

Assessment of the Capital Structure and Cost of Capital Using Financial Indicators, the Case of Large Businesses in Albania

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Abstract

The assessment of capital cost and capital structure is a complex field of financial activities, integrating all long term decisions of financial funding. Difficulties arise especially when financial markets are not liquid, as in the case of Albania, in terms of a new market that is economically, politically, legally, and fiscally fragile. The purpose of this paper is to assess the capital structure and cost of capital for large businesses in Albania that have a 100% Albanian ownership. Financial analyzes are based on the 2013-2014 financial statements of 50 companies, within 5 most representative sectors of the economy. The performed analyzes are based on multivariate regressions and the application of financial formulas. According to estimates in Albania, it results that companies do not have an optimal structure of capital, and furthermore the diversification of capital structure is merely a theoretical concept. Therefore, businesses face a high cost of capital. Even their level of systemic risk "beta" ranks them with more risk. Consequently, these businesses will not be able to achieve exports of goods and services to compete in international markets.

Keywords: optimal capital structure, cost of capital

JEL classification codes: C58, G12 and G32

A. Introduction and literature review

The financial crisis of 2008 which included capital markets in developed economies initially in USA and Europe and then in other countries of the world, had major consequences not only in the global financial sector but also in the real economy. Even nowadays many countries still continue to suffer the consequences of this crisis. Many economic experts link the current economic crisis in Europe with the financial crisis of 2008-2009.

The first effects of financial crisis included the reduction of debt levels and consequently reduction of equity financing to businesses. This phenomenon led to the beginning of the economic recession in the USA, then Europe and worldwide. With the bankruptcy of several financial institutions like Lehman Brothers, many other financial institutions limited the volume of financing, increased control and coercive measures against debtors. Businesses began to experience the first significant financial constraints globally. Although the "Troubled Asset Relief Program" succeeded in preventing the growth of the financial crisis in USA, this program did not result as it was expected in increasing lending by financial institutions. In this context, many scholars of the financial crisis, such as Fosberg (2012), analyzed how the financial crisis of 2008 led to the reduction of emission of companies securities and reduction of loans (and other forms of borrowing) from financial institutions. But also due to the decrease in the market value of shares in the stock exchange, the capital structure ratio changed significantly, increasing the weight of debt and the financial risk of these companies. In these circumstances, many businesses experienced changes in capital structure, apart from the optimal structure of financial theories.

Finding the optimal level of capital structure means to achieve the goal of value maximization regarding risk and profits. In financial literature there is an open debate since the late 50-s to nowadays, whether there exists an optimal structure of capital. Those who think that there exists an optimal capital structure support the traditional theory, stating that the capital structure is optimal when the cost of capital is minimal. While objectors to this theory, started with Modigliani-Miller model in 1958, which will be analyzed below.

One of the most important financial and managerial challenges of a company is determining the optimal structure of capital, which in fact as any other financial optimization is a problem with many variables and conditioning (external macroeconomic factors and internal factors of the company). However it is accepted that in an economy, or branch of economy, the leading companies are those companies that have managed to optimize their capital structure and also to minimize the average cost of capital. If we analyze the economy, companies with higher performance and greater level of sets, performing as the best companies in the market for a long time, it is observed that they could managed to optimize their financial structure. Understandably, other companies in the market will want to follow these leaders or will tend to imitate them.

The relationship between capital structure and the company value was first observed by Modigliani and Miller (1958, 1963). Later studies on capital structure of companies were assessed by Leland and Pyle (1977), Rajan and Zingales (1995), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996, 1997, 1999), etc. Optimal capital structure means finding the debt ratio and equity ratio in order to maximize the company's value with minimal risk (Myers, 1984). Based on Modigliani-Miller model and by correcting the information asymmetry, Heinkel (1982) argued that the optimal levels and balance of capital structure are related to expectations of investors. However there are other factors affecting the capital structure, such as ownership of the managers in the company, etc. (Dewatripont and Triola, 1994). To analyze the determinants of capital structure, a comprehensive study was conducted by Rajan and Zingales (1995) who analyzed the panel data of companies for the period 1990-1996 in Canada, Denmark, Germany, Italy, Sweden, UK and USA. Models of these authors will be subject of analysis application for large businesses in Albania, further in this paper.

