CONSIDERATIONS CONCERNING THE DETERMINANTS OF THE FIRMS’ DEBT

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ABSTRACT

The capital structure of an enterprise represents one of the most debated subjects in theoretical and applied finance. In the current period of deep financial disturbances at macro and micro-economic levels, capital owners select investment with much more attention, by comparing the dividend rate, offered by the enterprise, and the interest rate of the bank or the profit rate obtained from other investments. Banking markets involve productivity, risk and consumer satisfaction. The risk factor is the main activity that the bank is focused on. Under these circumstances, it is certain that the situation and the image of the enterprise depend on the profit rate which, if looked at in terms of the use of profit as development source and as a method to gain capitals, ultimately determines the place of the enterprise on the market.

Keywords: debt, financial structure, financial sources, regression model, efficiency.

JEL Classification: G31, G32.

1. INTRODUCTION

When talking of enterprises, capitals are fewer and fewer, more and more expensive, and, in a context of strong competence, the expected profit is obtained with more difficulty, taking greater risks which are hard to anticipate and diminish. (Vintilă, 2008)

Although there are several criteria of selecting the capital sources of the enterprises, the capital cost represents the most important criteria of choosing the financing sources as it is determined directly by the financial structure established by the enterprise with the purpose of reducing the global cost of the capital as well as by the specific costs of different capital components. Therefore, in order to reduce the capital cost, managers wish a permanent improving of the capital structure favoring those sources for which investors ask for a smaller remuneration of their capital, which means arbitrage between own sources and borrowed sources.
Debt is always cheaper than equity, but using debt increases risk in terms of default risk to lenders, and higher earnings volatility for equity investors. Thus, using more debt can increase value for some firms and decrease value for others, and for the same firm, debt can be beneficial up to a point and destroy value beyond that point. (Damodaran, 2004)

2. CONCEPTUAL ASPECTS OF DEBT

In borrowing money, firms have to make a variety of choices including the maturity of the borrowing (short term or long term), whether the debt should have fixed interest payments or an interest rate tied to market rates (fixed and floating rates), the nature of the security offered to those buying the bonds and how the debt will be repaid over time. (Damodaran, 2004)

The primary source of borrowed money for all firms is the bank, with the interest rates on the debt based upon the perceived risk of the borrower. Bank debt provides several advantages: (Damodaran, 2004)

- it can be used for borrowing relatively small amounts of money.
- if the company is neither well known nor widely followed, bank debt provides a convenient mechanism to convey information to the lender that will help in both pricing and evaluating the loan.

The Romanian credit market – not only that it has been the most affected by the financial crisis, but it has been the crisis itself. As it was the case everywhere, we could encounter in Romania as well a strong contraction of creditation, as a first consequence of the world economic and financial crisis. Nevertheless the negative effects have been measured and evaluated by specialists, the state has reduced its financing need on the bank market and banks began to relaunch the creditation process. The effects of the crisis on the creditation process have been disastrous, registering contractions of approximately 70-80%. Companies that were highly exposed to this market have been the most affected. The stagnation tendency, despite of Romanian National Bank taking some stimulating measures still characterises the present credit market.

The vulnerability of the bank system is determined by the diminuation of the quality of credits in the context of recession, to which we can add the difficult situation of debtors who contracted foreign currency credits. Although nonperformant creances are at a manageable level, their growing rhythm represents a worrying reason for the financial stability. Presently, banks have sufficient sources to cover the contingent losses generated by the creditation risk. A delayed economic relaunching, the high creditation costs and a more cautious attitude of both banks and clients points to a continuation of the present tendencies in the future.

For firms, an alternative to bank debt is to issue bonds who have several advantages: (Damodaran, 2004)

- bonds usually carry more favorable financing terms than equivalent bank debt, largely because risk is shared by a larger number of financial market investors.
- bond issues might provide a chance for the issuer to add on special features that could not be added on to bank debt.
The Romanian bonds market is represented nowadays by 3 corporatist bonds emissions, 23 municipal bonds emissions, 25 government bond emissions and 2 emissions of international bonds. In a context in which stock are of no interest, Bucharest Stock Exchange (BSE) tries to reorient itself towards developing the bondholder market, especially that investors have shown interest on such instruments. Although the value of transactions with bonds have been rising, Romania occupies the last place in Europe in this area. The growth of the bonds offer at Bucharest Stock Exchange (BSE) depends on enterprises, which are rather skeptical to the usage of this financing mechanism, although the costs generated by the bondholder loan are more reduced than the bank ones.

