The optimal capital structure for the companies on the emergent markets

Author: Ramona Ajitaritei
Coordinator: Prof. Laura Obreja Brasoveanu PhD.

Introductiuon

Over the time, the capital structure of companies and their preferences in the choice of their activities financing were the subject of multiples studies for economists. I have chosen this subject because I believe that by investigating how companies are raising capital, but also taking into account the costs of these financial sources, is valuable information for investors, while understanding it can bring additional knowledge about its influence over the corporate performance.

The purpose of this paper is to identify the determinants of capital structure for 14 companies which are operating in industry, listed on the Bucharest Stock Exchange, by analyzing data available in the period 2004 to 2008. I also tried to apprehend some data points to calculate the cost of capital and its influence on determining the optimal financial structure for a company.

Chapter 1 Theoretical considerations and empirical evidences about companies' capital structure

I have considered several theories regarding the capital structure of companies, trying to understand their applicability to those that activate in Romania. I choose to talk about:

- The Theory of the irrelevance of capital structure **(Modigliani - Miller (1958), Miller – Modigliani (1977))**
- The Agency Theory **(Jensen - Meckling (1976), Fama Miller (1972))**
- The signaling Theory **(Ross (1977))**
- The pecking order Theory **(Myers (1984))**
- The static arbitrage Theory **(Barclay, Smith (1999))**
- The capital structure facing the competition Theory **(Titman (1984))**

- The capital structure taking into account the market predictions Theory (**Baker-Wurgler (2002))**

The empirical evidences helped me in seeking to identify some indicators that I had used the case study. These are studies of the authors Harris, Raviv (1991), Rajan, Zingales (1995), Booth, Aivazian, Demirguc-Kunt, Maksimovic (2001), Abe de Jong (2001), Leuz, Oberholzer-Gee (2003), Dragota (2005), Allayannis, Brown, Klapper (2005), Fan, Titman, Twite (2003).

Table1. Empirical evidence on corporate capital structure

Author	**Results**
Harris, Raviv, 1991	Indebtedness is positively correlated with fixed assets, taxation, investment, and negatively correlated with cash flow volatility, growth opportunities, advertising expenditure, risk of bankruptcy, and also the production profitability and uniqueness.
Rajan, Zingales, 1995	The level of the lever is positively correlated with increasing assets, firm size, and negatively correlated with growth opportunities and profitability.
Booth, Aivazian, Demirguc-Kunt, Maksimovic, 2001	Long-term indebtedness is negatively related to taxation, the size and profitability of the firm and positive related to the assets tangibility.
Abe de Jong, 2001	Dutch businesses tend to avoid external financial resources, which results in the absence of mechanisms for the exercise of corporate governance. The author also highlighted the substrate disciplinary role of the financial lever, revealing that firms with fewer growth opportunities will not resort to external financing sources.
Leuz, Oberholzer-Gee, 2003	State-owned companies have a higher lever than the private ones.
Dragotă, 2005	Lever is positively correlated with company size. On Romanian market is confirmed the pecking oder theory, as evidenced by an inverse relation between debt and profitability.
Allayannis, Brown, Klapper, 2005	Inverse relationship between the level of debt and legislation, more powerful for the short-term debt.
Fan, Titman, Twite, 2003	Tier lever is positively correlated with the corruption level in a system.
Mocanu, 2009	Insignificant correlation between changes in indebtedness in 2007 compared to 2006 and corresponding adjustment of ROA and ROE.

An optimal level of indebtedness of a firm is seen as a compromise between a loans costs and benefits, asset maintenance and investment plans. It is assumed that the companies are replacing their financing through loans with equity, and vice versa, until their business value is maximized.