The benefits and risks of companies are treated in many dimensions and profiles. There are some financial indicators that make the analysis possible, such as: capital level, return on equity, earnings per share, operating profit margin, financial leverage and total leverage, etc. A significant indicator to determine the discount rate of the company's stocks is the financial indicator ROE ($ROE = \text{Net profit} / \text{Average equity}$), (Velez-Pareja, 2000). It is also observed that there is a stable and statistically significant relationship between ROE and the discount rate of stocks for companies listed on the stock exchange (Hever, 2014). Assessing the profitability of shares listed on the stock exchange is based on the capital asset pricing model (CAPM), where the asset is evaluated based on the risk-return relationship (Traynor, 1961; Sharpe, Lintner 1964, 1965). The CAPM model application is impossible in countries that do not have capital markets or where the markets are not liquid (as the case of Albania). However, the ratio ROE is a good indicator of the discount rate valuation for stocks, in the absence of CAPM model application, (Hever, 2014). Many financial consultants in countries with developed financial markets initially refer to the ratio ROE as a comfortable and approximate method of assessment, to make estimates derived from CAPM model (Graham and Harvey, 2001).

The purpose of this study is to analyze the capital structure of Albanian companies and to assess the optimal level of capital cost in the private market in Albania. There are no previous quantitative studies of this field in our country. Our analysis will focus only on one financial reporting period (financial statements of one year) for companies with 100% Albanian capital and that do not offer financial services (bank, insurance company or financial institution are excluded from the study). The analysis includes 50 leading companies in the country, with the higher financial performance for the period 2013-2014 (Directorate General of Taxation in Albania, 2015). Companies are distributed in all major sectors of the economy and at the same time representing the real economy. This sampling represents 50 out of 830 large companies in Albania (6%); it is a very representative selection of companies with the highest potential of capital structure diversification in the market. At the same time, by finding the optimal capital structure of our selection and by evaluating the capital cost, we can indicate the level of wealth maximization that the Albanian market offers for the investors.

B. Methodology and data

Initially in this paper we will present the techniques and analysis of linear regression model building to assess the relationship of several independent variables that are indicative of the financial performance and structure of companies in our research, determining the debt ratio of companies as the dependent variable. So the analysis will start with finding statistically significant variables in the model:

$$y = b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + \dots + b_n \cdot x_n + \varepsilon$$

The model includes the indicators as following:

y = the dependent variable (in our paper we have only one independent variable which is the debt ratio).

x_i = is the independent variable for $i = 1, 2, \dots, n$ are financial indicators of companies that will be explained further in this study.

b_i = model parameters, or coefficients of independent variables in the model, for $i = 1, 2, \dots, n$ (in our regression analysis the change in dependent variable Δy is explained with regard to coefficients b_i , under "ceteris paribus" assumption).

ε = regression residual or error term, is the only variable that is not provided and must be stochastic.

To evaluate the parameters b_i , we will use the usual method of least squares (Gujarati, 2004), minimizing any error term:

$$\min \left\{ \sum_i^n (y_i - \hat{y}_i)^2 \right\} = \min \left\{ \sum_i^n (\varepsilon_i)^2 \right\} \quad \text{observations } i = 1, 2, \dots, n$$

The observed value of the dependent variable is y_i , whereas \hat{y}_i is the value of the dependent variable obtained from the regression.

The following financial analysis to assess the rate of return that will be used to discount gains on equity in the developed capital markets is based on the capital asset pricing model (CAPM). According to this model, the expected return (or discount) rate of a financial asset " k_i " is given by the formula:

$$k_i = r_F + \beta[r_M - r_F]$$

- Beta " β " represents the level of systematic risk (that can't be diversified by the composition of financial securities in a portfolio of securities, for the market $\beta = 1$).

- r_F is the risk free rate, in the case of Albania we have used the interest rates of treasury bills with maturity of 12 months, (but according to Hever (2014), the risk-free interest rate is based on the treasury bond rate). However, in our study we have taken account of treasury bills with a maturity of 12 months, as this is the rate applied in indexing titles and financial contracts elsewhere in the country (as treasury bonds with variable coupon, interest rates on loans, etc.).

- r_M is the rate of return on market. In this study, the market rate is expressed as the level of the average ROE, in the absence of a stock exchange market in the country (return on equity rate from 2013 to 2014 has a value of 18%).

The last step of the analysis coincides with estimating the cost of capital for companies included in the study. WACC formula in this case is explained as follows (Gitman and ZUTTER, 2010):

$$WACC = W_E \cdot K_E + W_D \cdot (1 - t) \cdot K_D$$

W_E - the weight of equity in the company's total capital.

