A REVIEW OF THE MAIN DETERMINANTS OF CAPITAL STRUCTURE OF SMALLER FIRMS AND AN EMPIRICAL INVESTIGATION ON A SAMPLE OF SMALL ITALIAN FIRMS

by *Oscar Domenichelli*

1. Introduction[1]

The issue of the capital structure[2] of firms still is a puzzling question for academicians all around the world who, after the Modigliani and Miller (1958) irrelevance proposition, have generated an extensive and varied literature which has tried and taken into account specific market imperfections, mainly taxes, bankruptcy costs, agency conflicts and asymmetric information to explain its features.

Moreover, Modigliani and Miller (1963) themselves first consider the tax benefits of debt and this implies, in absence of offsetting cost of debt, 100 per cent debt financing (Murray and Goyal, 2007). Kraus and Litzenberger (1973) discuss both advantages and drawbacks of debt use and define the optimal leverage[3] as the result of a trade-off between tax benefits and bankruptcy costs of debt.

Jensen and Meckling (1976), who build on an earlier work of Fama and Miller (1972), contend that agency conflicts between shareholders and managers may induce the latter to pursue personal goals at the expense of proprietors. According to Jensen and Meckling (1976) themselves, one way to decrease the self-interested behaviour of managers is to increase managerial shareholding. Another way to reduce the opportunistic behaviour of managers is to augment the level of debt, thus preventing managers from employing free cash flow to pursue personal objectives (Jensen, 1986). Under the agency framework, a firm's optimal leverage depends on a trade-off between agency benefits of debt financing, just mentioned, and costs associated with asset substitution, monitoring and bonding ac-

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[2] The capital structure of a firm is its mix of debt and equity financing.
[3] Financial literature shows different ways of measuring the leverage of a firm. In this work the term "leverage" refers to any ratio identifying the proportion of debt capital invested in a firm, unless otherwise mentioned.

tivities, bankruptcy and reorganisation (Jensen and Meckling, 1976), and underinvestment (Myers, 1977) which essentially are the agency costs of debt financing, produced by agency conflicts between shareholders and other stakeholders, such as creditors, customers, suppliers and employees. Therefore, as summarized by Lemmon and Zender (2002), the general trade-off theory (TOT) of capital structure predicts that firms will choose their mix of debt and equity financing to balance the overall costs and benefits of debt. The tax benefits of debt and control of free cash flow push firms to use more debt, while bankruptcy costs and other agency problems provide firms with incentives to employ less.

Myers (1984) explains the pecking order theory (POT). He argues that the capital structure of a firm depends on the need to avoid the disadvantages of the adverse selection problem between managers, acting in the interest of current shareholders (no agency problems), and potential investors that do not know the real value of either existing assets or new investing opportunities (asymmetric information). In fact, this problem of adverse selection may determine a wealth reduction of existing shareholders, through a decrease of stock prices when a new issue of shares is announced. Consequently, firms prefer internal funds and when external finance is needed, they will issue debt, then hybrid forms of securities, such as convertible bonds, and will ultimately issue equity.

However, up to the eighties, studies on capital structure[4] did try to empirically assess the explanatory power of the theories above mentioned, but they mostly referred to large firms only (Michaelas *et al.*, 1999). This seems to be quite surprising since smaller firms account for a large share of the economy in many countries, such as the United States, the United Kingdom, Germany and Italy. Specifically, in the EU-27, small and medium-sized enterprises are by far the majority of the non-financial businesses, that is 99.8 per cent, offer a work to 67.1 per cent of the total employees and produce 57.6 per cent of the total value added. In Italy, the importance of small and medium-sized enterprises is even grater, as the share of them in the total number of enterprises is 99.9 per cent, while they contribute to more than 81 per cent of the total employment and about 71 per cent of the total value added (Eurostat, 2008).