Chapter 2 Optimizing capital structure of companies

I have examined the financial structure optimization criteria, namely profitability and destination of the resources, calculating the main structure rates of the funding sources and the profitability rates for the 14 companies analyzed. I observed a positive effect of debt in the case of Alro, which lever recorded a higher value, almost 16%. The company can be considered stable, given the fact that it can meet its interest expenses, as emphasized by high TIE of 1520.56%. A worrying situation could be registered with Mechel, which is over indebted, the lever being about 70% (the company and could face a lack of financial means to pay interest, the TIE is negative). Also, it recorded a negative net profit and the profitability is lower than the interest rate, resulting in an inappropriate credit financing.

In terms of the destination of the resources, the high value of the FR for Alro, Zentiva or Azomures is estimated to be positive, an increasingly important part of working capital is funding assets. These companies have a level of debt at around 30% and long-term average does not lead to a significant increase in financial expenses and will not cause a decrease in profit and therefore a decrease in equity. In terms of NFR, a large positive value, as for the pharmaceutical companies or Alro, is signaling a shortage of temporary sources due to temporary needs. Business financing policies should be oriented in such cases to cover the deficit of temporary sources of their sources, if FR > 0, as happens in all cases above or using positive cash account as a result of taking a short-term loan from bank.

The analysis of the evolution of a company's profitability must be completed with data on the cost of capital. In the current financial crisis, which has a great impact on cash flow and ability of enterprises to keep borrowing with rates at the same level as that prevailing before the crisis, it becomes necessary to analyze in detail their operations and

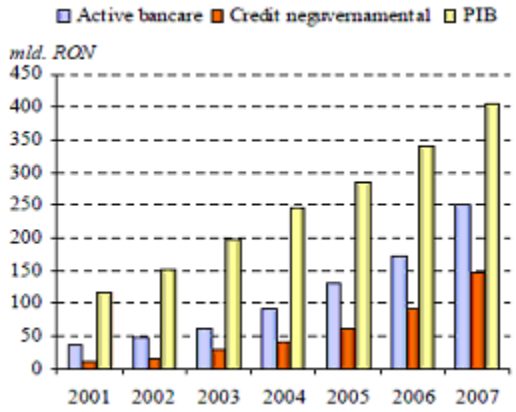
identify the amount of borrowed capital that can be supported. The companies should not use debt in the absence of some studies on the effects of financial lever on their work, the influence of taxation on the level of borrowing, but also an analysis of capital structure using models to evaluate the cost of capital adjusted for the emerging markets.

The term of emerging market is associated with the World Bank. A country is considered emerging if GDP per capita falls below a certain amount, varying with time. Of course, the basic idea that lies behind this term is that those states tend to join to the developed ones in time, a concept called convergence. The market integration is a gradual process, and the speed with which it occurs depends on each country. There are three categories of barriers in emerging markets: the law considered indirect and occur because of information asymmetry, investor protection and international accounting standards, but also liquidity risk, political, economic and foreign policy (Bekaert (1995). From my point of view, it is less likely for all to disappear at the same time.

Chapter 3 Corporate governance and funding sources of the Romanian companies

In this chapter I approach some elements of corporate governance, but also the analyzing of the loan structure in Romania. I have considered that one of the main channels leading to overheating emerging economies is the extension of the credit, given the dominance of banks in the financial system and the increasing volume of capital available after the abolition of restrictions on capital account. According to NBR, Romanian capital market convergence with the European market advanced in 2008. However, the market risks have increased due to the impact of the turmoil in foreign markets, and also the domestic economic framework of market capitalization and trading volume. Daily volatility adjusted correlation analysis between BET, the Bucharest Stock Exchange indices and the ones in developed markets and emerging markets show a relatively weak link with developed markets and in relation to emerging capital markets, a similar trend in periods of declining and little similarities in the boom periods. Regarding the structure of credits for Romanian companies, one can see an increase of bank assets with economic development, which is quantified by increasing GDP and a specific credit boom in Romania until 2007.