W_D - the weight of debt component in the company's capital structure.

K_E - the discount rate of capital of the company, in our study we have considered the financial rate ROE.

K_D - the cost of debt for the company which is calculated as: rate of treasury bill with maturity of 12 months + credit risk premium = 3.415% + 5.55% = 8.965%.

t - the rate of income tax to businesses in Albania, which is currently 15%.

The analyzed data in this study are financial data derived from financial statements of 50 companies with 100% Albanian capital, which resulted in 2013-2014 as companies with the highest level of sales. Additional data are taken from World Bank and the Bank of Albania publications. Companies taken into account operate in sectors of the economy, such as retail, petroleum, industry, construction, energy, transport and telecommunications. The variables included in the model of optimal structure evaluation are integrated financial indicators. We have presented a summary table reflecting the description of these variables and the authors who support the presence of these financial indicators in assessing the optimal capital structure.

C. Variables and their meaning

In the following table we have summarized the financial indicators of companies and their relation with the optimal capital structure, by explaining the meaning of the ratio and the expected direction of the relationship according to financial theories of Yinghong Chen and Klaus Hammes (2003), Gitman and Zutter, and other authors as follows:

Table 1: Interpretation of capital structure variables

Code	Financial Indicator	The formula of financial indicator and its interpretation	Expected direction	References (authors)
BV	Book value = (Total Gross Debt)/(Total Assets)	Known as the debt ratio, this indicator of the company's capital structure measures the company's financial risk. In our model, this indicator will be used as the dependent variable.		Ross & Westerfield & Jaffe (2002)
T	Tangibility = (Net fix Assets/Total Assets)	This indicator retains the value of the company, since non-fixed assets such as goodwill can easily lose value, whereas fixed assets are more stable (specifically when the company is in financial difficulty). Fixed assets are part of a long-term investment.	Positive relation "+"	Harris & Raviv (1990)
P	Profitability = (EBIT/Total Assets)	This indicator measures the level of profit before interest and tax, standardized in relation to the company's assets. Mayers (1977) states that companies prefer the retained earnings more than debt and stock issuance, to finance their investments. According to this argument it is very important to analyze this indicator in the capital structure.	Negative relation "-"	Rajan & Zingales (1995) Fama & French (2012)
R	Risk = Standard Deviation (EBIT)/Average (EBIT)	EBIT = earnings before interest and tax. It is measured as an average of the market for financial time series data. This indicator measures the risk of business activity.	Positive relation "+"	Rajan & Zingales (1995)
G	Growth = (Total Assets – Equity + Market Value of Shares)/ Total Assets	This indicator is also a form of external growth and market valuation for the company, which significantly affects the structure of the company. In countries like Albania with no stock exchange, market value of shares is impossible to assess.	Negative relation "-"	Rajan & Zingales (1995)
S	Size = Ln(sales) or Ln(assets)	It is an indicator used to measure the company size. It serves to analyze the relationship between the size of the business and its risk level. The larger the company size, the lower the business risk level. Small companies can't afford to be financed with bonds and other alternative forms of financing, so they are limited in changes of capital structure.	Positive relation "+"	Titman & Wessels (1988) Whited (2012) Rajan & Zingales (1995)

Source: Literature review from the authors

According to econometric analysis for the panel data of at least 5 year series (quarterly data), the authors as referred in the above table, agree that the determination of optimal capital structure is obtained by the regression equation:

$$BV = b_0 + b_1 * T + b_2 * P + b_3 * R + b_4 * G + b_5 * S + \epsilon$$

The "Risk" variable is analyzed as a time series variable, but in our study the analyzed data are dashboard. So the financial risk variable will be replaced with the degree of financial leverage (Gitman and ZUTTER, 2010). Degree of financial leverage $DFL = EBIT / [EBIT - Interest - (dividends) / (1 - tax\ profit)]$.

D. Analysis of optimal capital structure

The capital structure of companies is a complex area of financial activities. Capital structure integrates all long-term financing decisions. In this context, the capital structure is influenced by many variables, especially in countries like Albania. The main factors that hinder or limit this calculation are as follows:

Firstly, finding the optimal capital structure means solving a problem of optimization with many variables and conditions. In the mathematical context, it is a difficult and delicate procedure of expressing reality in equations and functions.