Furthermore, smaller businesses are not simply a kind of "scaled-down version" of large ones (Cressy and Olofsson, 1997) and thus they are likely to show financing behaviours which differ from those of their larger counterparts and need specific explanations. In fact, Hughes (1997) finds that smaller companies: a) have lower ratios of fixed to total assets; b) have

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[4] For an in-depth analysis of the theories on capital structure based on agency costs, asymmetric information, product/input market interactions and corporate control considerations (except for tax-based theories), see the widely cited article of Harris and Raviv (1991).

a higher percentage of trade debt to total assets; c) have a much higher proportion of current liabilities to total assets; d) have a much greater dependence on especially short-term bank loans; e) considerably employ retained earnings to finance their assets; f) get the vast majority of additional finance from banks, thus other sources, in particular equity, are very much less significant; moreover, smaller firms are financially riskier, as they have higher debt-to-equity ratios and rates of failure (Cressy and Olofsson, 1997).

Thus, in order to describe the financial choices of small and medium-sized enterprises, since the early nineties numerous international works, concerning this type of firms, have been published (among others: Ang, 1992; Gibson, 1992; Hall and Hutchinson, 1993; Chittenden *et al.*, 1996; Berger and Udell, 1998; Gibson, 2002; Monteforte and La Rocca, 2003; Gregory *et al.*, 2005; Venanzi, 2005). As stressed by Venanzi (2010), some of these empirical surveys emphasize the differences between the financial behaviour of smaller firms and larger ones; whereas a few others try to find out if specific theories on capital structure are applicable to smaller firms; or to stress the impact of the more frequently used empirical determinants of capital structure on the financial choices of small and medium-sized enterprises, in the light of their peculiar characteristics.

The purpose of this paper is to contribute to the last stream of literature, by studying the major determinants of capital structure of the small firms of the Marche Region (Italy). Therefore, an ordinary least squares (OLS) regression model was used to appraise the linkage existing between leverage (dependent variable) and important determinants of capital structure (independent variables), that is effective tax rate, non-debt tax shields, default risk, firm size, growth opportunities, relative tangible fixed assets, return on assets and firm age. To this end, an empirical analysis of a sample of 310 small firms, belonging to the manufacturing and trade industries of this region and whose firms represent the vast majority of the small firms in the region as well, was conducted. That also enabled a comparison between all the enterprises and those of each sector and between the enterprises of the two sectors.

The paper is structured as follows: in the next section a review of the relevant literature and some testable hypotheses will be provided. Methodology and empirical results will be discussed in section 3. Section 4 will conclude.

2. Literature review and development of testable hypotheses

2.1. Tax, bankruptcy costs and leverage

As interest payments are deductible from corporate income, small profitable firms try to increase the level of debt to reduce company tax and enhance firm value (Modigliani and Miller, 1963; Haughen and Senbet, 1986). Therefore, the first hypothesis is:

H_1: Effective tax rate is positively related to leverage.

As stressed by DeAngelo and Masulis (1980), non-debt tax shields, such as accelerated depreciation or investment tax credits, give a further contribution to decreasing the income tax, avoiding, at the same time, distress costs and any other adjustment costs (Dammon and Senbet, 1988). Therefore, we may expect an inverse relationship between non-debt tax shields and leverage in smaller firms, since non-debt tax shields diminish the opportunity of raising debt. The next hypothesis is:

H_2: Non-debt tax shields are negatively related to leverage.

According to the TOT, increasing direct and indirect financial distress costs prevent firms from employing a considerable level of debt and such costs are higher when a firm's operating profit is more volatile, since the chance of its bankruptcy is greater (Cassar and Holmes, 2003). Smaller firms are likely to suffer higher financial distress costs in relative terms (Lopez-Grazia and Sorgorb-Mira, 2008). Moreover, the use of volatility of earnings, as a proxy of default risk, is known in literature (Mackie-Mason, 1990; Wald, 1999), therefore the next hypothesis is:

H_3: Default risk is negatively related to leverage.