Graphic1. The evolution of banking assets and loans:



Source: NBR

It is also clear that firms have not uses a very large extent on bank loans, they preferred self-financing. The reluctance of firms to attracting external financial resources conducted to the equity increasing by reinvestment of profits obtained, thus turning into the absence of the effect of the financial lever in increasing the profitability. For the next period, in the context of projections for capital market development, business orientation is predicted through sources of external financing and thus increases the probability of manifestation the phenomenon of financial leverage.

Chapter 4 Case study

I have initially looked at the lever level determinants for a company using the software EViews 4.1. I created a regression equation type linear multivariate cross-section in which the dependent variable was the lever and the independent variables were return on sales, return on equity, assets tangibility, and lever in the previous year and average interest rate on the market for each year analyzed.

The estimated model can be written as L = 1.958121*ROS - 1.380772 * ROE.+ 1.020543 * TANG + 1.957514 * interest + 0.842780 * (L-1) + εi .

Regarding the influence of the factors underlined, for the selected sample, it can be concluded that:

✓ **Lever is positively correlated with the share in total assets, as tangible assets of the company.** At a 1% increase in the level of tangible assets, lever increases by 1.95%. This may be due to increased investment in fixed assets, which are achieved by contracting new loans. Given the scope of activities of these companies, industry,

where the share of fixed assets to total assets is significant and the evolution of technology, companies turn to increase borrowing to deal with these investments. Positive correlation is a sign of the presence of information asymmetry. Rajan and Zingales (1995) have shown that variability of the report fixed assets / total assets should be considered when funding structure is analyzed.

✓ **Lever is inversely correlated with ROE for this model.** By raising loans, ROE decreases, as shareholders share risk with creditors. What is the tax advantage to shareholders by reducing the income tax will become a pay rate reduction required by shareholders for CPR, resulting in lower costs of capital and increase its market value. The result supports the conclusions of pecking order theory, that profitable companies have fewer debts because they have sufficient internal resources to finance their investment projects.

Although some experts consider that the rate of return or the cost of capital should be taken as a basis for future economic decisions, I think they are rather indicative approximations. More important are, in my opinion, market strategy, positioning against competitors, quality management, aversion to risk. Contracting for new long-term debt should be based on planned investments, and these must be made according to the company's economic calculations based on projections and forecasts of future cash-flow, also the costs included. According to behavioral finance, past successes is an indicator of future failures. Therefore, financial managers should not assume that prices and operating costs will remain constant and that they must be extrapolated in the future.

✓ **Return on sales is positively correlated with the lever for the companies analyzed**. This indicator shows the strategy according to which the company sets prices, so that to record a predetermined profit, expressed as a percentage of sales volume. ROS size varies according to the business of the company and the level of competition. Recording a low value of ROS may be the direct result of a high competition. For the sample examined, given that firms have strong competitors, for growth of 1% of sales profitability, lever must be adjusted to 1.95%.