Secondly, data taken into analysis are in the framework of the business's financial statements. The profitability of the companies in Albania has been and continuous to be affected by the economic informality and tax evasion, this factor increases the error margin during the calculation of values.

Thirdly, data of companies in Albania are only those taken from the financial statements; meaning they are static data with a periodicity of one year (lacking a dynamic measurement). In Albania the stock exchange is still non-existent, so the companies can't be quoted in the market.

Fourth, after 1990 Albania transitioned into free economy and free trade development (before 1990 Albania was part of the communist regime). Businesses in Albania are new and continue to experience market entry phase or lack specialized management and specific departments to consider diversification of capital structure.

Finally, as a result of a non developed market, the alternatives for financing companies are limited in Albania. This includes the business financing culture; most companies find credible only the banking sector. On the other hand the legal infrastructure has often been an obstacle to the development of new financing instruments.

Taking into account these limitations deriving from real factors of the Albanian economy, we have used the EViews 7 program and built a regression equation to calculate debt ratio (capital structure), as follows:

Table 2. Statistical assessment of capital structure parameters

Model's variables	Quantitative parameters of the model
Dependent variable:	BV
Independent variable:	
Coefficient = b_0	0.496373
DFL	0.020159
P	-1.874070*
S	0.017928
T	-0.595703*
Coefficient of determination R^2	63.79%

Source: Authors' calculations in Eviews 7.

The "*" index indicates that the regression coefficients are statistically significant at $p < 5\%$ based on t-test and the statistical significance is also determined at this level according to F test. The coefficient of determination of the variables is 63.78%, and the multiple regression equation is:

$$BV = 0.496373 + 0.020159*DFL - 1.874070*P + 0.017928*S - 0.595703*T + \epsilon$$

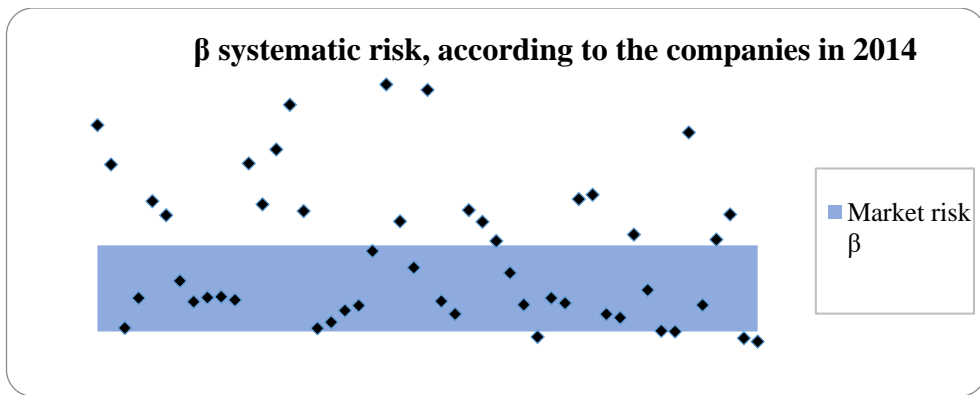
The parameters of this model are statistically significant and demonstrate a negative relationship between the capital structure of the company with the profitability indicators and the sustainability of value. According to many authors, there is a positive relationship between capital structure and the sustainability of value (Net fix Assets/Total Assets), which is adverse to the relationship identified for the Albanian companies. This is mostly related to the lack of equilibrium in using the long term financing sources by companies.

C. Analysis of the optimal cost of capital (WACC)

We have analysed 50 leading companies in Albania and based on calculations, we found out that the rate of return on equity is 18%, which will be used as the market return of their shares for the year 2014 (as long as there is no stock exchange in this country and consequently the CAPM model cannot be used). Based on data published by the World Bank and the Bank of Albania, the rate of the Albanian Treasury Bills with 12 months maturity in 2014 was 3.415%. This value represents the risk-free rate in the economy. According to the CAPM model formula, for each company we can calculate an approximate value of their systematic risk in the market:

$$k_i = r_F + \beta_i[r_M - r_F] \Rightarrow \beta_i = \frac{k_i - r_F}{r_M - r_F}$$

We obtained diffused results from calculations and if we compare the systemic risks of these companies to the market risk ($\beta = 1$), we obtain the distribution shown in *Figure 1* below:



