Chosen Determinants of Capital Structure in Small and Medium-Sized Enterprises – Evidence from Poland*

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Abstract: Purpose – The purpose of the article was to examine the determinants influencing the capital structure in groups of micro, small and medium-sized enterprises. We tested if company type, effective tax rate, profitability have an impact on debt ratios.

Design/methodology/approach – We employed two debt ratios: the share of total debt and interest debt in capital. The study was conducted on the basis of 12,000 SME financial statements. The inference was carried out with the use of the Student’s t-distribution and ANOVA.

Findings – It was confirmed that micro, small and medium company’s capital structure is affected by the organizational and legal form. We did not find a correlation between debt ratio and profitability and also effective tax rate and thus the trade-off theory is not useful to explain the motives of borrowing in this group of enterprises.

Originality/value – There is a limited number of studies on determinants of SME capital structure in Poland, especially on a large sample. We have taken into account the factors that have been rarely tested in studies in this group of enterprises.

Keywords: capital structure, small and medium enterprises, determinants, debt.

Introduction

There are a number of concepts in finance theory that try to determine the factors influencing the choice and proportion of primary sources of funding in companies. On the basis of literature review and empirical studies it can be concluded that the static choice theory, agency-theory and pecking-order theory are most commonly used to explain the capital structure of small and medium-sized enterprises (Łuczka 2013: 46).

Empirical research on the factors affecting capital structure focuses primarily on large listed companies, due to the relative ease of access to financial information (Antoniou et al. 2008; Chen 2004; Margaritis, Psillaki 2010). For several years, there have also been studies

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to investigate the sector of small and medium-sized enterprises in selected countries such as Belgium (Van Caneghem, Van Campenhout 2012), Spain (De Miguel, Pindado 2001; López-Gracia and Sogorb-Mira 2008; Saá-Requejo 1996), Ireland (mac an Bhaird, Lucey, 2010), Greece (Daskalakis, Thanou 2010).

The studies conducted in Poland in terms of the capital structure determinants focus primarily on public listed companies (Hamrol, Sieczko 2006; Mazur 2007). There is little research related to the SME sector (Kubiak 2013) and it has been mostly carried out on aggregated data from the Statistical Yearbooks of Central Statistical Office (Jędrzejczak-Gas 2013) or it is based on questionnaires (Hamrol, Sieczko 2006; Mazur 2007).

The preliminary studies of the authors in the field of SME capital structure conformed that micro, small and medium company’s capital structure is affected by the size of the company, the ‘material character’ of its assets and industry affiliation (Bera, Prędkiewicz 2015). In another study we did not find a relationship between the age of the company and its capital structure (Prędkiewicz, Prędkiewicz 2014). We concluded that at the level of the entire sample it can be said that family-owned companies often use debt than others and the owners are more willing to incur debts than managers. However, in the group of microenterprises behaviours are different – the owners are indebted less than managers.

The purpose of this article is to continue previous studies and to empirically verify the influence of selected factors on the capital structure of SME. The choice of factors was based on the analysis of alternative capital structure theories as well as the existing empirical research that has been carried out in different countries.

The article consists of four parts. In the first one, the research hypotheses were formulated, starting from the theory of capital structure and the studies in this area. In the second part, a research sample, variables and test methods were characterized. In the third part, the results were presented and discussed. The conclusions were presented in the last part.

1. Capital structure theories and hypothesis

Taking into account the literature review and previous research on capital structure, static trade-off theory, agency-theory and pecking-order theory were chosen to make an educated guess.