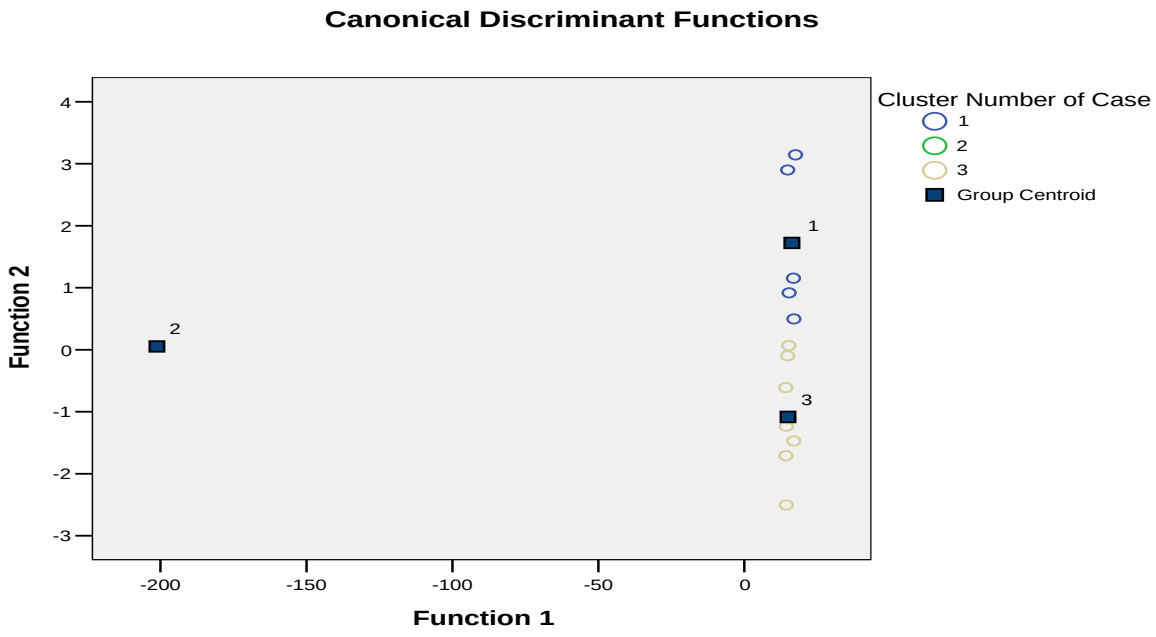
A leveraged firm has more financial debts than an unlevered business. The financial risk is evident when the company records a reduction in sales after taking a loan. Managers who take increasing interest payments and payments for fees and rates on loans

outstanding requested additional payments, have an opening access to sources of capital (own and borrowed) and initiate more ambitious investment projects.

✓ **The interest rate, a factor that directly influences the volume of loans granted by banks, is a directly correlated indicator related to the borrowing companies.** This could be a signal that, for the sample analysis, companies resort to loan financing regardless of market conditions. It is also possible that they may not have made adjustments to their investment plans. Moreover, considering that the capital market is seen by few players in the economy as a viable source of financing, companies have found the banking market as the only option.

✓ **The level of the lever in the previous year is positively correlated with the current level,** as companies must take into account the maximum degree of indebtedness that can afford overall. I have considered the concept of "rolling debt". For the cases considered, in general, to a 0.84% increase in the lever level this year, there was an increase of 1% of long-term borrowing in the previous year. If a company has no debt, then the contraction of a loan is beneficial for its development. Moreover, if such indebtedness is high, shareholders are more careful, because this may cause the company's inability to create surpluses in the form of cash, but is especially strong effect on those who hold common shares, which will be the last to receive compensation for bankruptcy. If new debt is contracted to finance an older one, it could be given a negative signal to the market, especially if refinancing is an interest rate higher than the original.

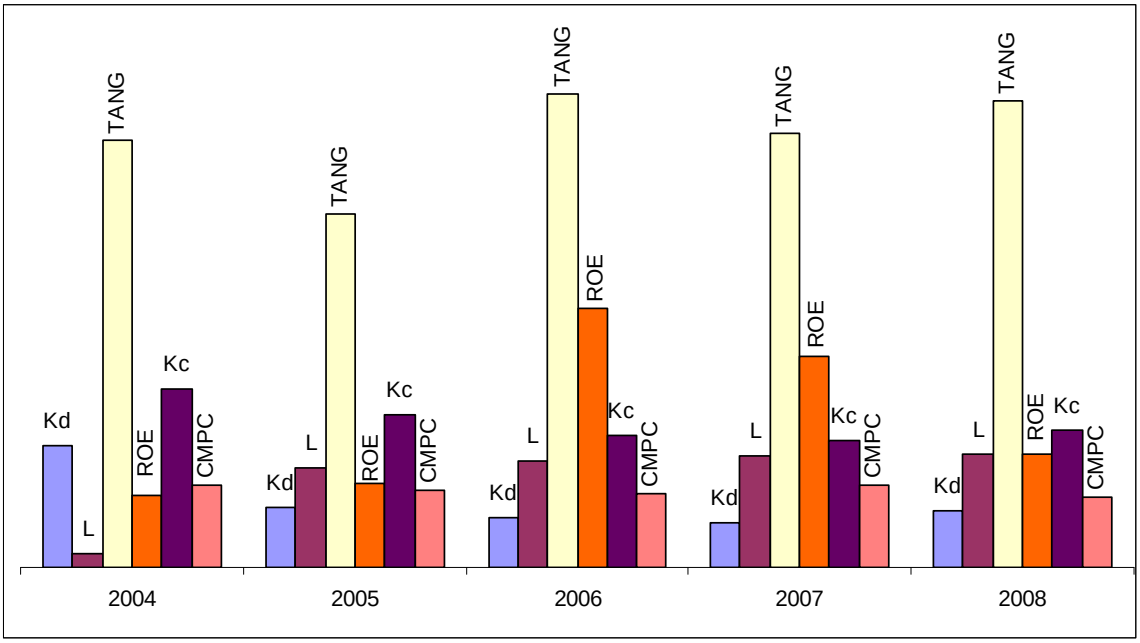
In order to analyze the company's financing structure through cluster analysis I used the program SPSS 15.0, grouping the 14 companies analyzed by ROE, level of debt