Source: Authors' calculations in Excel

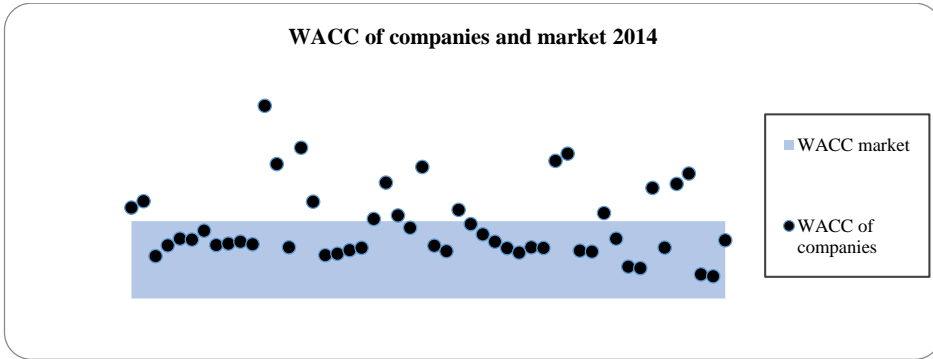
Figure 1. The heterogeneity of β risk

Although the sample obtained in the study refers to 50 companies with the highest performance (the highest level of annual sales for 2013-2014), 28 from these companies have the beta coefficient of their return on equity smaller than the beta of the market, meaning that some of the companies have continued following economic and financial strategies used in the past and have not undertaken any risks to change. Nevertheless this is an expected result as the market is represented only by these 50 companies. The most obvious element identified in the above figure is the high level of diffusion of "beta" parameter, which means that the analysed companies demonstrate different attitudes towards the relation risk-return, although being the leaders in the market. This indicates that companies do not have an optimal capital structure, or the capital structure of businesses in Albania is influenced not only by market forces, but rather by internal factors of the company (financial and managerial).

Based on the debt ratio of our study sample, the average capital structure of all companies is composed by 60% debt and 40% equity. Now let's analyze the cost of capital of companies taking into account this capital structure:

$$WACC = 0.4 \cdot 18\% + 0.6 \cdot (1 - 0.15) \cdot 8.965\% \approx 11.77\%$$

The calculations indicate that businesses in Albania face a cost of capital from 8.965% to 18%, depending on the capital structure. If we analyse each company individually, we obtain a distribution of WACC as given in *Figure 2* below:



Source: Authors' calculations in Excel

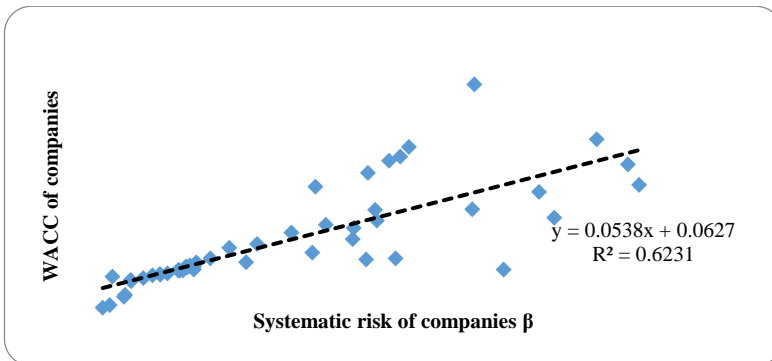
Figure 2. The heterogeneity of WACC

The graph shows that businesses in Albania face different costs of capital. This refers to two main reasons:

- *First*, different sectors of the economy have different costs of capital, but in our analysis we have grouped all the companies into 5 sectors, which does not justify such distribution.
- *Second*, the different distribution of the values of the capital costs of the companies shows that companies either do not have an optimal capital structure, or the capital structure of business in Albania does not demonstrate a model of optimisation. So, businesses are mostly oriented in accomplishing the traditional financing principle of profit maximization and not value maximization. The diversification of the capital structure is not subject of valuation by businesses or it is evaluated in short-term periods.

If we compare the degree of heterogeneity shown in Figure 1 and Figure 2, we can conclude that the cost of capital is characterized by a more regular behavior than systematic risk β . This emphasizes again the fact that the financial policies of businesses in Albania are mostly oriented to costs minimization or profits maximization, and do not consider the risk. Because of the lack of interrelation between risk and return in the Albanian market, the hypothesis that the capital structure of business in Albania is optimal, it is indirectly rejected.