2.2. Firm size and leverage

As stressed by Cassar and Holmes (2003), size influences a firm's leverage. Firstly, smaller firms may find it relatively more expensive to solve informational asymmetries with creditors, as discussed more in depth below, and this makes it difficult for smaller firms to acquire debt financing. Furthermore, on the basis of the TOT, bigger firms should reach higher debt levels as they bear lower costs of bankruptcy, since they are able to offer greater collateral and are less risky being more diversified (Titman and Wessel, 1988). Consequentially, the further hypothesis is:

H_4: Firm size is positively related to leverage.

2.3. Agency costs of debt and leverage

Agency costs of debt are in particular associated with the opportunistic behaviour of shareholders at the expense of debt holders, mainly in terms of asset substitution and underinvestment. These agency costs are deemed to be higher in smaller firms since, on the one hand, the owner/manager of a small firm is likely to put his own and his venture's interest first, especially in the most problematic early years and, on the other, the level of asymmetric information is higher when smaller businesses are considered, as they are not usually required to relinquish much information and thus they try and avoid incurring significant expenses, in providing such information to outsiders for the first time (Michaelas *et al.*, 1999). However, rational creditors try and compensate for the possibility of selfish behaviours of shareholders by paying less for a firm's debt and asking for higher interest rates, requiring monitoring activities (concerning, for example, restrictions on future dividend payments and ways of raising finance) and bonding activities (e.g.: detailed reports and financial statements, and balance sheets checked by independent outside auditors) (Jensen and Meckling, 1976); that causes an increase in agency costs which are borne by the firm and hence a reduction of firm value and shareholders' wealth (Berk and DeMarzo, 2008); eventually, these costs prevent small firms from reaching high level of debt. Myers (1977) argues that agency conflicts are more significant when a firm has assets which gives it the option to benefit from growth opportunities, to the detriment of debt holders; therefore, the greater a firm's investment in such assets the less it would be financed through debt; thus the next hypothesis is:

H$_5$: Growth opportunities are negatively related to leverage.

2.4. Asymmetric information costs and leverage

Asymmetric information costs are caused by the fact that borrowers own greater information than lenders with reference to the real value of existing assets or future opportunities of growth of their firms; thus the latter face an adverse selection problem (Stiglitz and Weiss, 1981), which may cause a loss of return and wealth invested in the firms they finance. Furthermore, lenders have not control over how the funds provided will be invested, hence they are also affected by a moral hazard problem. Information asymmetry is especially significant for small firms, because of the poor quality of their financial information. As a result, lenders may compensate for the risk they bear by requiring guarantees (Lopez-Gracia and Aybar-Arias, 2000), therefore a positive relationship is expected between availability of fixed tangible assets which are easy to collateralize or liquidate and leverage. The next hypothesis is:

H$_6$: Relative tangible fixed assets are positively related to leverage.

A further approach to asymmetric information costs is the POT, conceived by Myers (1984), who drew on the work of Jensen and Meckling (1976) on agency theory, Myers and Majluf (1984) on information asymmetry and Ross (1977) on signalling theory. Although, originally thought to mostly explain the financial policy of enterprises listed in very efficient capital markets, namely those of the United States and the United Kingdom, the POT has been specifically used to explain the financial choices of small and medium-sized enterprises (Scherr *et al.*, 1990; Ang, 1991; Holmes and Kent, 1991; Hamilton and Fox, 1998; Cosh and Hughes, 1994, to mention a few), especially when we consider the following (modified) financing hierarchy: internal funds and personal savings, short and long-term debt and, as a last resort, new issues of shares. The POT is applicable to small firms for three main reasons. Firstly, small firms undergo a problem of "finance gap" (Holmes and Kent, 1991), which prevents them from acquiring capital or low-cost capital, as well as from getting awareness about all the possibilities and aspects of external finance; thus the main long-term source of finance is retained earnings, and, if necessary, bank loans, similarly to the prescriptions of the POT (Sànchez-Vidal and Martìn-Ugedo, 2005). Secondly, both the harmony of interests between current shareholders and their managers (insiders), who, very often, are the same individuals (no agency costs of equity), and the high information asymmetry between insiders and outside investors do support the traditional hierarchy of the POT for small companies (Watson and Wilson, 2002). Thirdly, it is well established in the literature of small and medium-sized enterprises that owner-managers of these firms show a strong aversion to partially relinquishing control of their companies (Hamilton and Fox, 1998; Cressy and Olofsson, 1997; Jordan *et al.*, 1998); what is more, this problem may even arise in case of rights issue, if current shareholders are not wealthy enough to purchase additional stocks, which would allow them to keep their ownership percentage; consequently, current shareholders would be unwilling to issue new equity. Therefore, for all the reasons previously indicated, more profitable small firms heavily rely on retained profits and in consequence the next hypothesis is:

H$_7$: Return on assets is negatively related to leverage.

2.5. Age and leverage

Petersen and Rajan (1994) show that leverage decreases with age as probably older firms tend to accumulate retained profits. Coherently, La Rocca *et al.* (2009) find that, for small and medium-sized enterprises, debt is fun-

damental in the early stage of their development, while in the maturity stage they gradually substitute debt for internal capital; in turn, this may also show their preference for retained profits over external financial resources, that is a hierarchical financial behaviour. Thus the next hypothesis is:

H_8: Age is negatively related to leverage.

3. Methodology and empirical results

3.1 Model and sample characteristics

An OLS regression is developed to estimate the effects of the most frequently used empirical determinants of capital structure - that is effective tax rate, non-debt tax shields, default risk, firm size, growth opportunities, relative tangible assets, return on assets and age -, which are the dependent variables, on the leverage, which is the dependent variable, of the small enterprises of the Marche Region (Italy), as specified below. The regression can be formulated by employing the following model:

$$D_{i,t}/E_{i,t} = \beta_0 + \beta_1 ETR_{i,t} + \beta_2 NDTS_{i,t} + \beta_3 DR_{i,t} + \beta_4 FS_{i,t} + \beta_5 GO_{i,t} + \beta_6 RTFA_{i,t} + \beta_7 ROA_{i,t} + \beta_8 AGE_{i,t} + \varepsilon$$

where:

$D_{i,t}/E_{i,t}$ = leverage: total debt over equity for firm i in average time t;
β_0 = constant
$ETR_{i,t}$ = effective tax rate: tax paid over earnings before tax for firm i in average time t;
$NDTS_{i,t}$ = non-debt tax shields: depreciation and amortisation over total assets for firm i in average time t;
$DR_{i,t}$ = default risk: standard deviation of return on assets for firm i in the period of observation;
$FS_{i,t}$ = firm size: natural log of total assets for firm i in average time t;
$GO_{i,t}$ = growth opportunities: intangible fixed assets over total assets for firm i in average time t;
$RTFA_{i,t}$ = relative tangible fixed assets: tangible fixed assets over total assets for firm i in average time t;
$ROA_{i,t}$ = return on assets: operating income over total assets for firm i in average time t (percentage);
$AGE_{i,t}$ = firm age: number of years since the incorporation for firm i;
ε = the error term.