An alternative approach that might accomplish the same goal is to lease the asset. In a lease, the firm commits to making fixed payments to the owner of the asset for the rights to use the asset. These fixed payments are either fully or partially tax deductible, depending upon how the lease is categorized for accounting purposes. Failure to make lease payments initially results in the loss of the leased asset, but can result in bankruptcy, though the claims of the lessors (owners of the leased assets) may sometimes be subordinated to the claims of other lenders to the firm. (Damodaran, 2004)

The Romanian leasing market dropped down with 30%, the most striking lowering being registered on the real estate and transport segments. The present situation the leasing companies are dealing with makes them more careful, their main concern being the stability of their portfolio and orientation towards less developed market shares. As far as market evolution is concerned, the most important thing in this period is stabilization of portfolios. Present leasing companies function on the contracts negotiated during the previous years. Players on the leasing market consider that predictability in the economic field and support from the state would be necessary conditions for a positive evolution of the market which depends on the state budget also, on the way debts are collected and paid because this aspect influences in turn payments at the client level.

3. ECONOMETRIC ANALYSIS OF THE MAIN FACTORS OF THE DEBT

The analysis of the capital structure of the enterprises listed at Bucharest Stock Exchange (BSE) between underlines that the main financing source is represented by ownership equity having an approximatively 58% weight, the rest of the capitals coming from external sources, especially from stock emission and long-term and short-term bank loans. This analyse highlights the fact that Romanian enterprises try to cover the financing necessary especially by means of own sources and only when these reached the limit do manager try to look for external sources: bank credits, leasing, stock emission firstly and bonds emission secondly.

Considering the above, the empirical analysis of the financial data was made by a multiple regression model who analysed the influence of six independent factors on the debt:

- total assets ($AT$);
- own capital (equity) ($KP$);
- turnover (CA);
- net profit (RN);
- level of taxation (GF);
- market-to-book ratio (MBR).

\[
\log DAT = \alpha_0 + \alpha_1 \log AT + \alpha_2 \log KP + \alpha_3 \log CA + \alpha_4 \log RN + \alpha_5 \log GF + \alpha_6 \log MBR
\]

Following the statistical tests of correlation, the result was that only for of the six independent variables are significant from a statistic point of view. Thus, the tested regression model will have the following form:

\[
\log DAT = \alpha_0 + \alpha_1 \log AT + \alpha_2 \log CA + \alpha_3 \log KP + \alpha_4 \log MBR
\]

The empirical analysis has as object the financial data from a number of 60 companies listed at BVB. The reason the chosen companies were from those listed at Bucharest Stock Exchange (BSE) is that a company is admitted at Bucharest Stock Exchange (BSE) on certain performance criteria and the listing represents an award for the efficient activity of the company.

Following the estimations of the parameters of the regression model, the result was the following output:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-1.43E+08</td>
<td>43870359</td>
<td>-3.270592</td>
<td>0.0020</td>
</tr>
<tr>
<td>AT</td>
<td>1.406899</td>
<td>0.156672</td>
<td>8.979891</td>
<td>0.0000</td>
</tr>
<tr>
<td>CA</td>
<td>0.477503</td>
<td>0.112184</td>
<td>4.256409</td>
<td>0.0001</td>
</tr>
<tr>
<td>KP</td>
<td>-0.805702</td>
<td>0.106039</td>
<td>-7.598164</td>
<td>0.0000</td>
</tr>
<tr>
<td>MBR</td>
<td>-0.290485</td>
<td>0.099693</td>
<td>-2.913794</td>
<td>0.0054</td>
</tr>
</tbody>
</table>

The regression model will have the following form:

\[
\log DAT = -1.43 + 1.406 \log AT + 0.477 \log CA \quad - 0.805 \log KP \quad - 0.290 \log MBR
\]
The meaning of parameters
Statistically from the elimination process of the insignificant factors towards the dependent variable Log DAT we may conclude that only the probability value (P-value) of the parameters LogAT, LogCA, LogKP and LogMBR is smaller than 0.01. Thus, all the regression parameters are insignificant statistically with the exception of the independent variables LogAT, LogCA, LogKP and LogMBR which have an important influence on the dependent variable Log DAT.

The validation of the model
In order to decide if the model is valid we will see the value of F-statistic and Prob (F-statistic). As the probability of the test F (Prob (F-statistic)) is 0.000000 and smaller than 1% we may say that the regression model is valid and can be used for the analysis of the dependence between Log DAT and the independent variables of the model.

R-squared Coefficient $R^2$ is 0.907145 and proves the determinative grade used to show how the regression model explains the dependence between variables. Thus, approx. 90.71% of the dept variation (LogDAT) is explained by the parameters variation used in the regression model, namely the value of the coefficient $R^2$ shows a very low degree in explicating the model.

Adjusted $R$-squared $R^{adj}$ is 0.899565.