We can better understand if the capital structure is diversified or not by referring to the Figure 3 given below, based on systematic risk assessment of companies and their WACC:



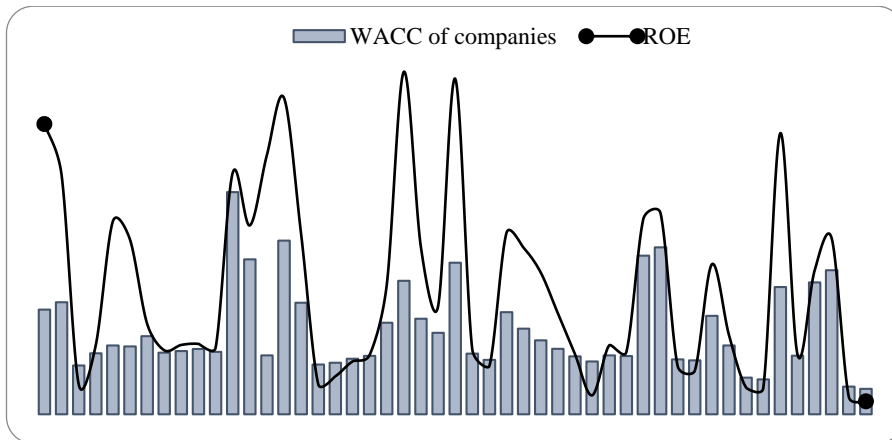
Source: Authors. calculations in Excel

Figure 3. Correlative analysis of the WACC

Figure 3 reflects an interesting effect in the relationship of WACC with the β risk, which are positively correlated. The coefficient of determination is 62.3%, almost to the same extent with the coefficient of determination of the regression of the optimal capital structure. These parameters can be used as a guide to the financial managers of Albanian large companies in calculation of capital structure.

All the above financial and graphical analysis emphasize the fact that the Albanian companies do not have an optimal capital structure, therefore they cannot be competitive in the market in the long-term, and they are unable to export goods and services to compete in international markets. This shows that companies financed 100% by Albanian capital are destined to operate locally.

However, if companies in Albania have not achieved the objective of value maximization (explained by the capital structure), then the question that arises is: have they fulfilled the objective of profit maximization? The answer to this question will initially be provided by the Figure 4:



Source: Authors' calculations in Excel

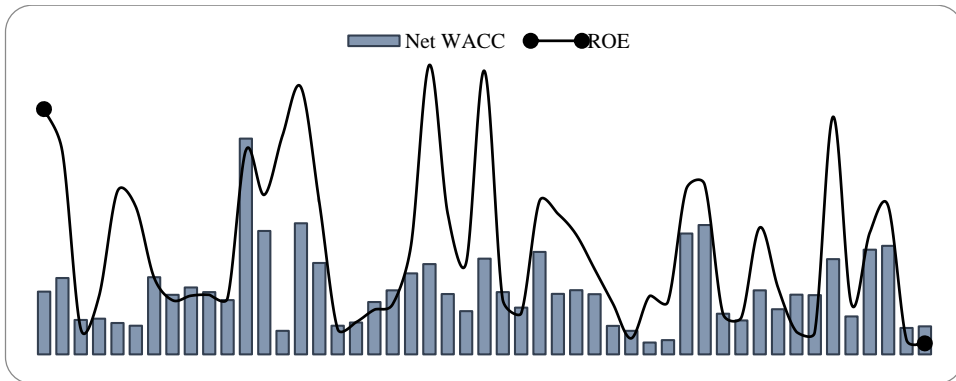
Figure 4. Cost-Benefit analysis of the companies.

We can see from the Figure 4 that half of the companies included in this study, although being considered with high financial performance (based on the level of annual sales), continue to have a cost of capital higher than the return on equity. This shows that profit maximization is not achieved, since many of the surveyed companies do not add capital value to their business. This phenomenon will lead to financial difficulties or financing restrictions in future, meaning that their long-term financial strategies are not working. This demonstrates that the domestic market has substantial business development problems and businesses face high costs associated with them. The diversification of the capital structure and its cost remain just a theoretical concept for these businesses. In such conditions, the needs for financial advice, financial specialization, separation of ownership and management are emergent action that should be undertaken. We should also mention some important factors which have significant effects on values of the Figure 4: the existence of the informal financial data, the development of not profitable projects by companies, or the lack of analysis on granting concessions from the Government of Albania to private enterprises.