The initial sample consisted of all small Italian manufacturing and trade firms of the Marche Region (Italy), included in the AIDA – Bureau Van Dijk database (active companies and North American Industry Classification System - NAICS 2007 - sectors), that is 623 firms. In this work, the definition of small firm was based on Commission Recommendation 2003/361/ EC of 6 May 2003; specifically, all the manufacturing and trade active companies employing between 10 and 49 people and with revenues from sales and services between 2,000,000 and 10,000,000 euros, accounting for more than 64 per cent of the total small firms, as just defined, operating in the region on the basis of the data gathered from the AIDA – Bureau Van Dijk database, were included in the sample. However, to enter in the final sample, useful data had to be available for all the variables considered above for a period of ten years. At the end of a preliminary work, 313 companies out of 623 were excluded because they showed data for a shorter period or negative debt-over-equity ratios or negative effective tax rates; therefore, the final sample comprises 310 enterprises, 204 of which are manufacturing firms, that is about 66 per cent, whereas the remaining 106 firms, that is about 34 per cent, belong to the trade sector; their data were collected from the annual reports of the selected firms, from the end of 1999 to the end of 2008 or from the end of 2000 to the end of 2009, depending on the available records in the AIDA – Bureau Van Dijk database. All the variables are ten year averages and the values are book values.

3.2 Descriptive statistics

Some interesting results, shown in Table 1, are discussed below. AGE, ROA and D/E are characterized by the greatest variability (their standard deviations are greater than 3), while the standard deviations of GO, RTFA and FS indicate a very small variability (their values are less than 1). The mean value of ETR is 0.8630 and stresses, on average, the weight of the tax burden of the firms considered. Furthermore, the high mean NDTS of the firms in the sample, which is greater than 1.5, indicates the relevance of depreciation and amortisation as non-debt tax shields. The low standard deviation of FS (0.6688) means a not high dimension variability of the firms observed. GO ranges from 0 to 0.3188 and its mean value is 0.0163, while the mean RTFA is 0.2093. Despite the global crisis, which has severely hit the sectors the firms surveyed belong to, the mean ROA is around 6.5 per cent and never reaches less than -6.41 per cent, probably owing to the long period of time taken into account in the research, that is 10 years. Nonetheless, the data highlight a significant gap, between the best-performing company (29.42 per cent) and the worst-performing one (-6.41 per cent), which takes a value of about 36 percentage points. The mean AGE is quite high (greater than 25) and this is partly due to the choice of a 10-year period

of analysis which obviously excludes the youngest enterprises; the oldest one included in the sample is 71 years old. On average, D/E is 1.6258 and this means a significant debt dependence of the sample firms, as predicted by relevant literature.

Tab. 1 - Descriptive statistics of the dependent and independent variables

Variable	Mean	Standard deviation	Minimum	Median	Maximum
ETR	0.8630	1.0678	0.0808	0.6405	14.2883
NDTS	1.5139	1.5387	0.0000	1.1350	9.0600
DR	4.3487	2.7516	0.5614	3.6288	18.9325
FS	15.0049	0.6688	13.0970	15.0444	18.2221
GO	0.0163	0.0283	0.0000	0.0068	0.3188
RTFA	0.2093	0.1551	0.0084	0.1780	0.9556
ROA	6.5596	4.2934	-6.4100	5.6200	29.4200
AGE	25.2226	10.1385	10.0000	24.0000	71.0000
D/E	1.6258	3.4942	0.0000	0.7250	47.6000

3.3 Regression analysis

The OLS regression parameters are presented in the following tables. In particular, Table 2 refers to the whole sample, while Table 3 concerns the firms of the manufacturing subsample and Table 4 concerns the firms of the trade subsample. The simultaneous analysis of Tables 2, 3 and 4 enabled a comparison between all the enterprises and those of each sector and between the enterprises of the two sectors.

If we firstly look at Table 2 only, on the basis of the value of the Durbin-Watson test (2.0111), no significant residual autocorrelation is presumed.

The signs of the coefficients concerning ETR, NDTS and DR are as expected, but not statistically significant. Therefore, the positive relationship between ETR and D/E might imply an incentive for small firms to use more debt to reduce company tax and increase firm value; furthermore, the negative relationship between NDTS and D/E would consistently emphasize a reduction of the need for debt, when stronger non-debt tax shields are at work. DR is negatively related to D/E and this may support the applicability of the TOT to small firms, since a growing default risk increases direct and indirect financial distress costs, thus preventing firms from reaching high debt level.

