.100	U$ 315.752	U$ 467.313	U$ 118.091	U$ 121.249
Small	U$ 767.909	U$ 1.894.513	U$ 2.803.880	U$ 850.258	U$ 757.805
Medium	U$ 4.607.457	U$ 15.156.108	U$ 22.431.040	U$ 5.668.384	U$ 6.062.443