The static theory of choice (trade-off theory) assumes that companies are looking for an optimum capital structure that results from the calculation of benefits and costs of using debt (Bradley et al. 1984; Brennan, Schwartz 1978; DeAngelo, Masulis 1980). The main advantage of debt in relation to equity are tax benefits as financial expenses reduce the tax base and, thus, they lead to a reduction in income tax, as opposed to dividends that do not have such effects. However, higher debt ratio leads to the risk and the cost of capital increase, the higher costs of financial distress (Kim 1978) and potential agency problems between shareholders and financial suppliers (Jensen, Meckling 1976).
This theory is limited to explain the capital structure of SMEs due to the possible lack of tax benefits resulting from the choice of simplified forms of taxation (such as a lump sum, tax card). In turn, the companies which can achieve the tax benefits are less likely to gain them than large firms due to lower earnings and less possibility to use the interest tax shield in this situation. On the other hand, small businesses face a higher risk of bankruptcy while in large firms bankruptcy costs are lower. The authors’ own research also confirms a higher risk of bankruptcy in smaller enterprises (Prędkiewicz 2007) and also confirmed that company size is positively related to debt level so the smaller the company, the debt ratio is lower (Bera, Prędkiewicz 2015). However, we should remember that other empirical findings are ambiguous in this area, and some confirm a positive relationship (Sogorb-Mira 2005) but others deny it (Heyman et al. 2008). Then, taking into account the impact of the tax benefits that result from the interest on the debt ratio, the following research hypothesis may be formulated:

**H1. The effective tax rate should be positively related to debt level but the smaller the company, the weaker the relationship.**

Another theory that is helpful in explaining the capital structure is the agency theory formulated by M. Jansen and W. Meckling in 1976 (Jensen, Meckling 1976). It focuses on the potential costs of management which should ensure the realization of the interests of owners and creditors, assuming that a high level of debt leads to improved business management procedures. Agents (management) do not always operate in a manner consistent with the interests of principals (suppliers of equity and debt).

In small enterprises, the conflict does not occur mostly between owners and managers, but between internal and external suppliers of capital (Hand et al. 1982). Potential agency problems are exacerbated with the information asymmetry resulting from the lack of single, publicly available information concerning the accounts of small and medium-sized enterprises. In such a case, a moral hazard may occur from companies using the fact that the capital supplier is a party that is less informed about the situation in the company and the project and spends raised capital inefficiently or contrary to the original purpose, for example, by preferring projects with a greater rate of return and higher risks. Therefore, capital providers use different techniques to reduce costs resulting from the situation.

Information asymmetry in the SME sector depends on the organizational and legal form. Companies acting on the basis of the Commercial Companies Code in Poland are required to file financial statements in the National Court Register. Thus, theoretically it is easier to obtain information about their financial situation by potential capital suppliers than when the economic activity is carried out by sole proprietorship. Secondly, taking into consideration that the separation of management and ownership takes place primarily in stock and in limited companies, it is likely that debt level will be higher in this group than in enterprises conducted in other organizational and legal forms, which, in turn, may result from an assumption that a high level of debt improves the process of business management.
Probably the smaller the company, the choice of the legal form as a limited company will have a significant role in shaping the capital structure. Exclusion of the owner’s personal liability for the debts, provided that he/she is not a member of the board at the same time, will have a positive impact on the debt ratio. On this basis, it may be hypothesized that:

**H2. Enterprises operating as stock and limited companies will have a higher debt ratio than companies operating in another form.**

The adoption of such a hypothesis is also due to the limitations of the current base of financial statements, in which only the following forms were determined: limited liability company, joint stock company, and others.

There are also opponents of the use of the asymmetric information theory and agency theory with respect to the elucidation of the structure of small and medium-sized enterprises, among other things, due to the fact that small and medium-sized enterprises operate in specific financial environments, and the conflicts between owners and managers never occur in small firms or they do not occur on such a scale as in large enterprises (Łuczka 2013: 48).

The problem of information asymmetry was the starting point to another theory which might help to explain the capital structure of SMEs, alternative to the model of Modigliani and Miller – the pecking order theory (Myers, Majluf 1984; Myers 1984). The foundation of the theory is the assumption that entrepreneurs do not strive for an optimal capital structure (López-Gracia, Sogorb-Mira 2008) and that internal managers are better informed than external capital providers. Due to the asymmetry of information, companies put internal sources of financing over external ones. However, when internal sources have been running out, companies prefer debt. Equity capital is obtained as a last resort.