Contrary to the hypothesis concerning firm size, this is negatively and significantly (at 0.05 level) related to D/E. This findings, however, are in line with those of Titman and Wessels (1988), Graham (2000), Cooley and

Quandrini (2001) and Faulkender and Petersen (2006) who conclude that larger firms may have more accumulated internal finance than smaller ones and hence may rely less on debt; thus this may also support a hierarchical financial behaviour.

The relationship between GO and D/E is positive although not statistically significant, while a negative relationship between the two variables was expected. If a positive relationship was confirmed, for instance through researches in other regions of Italy or in other countries, it could mean that firms with higher growth opportunities have stronger debt-raising capacity, or, according to the POT, that growing investments in intangible fixed assets cause firms to firstly use debt to finance them, before resorting to equity, when they need external financial resources.

The regression results also show a negative relationship between RTFA and D/E, whereas a contrary hypothesis was formulated. These findings can be interpreted through the theory of the financial slack (Myers and Majluf, 1984; Fabbrini and Micucci, 2003), whereby small firms with good development prospects, but credit constrained, may invest available cash in tangible assets to avoid passing up some positive-net present value opportunities, in the future, because of a lack of debt financing. Thus a negative linkage between RTFA and D/E may be actually found. However, the relationship between RTFA and D/E is not statistically significant and this weak result could be explained in the light of the presence of personal tangible assets the sole or family entrepreneur could invest in, whereby reducing the significance of the linkage between the two variables. Interestingly enough, the mentioned above negative relationship is also by no means in contrast with the pecking order framework, according to which low asymmetric information, associated with tangible assets, could make equity issuances less costly, thus leverage ratios should be lower when firms have higher tangible assets (Frank and Goyal, 2009).

A negative relationship between ROA and D/E is found and this is statistically significant at 0.05 level; as hypothesized, that clearly supports the POT, since more profitable firms employ lesser debt since they can use higher internal funds.

As expected, AGE is also negatively related to D/E and the relationship is statistically significant at 0.10 level. This implies a decreasing importance of debt in the maturity stage of a firm, as it has accumulated retained profits over time, and may also show a preference for internal finance over external one, i.e. a financial behaviour based on the POT.

Tab. 2 – Regression results: large sample

Variable	Coefficient	t-statistics	Probability
Intercept	13.6900	2.7140 ***	0.0070
ETR	0.2389	1.2585	0.2091
NDTS	- 0.1990	- 1.3675	0.1724
DR	- 0.1177	-1.5783	0.1155
FS	- 0.6576	-1.9866 **	0.0478
GO	8.0037	1.1488	0.2515
RTFA	- 0.4662	-0.3394	0.7345
ROA	- 0.1138	-2.2697 **	0.0239
AGE	- 0.0347	-1.6985 *	0.0904
R squared	0.0798		
F-statistic	3.2664		
Prob(F-statistic)	0.0013		
Durbin-Watson test	2.0111		
*** significant at the 0.01 level ** significant at the 0.05 level * significant at the 0.10 level			

As far as the comparative study of Tables 2, 3 and 4 is concerned, it is worth noting that the signs of the relationships in the two subsamples are basically the same as those in the larger one, except for RTFA in the trade subsample showing a positive relationship with D/E. However, while the values of the coefficients are alike in many cases if we compare the whole sample and the manufacturing subsample (NDTS, DR, FS, ROA and AGE), there is less similarity between the whole sample and the trade subsample (DR and ROA).

In the manufacturing and trade subsamples, the determinants of capital structure have the same influence on D/E in terms of signs except for RTFA, but they generally indicate a different magnitude; nevertheless, none of the relationships is statistically significant for the trade sector. On the contrary, as for the manufacturing sector, the relationships between D/E and some independent variables are statistically significant (with ETR at 0.01 level, and DR, FS and ROA at 0.05 level), thus essentially confirming and supporting the results for the small firms studied as a whole; moreover, the Durbin-Watson test (2.1478) does not show significant residual autocorrelation.