and leverage, for an initial cluster analysis. I took notice by the specific nature of development indicators for Oltchim SA, which is the only one that was placed in a separate cluster. Companies in cluster 1 are those with high debt level, peaking at 71.88% and recorded high returns on capital. Companies in cluster 3 are either stable companies in the pharmaceutical industry, which recorded higher returns, whether in the chemical industry with a high rate of financial stability which allow more self financing, also having access to long term loans in case of investing. The conclusion was that firms can be grouped according to the relationship trade-off profitability - risk. Companies with a high level of debt, so with a greater risk in conjunction with a high capital cost, obtained generally higher profitability for their business.

In the last stage, I have tried to apprehend a financing structure of a company as close to optimal, by analyzing the evolution of indicators, cost of capital, weighted average cost of capital, return on equity, assets tangibility, lever and the cost of debt for the company Alro SA. The optimal capital structure is to maximize enterprise value by balancing the degree of risk and expected rate of return.

Graphic2. The evolution of the weighted average cost of capital compared with other indicators for Alro SA:



Source: own calculations

As the chart shows above, if it is to take into account the compromise between risk and return, I believe that the optimal structure of capital for Alro was in 2006 when ROE was at the highest value, tangible assets have had the largest share of turnover, while at the same level of the lever and the cost of debt as in the previous year, it recorded a much lower level of weighted average cost of capital. The lower average rate of interest is resulting in a positive leverage, so the decision brought value to the company's business and therefore to its shareholders. By that year, the long-term borrowing increased, and the company benefited from lower interest rates and increasing tangible assets has also led to increased profitability. It is noted that the empirical study is verified and increasing the lever has a negative economic return.

I think that appealing to long-term debt has led to lowering the weighted average cost of capital below the cost of capital, causing an increase in the Alro value. Also, decreasing the difference between wacc and kc in 2007, could lead to investors reducing expected earnings and enterprise value. I can say, based on these data that Alro SA failed to maintain a capital structure that would have brought a long-term development. Moreover, in 2008 there was a worrying situation that may be considered by management, namely low ROE below the cost of capital. In the future, the company should take measures to ensure its sustainable growth and the level of debt on long term should increase as the development of profitable investment of the company.

Conclusions

In the process of elaborating this paper I had in mind the fact that that most studies on the subject are taking into account data from developed markets and for countries like Romania, empirical results do not apply fully. The proposed structure of the work is trying to address key issues involved in obtaining the optimal capital structure.

The levels of debt and capital have long term implications on business activity. The fact that it was not found the optimal capital structure could be an indication of the need to recast the original problem. Another approach that could be considered by economists would be no attempt to find the answer to the problem of optimal debt-equity combination that leads to maximizing company value and hence shareholder wealth, but

the circumstances in which financial lever it should be used to maximize the amount of such income.

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