Many authors indicate that the pecking order theory is particularly useful in clarifying the SMEs capital structure due to the relatively higher information asymmetry and higher costs of raising equity capital (Cassar, Holmes 2003; López-Gracia, Sogorb-Mira 2008; mac an Bhaird, Lucey 2010; Van Caneghem, Van Campenhout 2012). In addition, a common qualitative feature of small and medium-sized businesses is the desire of the owners to maintain economic and legal independence (Łuczka 2013: 49). Therefore, at first small business owners employ their own resources (e.g., savings, loans from family, earned profits) and they also have other ways to reduce the demand for capital (the so-called financial bootstrapping methods) (Winborg, Landström 2001). Through the use of various tools, companies more efficiently exploit capital which they hold and can temporarily have no need for external financing. However, this strategy probably works in the short term and in a long perspective may lead to a slowdown in company growth. After exhausting its own resources, short-term loans and then long-term loans are preferred. At the end new shareholders are allowed (Cosh, Hughes 1994).

The use of the return sources of financing (debt, loans) associates a company with the capital supplier only for a certain time and it allows preserving independence in the strategic
and operational decisions. In turn, a new shareholder admission may threaten the owner-managers economic and legal independence.

The pecking order theory has been recognized by many researchers to be appropriate to explain the financial decisions of small and medium-sized enterprises (Cassar, Holmes 2003; López-Gracia, Sogorb-Mira 2008; Van Caneghem, Van Campenhout 2012).

On the basis of this theory, we can hypothesize that the more profitable a company is (higher retained earnings), the less debt they use (Cole 2013; Margaritis, Psillaki 2010; Van Caneghem, Van Campenhout 2012). Most of the empirical studies also confirm this relationship (Heyman et al. 2008; Van der Wijst, Thurik 1993). Therefore, the next research hypothesis is to say that the more profitable the company is (higher retained earnings); it uses debt to a lesser extent.

**H3. Profitability negatively affects the debt level and the smaller the company, the relationship will be more pronounced.**

On the basis of the trade-off theory, an inverse relationship can be derived - the greater the profits, the greater the debt, because the company will look to reduce the tax burden and, for this purpose, it will use the financial costs of additional debt. However, due to the fact that studies have shown that in the SME sector a non-interest tax shield is more important (López-Gracia, Sogorb-Mira 2008) and, taking into account that the pecking order theory is closer to the SMEs specificities, it has been hypothesized as above.

### 2. Data collection, variables and methods

The sample frame employed for this study was bought from the commercial information agency Info Credit. There are 12,241 financial statements of companies from the SME sector, including 1,704 micro enterprises, 4,624 small enterprises and 5,913 medium-sized enterprises in the basis for the reference year, 2004.

The division into three groups: micro, small and medium-sized enterprises has been made on the basis of the employment, in accordance with the definition of the European Commission from 1 January, 2005. Companies from the financial and insurance sector were excluded.

The financial structure ratio was based on the broad and narrow definition of leverage. The broad definition means ratio of total liabilities to total assets (DEBT1) whereas a narrow definition ratio is measured as total debt without a trade credit and other short-term non-debt liabilities to total assets (DEBT2).

Variables that characterize the individual determinants of capital structure, most often employed in the literature are:

- Profitability – was measured in two ways: as the return on total assets (EBIT to total assets – ROA) and the return on sales (EBIT to total revenues – ROS),
– Organization type (FORM) – a database takes into account two detailed organizational and legal forms: limited company, joint stock company, and other forms.
– Effective taxation (EF.TAX) – was measured as the ratio of tax to gross profit.

In order to verify the hypothesis, we examined whether there is a correlation between debts ratio (according to a narrow and broad definition) calculated for micro, small and medium size companies and selected determinants and we tested if the correlation differs statistically significantly. The inference was carried out with the use of the Student’s t-distribution and ANOVA.

3. Results

The study first determined the average ratio of total liabilities to total assets (DEBT1) and total debt without trade credit and other short-term non-debt liabilities to total assets (DEBT2) for micro, small and medium companies (Table 1). Average DEBT1 in a whole sample was 50%; it was slightly higher for small companies (52%) and lower in the micro and medium group (49%). Although the difference between the groups is not very large, it is statistically significant with the p-value lower than 0.1%. DEBT2 ratio is the lowest in micro-companies (9%) and the highest in the medium group (13%). Small companies are between these two groups. The differences are also statistically significant.