Tab. 3 – Regression results: manufacturing subsample

Variable	Coefficient	t-statistics	Probability
Intercept	13,4055	3,0331 ***	0,0028
ETR	0,5707	2,7797 ***	0,0060
NDTS	-0,1800	-1,4330	0,1535
DR	-0,1159	-1,9810 **	0,0490
FS	-0,6506	-2,2652 **	0,0246
GO	1,0946	0,1248	0,9008
RTFA	-1,9563	-1,4713	0,1428
ROA	-0,1001	-2,3614 **	0,0192
AGE	-0,0240	-1,4298	0,1544
R squared	0.1690		
F-statistic	4.9542		
Prob(F-statistic)	0.0000		
Durbin-Watson test	2.1478		
*** significant at the 0.01 level ** significant at the 0.05 level * significant at the 0.10 level			

Tab. 4 – Regression results: trade subsample

Variable	Coefficient	t-statistics	Probability
Intercept	13,7936	1,0387	0,3015
ETR	0,0228	0,0631	0,9498
NDTS	-0,2723	-0,7496	0,4553
DR	-0,1304	-0,5490	0,5843
FS	-0,5848	-0,6711	0,5038
GO	10,3207	0,8423	0,4017
RTFA	0,6389	0,2098	0,8343
ROA	-0,1422	-1,0498	0,2964
AGE	-0,0752	-1,3187	0,1904
R squared	0,0562		
F-statistic	0,7221		
Prob(F-statistic)	0,6715		
Durbin-Watson test	2.0437		
*** significant at the 0.01 level ** significant at the 0.05 level * significant at the 0.10 level			

4. Conclusions

The purpose of this paper was to investigate the influence of the major determinants of capital structure of the small firms of the Marche Region (Italy). Thus, an ordinary least squares (OLS) regression model was developed, by examining 310 small firms belonging to the manufacturing and trade sectors of this region, in order to appraise the linkage existing between leverage (dependent variable) and important determinants of capital structure (independent variables), that is effective tax rate, non-debt tax shields, default risk, firm size, growth opportunities, relative tangible fixed assets, return on assets and firm age. The companies were selected from the AIDA – Bureau Van Dijk database for the period 1999-2008 or 2000-2009, depending on the available records.

A positive, but not statistically significant, relationship between effective tax rate and debt-to-equity ratio was found and this seems to entail an incentive for small firms to reach a high leverage when the tax paid is considerable, in order to enhance their value.

The negative, although not statistically significant, relationship between non-debt tax shields and debt-to-equity ratio would consistently emphasize a reduction of the need for debt, when firms can take advantage of higher non-debt tax shields.

In line with the predictions of the trade-off theory, default risk is negatively related to debt-to-equity ratio as a considerable default risk increases direct and indirect financial distress costs, thus preventing firms from obtaining high debt level; but, again, the relationship between the two variables is not statistically significant.

Since firms size is negatively and significantly (at 0.05 level) related to debt-to-equity ratio, the view whereby bigger firms use less debt than smaller ones, because the former have more accumulated internal finance, is confirmed, as well as a financial behaviour which could be based on the pecking order prescriptions.

Even if not statistically significant, the positive relationship between growth opportunities and debt-to-equity ratio may highlight that firms with higher growth opportunities have stronger debt-raising capacity, or, according to the pecking order theory, that growing investments in intangible fixed assets push firms to firstly use debt to fund them, when they need external financial resources, before acquiring equity.

The linkage between relative tangible fixed assets and debt-to-equity ratio is not statistically significant and negative. This might be interpreted in two different ways: a) in the context of the theory of the financial slack, that is to say that firms with good development opportunities, but also credit constrained, may invest available cash in tangible assets, to avoid passing up some positive-net present value opportunities in the future; b) through

the framework of the pecking order, as low asymmetric information associated with tangible assets could make equity issuances cheaper, hence leverage ratios should be lower when firms have greater tangible assets.