The values calculated for $R$-squared and Adjusted $R$-squared for a regression model should show the following relation: $R^{adj} \leq R^2$. For the analysed regression model the value of the Adjusted $R$-squared is in accordance with the conclusions drawn from the analysis of $R^2$.

We may consider that the Adjusted $R$-squared assures a higher precision than $R$-squared. If the Adjusted $R$-squared is significantly smaller than $R$-squared it means that certain explicit variables are missing and without these ones the dependent variable is not completely measured and this is not relevant in our case because the difference between them is very low 0.00758.

Hypothesis testing
The Hypothesis testing is checked by the Jarque-Bera test. The test measures the difference between the asymmetrical coefficient and the analyzed distribution kurtosis with the normal distribution. Thus, if the probability of the test is higher than the chosen relevant level then the zero hypothesis is accepted.
Histogram – Normality Test

For a normal distribution: the skewness coefficient is 0.669, meaning that the normal distribution is symmetrical and the kurtosis is 2.365. If the value of this indicator is smaller than 3 then the distribution is called platikurtosis.

According to the results of this model the distribution LogDAT has an average bigger than zero, presents a positive asymmetry and the kurtosis has a value under 3 which means that the distribution is platikurtosis.

Taking into account that the Jarque-Bera test has a value of 4.937 and the probability is 0.084 > 1% means that the zero hypothesis is accepted.

<table>
<thead>
<tr>
<th>R-squared</th>
<th>0.907145</th>
<th>Mean dependent var</th>
<th>7.48E+08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R-squared</td>
<td>0.899565</td>
<td>S.D. dependent var</td>
<td>78903945</td>
</tr>
<tr>
<td>S.E. of regression</td>
<td>25005838</td>
<td>Akaike info criterion</td>
<td>36.99514</td>
</tr>
<tr>
<td>Sum squared resid</td>
<td>3.06E+16</td>
<td>Schwarz criterion</td>
<td>37.17930</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-993.8687</td>
<td>F-statistic</td>
<td>119.6760</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td>2.266239</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

As a result of Durbin-Watson test for the residues’ autocorrelation we get a value of 2.266239 (not being between 1, 8 – 2, 2) which means that between the residues there is correlation.

In the next figure we presented the way in which the analyzed regression residues are distributed and we may notice that the residues values have a constant distribution, being dispersed and auto correlated.
Considerations concerning the determinants of the firms’ debt

The most important part of the output test is the first one which presents the two statistic tests $F$-Statistic and $R$-squared and the probabilities associated to these tests. The zero hypothesis of those two tests is that there is no serial correlation of the regression equation’s errors. If the probability associated to the two tests is lower than the relevant level then the zero hypothesis is rejected, so there is no serial correlation. Otherwise the zero hypothesis is accepted (there is no serial correlation).

According to the results of this regression the probabilities are higher than the relevant level (0.01) which means that there is no serial correlation of the errors.

As the Breusch-Godfrey test, the most important parts of the output are the two statistic tests $F$-Statistic and $R$-squared and the probabilities associated to them. The zero hypothesis of these two tests is that there is a heteroscedasticity of the regression equation’s errors. If the probability associated to the tests is lower than the relevant level than the zero hypothesis is not rejected, so we have a homoscedasticity of errors. If not the zero hypothesis is accepted.

According to results the probability is $0.157 > 0.01$, so that the zero hypothesis is not accepted and this means that we have heteroscedasticity – the variables’ dispersion is not constant.
The results obtained with the help of the regression model reflect the fact that the independent variables taken into consideration explain in a great measure the evolution of the analyzed dependent variable.

<table>
<thead>
<tr>
<th>Correlation of the dependent variable with the independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables of the model</td>
</tr>
<tr>
<td>AT</td>
</tr>
<tr>
<td>CA</td>
</tr>
<tr>
<td>KP</td>
</tr>
<tr>
<td>MBR</td>
</tr>
</tbody>
</table>

4. CONCLUSION
After processing the financial information of the companies presented in the database with the support of the multiple linear regression we may conclude that the financing structure used by the enterprises is according to the principles of the pecking order theory, meaning that at first the company will try to cover the financial needs from their own resources and then the enterprise will apply to indebtedness. Debt is always cheaper than equity, but using debt increases risk in terms of default risk to lenders, and higher earnings volatility for equity investors.

Also, as far as the structure of the debts listed at BVB, which make the object of the present study, it is obvious that the management of these enterprises prefer debts with due date shorter than one year to debts with due date longer than one year. This tendency of managers engaging debts on rather short terms can be explained by the restrictive conditions imposed by Romanian financial institutions (banks and leasing companies) when approving long-term loans.

5. REFERENCES