Table 1
Debt ratios descriptive statistics (%)

<table>
<thead>
<tr>
<th>Company’ groups</th>
<th>Average DEBT1</th>
<th>Standard deviation DEBT1</th>
<th>Average DEBT2</th>
<th>Standard deviation DEBT2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – MICRO</td>
<td>49.0</td>
<td>29.3</td>
<td>9.0</td>
<td>17.0</td>
</tr>
<tr>
<td>2 – SMALL</td>
<td>52.0</td>
<td>26.4</td>
<td>12.0</td>
<td>17.2</td>
</tr>
<tr>
<td>3 – MEDIUM</td>
<td>49.0</td>
<td>25.1</td>
<td>13.0</td>
<td>15.3</td>
</tr>
<tr>
<td>WHOLE SAMPLE</td>
<td>50.0</td>
<td>26.2</td>
<td>12.0</td>
<td>16.3</td>
</tr>
</tbody>
</table>

Difference is significant? YES*** YES***

* p-value < 10%; ** p-value < 1%; ***p-value < 0.1%.

Source: own calculation.

Then, in order to verify the earlier hypotheses (H1, H3), the correlation between the overall debt ratio and the profitability ratios and effective tax were determined (Table 2). The significance of the correlation was also examined, and accordingly marked in the table.

Little relationship occurred in terms of profitability and debt. The return on assets is of minor importance for the level of debt. A very weak and insignificant correlation was observed between the debt ratio and the effective tax rate.
Table 2

Correlation between DEBT1 ratio and selected factors

<table>
<thead>
<tr>
<th>Company’ groups</th>
<th>ROA</th>
<th>ROS</th>
<th>EF. TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – MICRO</td>
<td>–0.05*</td>
<td>–0.05*</td>
<td>0.03</td>
</tr>
<tr>
<td>2 – SMALL</td>
<td>–0.09***</td>
<td>–0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>3 – MEDIUM</td>
<td>–0.04**</td>
<td>–0.02</td>
<td>–0.01</td>
</tr>
<tr>
<td>WHOLE SAMPLE</td>
<td>–0.03***</td>
<td>–0.02***</td>
<td>–0.01*</td>
</tr>
</tbody>
</table>

*p-value < 10%; ** p-value < 1%; ***p-value < 0.1%.

Source: own calculation.

Similar calculations in terms of correlation and its significance were carried out in relation to the debt ratio in the narrow sense (Table 3).

Also a relatively small relationship occurred in terms of profitability and interest debt, even smaller than in the case of total debt. A very weak and insignificant correlation was observed between the debt ratio and interest effective tax rate.

Table 3

Correlation between DEBT2 ratio and selected factors

<table>
<thead>
<tr>
<th>Company’ groups</th>
<th>ROA</th>
<th>ROS</th>
<th>EF. TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – MICRO</td>
<td>–0.05*</td>
<td>–0.05*</td>
<td>0.03</td>
</tr>
<tr>
<td>2 – SMALL</td>
<td>–0.09***</td>
<td>–0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>3 – MEDIUM</td>
<td>–0.04**</td>
<td>–0.02</td>
<td>–0.01</td>
</tr>
<tr>
<td>WHOLE SAMPLE</td>
<td>–0.03***</td>
<td>–0.02***</td>
<td>–0.01*</td>
</tr>
</tbody>
</table>

*p-value < 10%; ** p-value < 1%; ***p-value < 0.1%.

Source: own calculation.

In order to verify the H2 hypothesis in terms of the impact of organizational and legal form on debt level, an analysis was performed for both the debt ratio in a general sense (Table 4) and interest-bearing debt (Table 5) in micro, small and medium-sized enterprises. When we consider the total debt ratio, it is on average the highest in the limited liability companies (52%) and the lowest in other organizational forms. The difference in the level of debt between organizational forms of micro, small and medium-sized enterprises, and the research sample is statistically significant.