The research validates the negative relationship between return on assets and debt-to-equity ratio at 0.05 level, thus giving further evidence of the applicability of the pecking order theory to small firms.

Firm age is negatively and significantly (at 0.10 level) related to debt-to-equity ratio, therefore this study emphasizes the fact that older firms need less debt, because they have accumulated retained profits over time; furthermore, that may also imply a preference for internal funds over external ones, that is to say a hierarchical financial behaviour.

A comparison between the manufacturing and trade sector highlights that, on the whole, the same determinants of capital structure appear to be at work and have the same influence in the two sectors in terms of signs, even if none of the relationships between D/E and the determinants being considered is statistically significant for the trade sector.

The overall results: clearly show the importance of the pecking order theory in determining the financial behaviour of the small firms analysed; do not suggest the presence of agency costs of debt and this may be due, at least partly, to the use of personal assets as collateral for business debt; do not indicate a strong support for the trade-off theory, even if the signs of the relationships between effective tax rate, non-debt tax shields and default risk, on the one hand, and debt-to-equity ratio, on the other, together with the importance of the tax burden and non-debt tax shields of the firms observed would not exclude a long-term optimal debt level, towards which they converge as pointed out by Bontempi (2002), to trade-off the costs of financial distress against the tax benefits associated with debt financing.

To conclude, the clear implication arising from this research is the importance of some of the main determinants of capital structure being studied for the small firms of the Marche Region (Italy). However, one limitation of the study is that it does not investigate other factors which may have a role in shaping the financial behaviour of these firms; for instance, future research could try and understand the effects, on the capital structure of them, of the personal characteristics of those who are responsible for their financial choices, or of the family issue by distinguishing between family and non-family businesses.

Oscar Domenichelli
Department of Management
Faculty of Economics "G. Fuà"
Università Politecnica delle Marche (Italy)
o.domenichelli@univpm.it

Abstract

This paper aimed to empirically test the influence of major determinants of capital structure of the small firms of the Marche Region (Italy) on the debt-to-equity ratio. On the whole, the research clearly shows the importance of the pecking order theory; does not suggest the presence of agency costs of debt; and does not indicate a strong support for the trade-off theory, even if the signs of the relationships between effective tax rate, non-debt tax shields and default risk, on the one hand, and debt-to-equity ratio, on the other, together with the importance of the tax burden and non-debt tax shields of the firms observed would not exclude their convergence towards a long-term optimal debt level, to trade-off the costs of financial distress against the tax benefits associated with debt financing. The comparative empirical analysis also highlights that, on the whole, the same determinants have similar effects, in terms of signs, on the capital structure of the manufacturing and trade firms, even if, in this latter case, none of the relationships being considered is statistically significant.

Riassunto

Questo lavoro intendeva verificare empiricamente gli effetti di fondamentali determinanti della struttura finanziaria delle piccole imprese della Regione Marche sul rapporto debito-capitale proprio. Nel complesso, la ricerca mostra chiaramente l'importanza della teoria del *pecking order*; non suggerisce la presenza di costi di agenzia del debito; e non sostiene in modo forte la teoria del *trade-off*, anche se i segni delle relazioni tra l'aliquota di imposta effettiva, gli scudi fiscali diversi dal debito e il rischio di insolvenza, da una parte, e il rapporto debito-capitale proprio, dall'altra, assieme all'importanza del carico fiscale e degli scudi fiscali diversi dal debito delle imprese osservate non escluderebbero la loro convergenza verso un livello di debito ottimale di lungo periodo, per bilanciare i costi del dissesto con i benefici fiscali associati al debito. L'analisi empirica comparata indica anche che, nel complesso, le stesse determinanti influiscono in modo simile in termini di segni, sulla struttura finanziaria delle imprese industriali e commerciali, ma in questo ultimo caso nessuna delle relazioni considerate è statisticamente significativa.

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