In terms of the highest average interest-bearing debt, the highest average rate was observed in limited and stock companies (about 12–13%). The rate was relatively lower (below 10%) in other legal organizational forms.
Table 4

DEBT1 and legal form (%)

<table>
<thead>
<tr>
<th>Company' groups</th>
<th>STOCK COMPANY</th>
<th>LIMITED COMPANY</th>
<th>OTHER FORM</th>
<th>Difference is significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – MICRO</td>
<td>35.96</td>
<td>51.88</td>
<td>48.02</td>
<td>YES***</td>
</tr>
<tr>
<td>2 – SMALL</td>
<td>46.06</td>
<td>54.51</td>
<td>44.95</td>
<td>YES***</td>
</tr>
<tr>
<td>3 – MEDIUM</td>
<td>50.41</td>
<td>51.03</td>
<td>40.52</td>
<td>YES***</td>
</tr>
<tr>
<td>WHOLE SAMPLE</td>
<td>47.52</td>
<td>52.53</td>
<td>42.85</td>
<td>YES***</td>
</tr>
</tbody>
</table>

* p-value < 10%; ** p-value < 1%; ***p-value < 0.1%.

Source: own calculation.

Table 5

DEBT2 and legal form (%)

<table>
<thead>
<tr>
<th>Company' groups</th>
<th>STOCK COMPANY</th>
<th>LIMITED COMPANY</th>
<th>OTHER FORM</th>
<th>Difference is significant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – MICRO</td>
<td>10.94</td>
<td>8.67</td>
<td>9.24</td>
<td>YES***</td>
</tr>
<tr>
<td>2 – SMALL</td>
<td>11.31</td>
<td>12.80</td>
<td>9.43</td>
<td>YES***</td>
</tr>
<tr>
<td>3 – MEDIUM</td>
<td>12.68</td>
<td>13.75</td>
<td>9.51</td>
<td>YES***</td>
</tr>
<tr>
<td>WHOLE SAMPLE</td>
<td>12.07</td>
<td>12.62</td>
<td>9.46</td>
<td>YES***</td>
</tr>
</tbody>
</table>

* p-value < 10%; ** p-value < 1%; ***p-value < 0.1%.

Source: own calculation.

Conclusion

The analysis confirmed the H2 hypothesis “Enterprises operating as stock and limited companies will have a higher debt ratio than companies operating in another form.” The use of a joint stock company or a limited liability company as an organizational and legal form reduces information asymmetry and also helps to increase the use of interest debt in financing. In addition, bankruptcy costs are reduced from the viewpoint of an owner.

Two hypotheses have not been confirmed:

– H1. The effective tax rate should be positively related to debt level but the smaller the company, the weaker is the relationship.

– H3. Profitability negatively affects the debt level and the smaller the company, the relationship will be more pronounced.

The correlation between the debt indicators and the tax effective rate and profitability proved to be negligible. This can also be confirmed in the case of H2, that the optimal capital structure of small business is not determined by tax benefits and thus the trade-off theory is not useful to explain the motives of borrowing in this group of enterprises.
References


Wybrane determinanty struktury kapitału w MŚP – Badania empiryczne dla Polski

Streszczenie: Cel – Celem artykułu jest zbadanie wpływu wybranych czynników na strukturę kapitału w grupie mikro, małych i średnich polskich przedsiębiorstw. Testowano czy rodzaj spółki, efektywna stawka podatku oraz rentowność mają wpływ na zadłużenie się przedsiębiorstw.

Metodologia badania – Autorzy użyli dwóch wskaźników zadłużenia: zadłużenia ogółem oraz zadłużenia odsetkowego. Badanie zostało przeprowadzone na próbie 12 tysięcy sprawozdań finansowych MŚP. W analizie wykorzystano testy t-Studenta oraz metodę ANOVA.

Wynik – Potwierdzono, że istnieje związek pomiędzy strukturą kapitału MŚP a ich formą organizacyjno-prawną. Nie stwierdzono zależności pomiędzy zadłużeniem a rentownością i efektywną stopą podatku dochodowego a przez to wykazano brak przydatności teorii kompromisu w tłumaczeniu zachowań zarządzających dotyczących kształtowania struktury kapitału w grupie małych i średnich przedsiębiorstw.

Oryginalność/wartość – Relatywnie nieduża liczba opracowań dotyczy badania determinantów struktury kapitałowej MŚP w Polsce w oparciu o duże próby badawcze. W artykule dokonano analizy wpływu na strukturę kapitału czynników, które były do tej pory bardzo rzadko badane w tej grupie przedsiębiorstw.

Słowa kluczowe: struktura kapitału, dług, małe i średnie przedsiębiorstwa

Citation