Financing decisions of Albanian businesses are also oriented towards the use of short-term financial sources, such as: suppliers, payments in advance from customers, etc. Companies do not pay costs for these funding sources; therefore we should eliminate them from our analysis of capital structure. In this case, the debt ratio of our sample will change to 45%. Referring to this structure, we can calculate the cost of capital as follows:

$$WACC = 0.4 \cdot 18\% + 0.45 \cdot (1 - 0.15) \cdot 8.965\% \approx 10.63\%$$

As we can see, the value of the adjusted WACC (Net WACC) in this case is reduced, meaning that the internal cost of capital structure of large companies in Albania is lower than the cost calculated based on the debt ratio.



Source: Authors' calculations in Excel

Figure 5. Analysis of adjusted WACC and ROE of companies.

Referring to the above figure, we see an improved relationship WACC-ROE (compared to Figure 4), which gives a more realistic view of the market. Consequently we suggest that the 10.63% is the appropriate cost of capital rate that can be used by companies in Albanian market to discount future budgeted cash flows. On the other hand, the banking sector should accept to finance those projects with future financial benefits above Net WACC value.

D. Conclusions

The analysis of the capital structure and capital cost evaluation is very complex, especially for companies operating in undeveloped financial markets. In this paper we aimed to establish a clear methodology which can be applied for the financial evaluation of the cost of capital in the Albanian market. Due to a number of restrictions mostly related to the lack of a stock exchange in the country, we have conducted the analysis considering a certain margin of error.

Most of businesses in Albania, especially large businesses, have been developed during the last 20 year and still continue their operations in conditions of a fragile economic, political, fiscal and social market. The capital structure of the Albanian businesses is not optimal, due to:

- The lack of separation of ownership and management at companies' level;
- The restrictions of business financing from the banking sector,
- The alternation of financial and investment sources,
- The impact of creditors in business control and monitoring,
- The asset structure and the economic value sustainability,
- The economic life of companies and the need for additional debt financing,
- The level of profitability and profit reinvestment in the business, etc.

We have assessed the financial reports of the largest companies in Albania, financed by local capital, and established the model for the evaluation of optimal capital structure. The parameters of this model are statistically significant and show a negative relationship between the capital structure of the company with the profitability indicators and the sustainability of value. The correlation analysis indicates also the lack of equilibrium in using long-term financing sources by the Albanian businesses.

We have also performed analysis in the context of systematic risk, and found out that large companies in Albania are characterized by a high heterogeneity of "beta" indicator, which means that companies demonstrate different attitudes in the relation risk-return, although being the leaders in the market. Meanwhile, this emphasizes that these businesses do not have an optimal capital structure. This conclusion is also supported by the calculated values of the cost of capital, which provide additional evidence that Albanian businesses are mostly oriented towards the accomplishment of the traditional objective of profit maximization instead of value maximization, and that the diversification of capital structure is merely a theoretical concept.

Bazuar në lidhjen korrelative të koston së kapitalit me riskun sistematik në tregjet shqiptare, hipoteza që struktura e kapitalit të bizneseve të mëdha në Shqipëri është në kushte optimale, bie poshtë. Rrjedhimisht këta biznese nuk janë në pozita konkurruese afatgjata në treg dhe të afta të realizojnë eksporte të të mirave dhe shërbimeve për të konkurruar në tregjet ndërkombëtare. Kjo tregon që vizioni financiar i bizneseve me pronësi 100% shqiptare është e destinuar për të qenë kompani me shtrirje lokale.

Based on the correlative relationship between the cost of capital and the systematic risk in Albanian market, the hypothesis that the capital structure of business in Albania is optimal, it is rejected. Consequently these businesses cannot be competitive in the market in the long-term, and are unable to export goods and services to compete in international markets. This shows that companies with 100% Albanian capital are destined to operate locally.

The cost of capital of the Albanian companies is about 11% according to the numerical analysis done (the value is adjusted referring to the characteristics of the Albanian market). This value is often higher than the return on equity of the companies, meaning that the profit maximization has not been achieved. Based on these results, we conclude that Albanian businesses face serious problems related to their capital structure.

After all these numerical findings, we suggest the financial managers of the companies financed by Albanian capital to use these parameters in determination of the optimal capital structure and in financial policies decision-making. Other actions that should be undertaken by the companies are the separation of ownership and management and the consultancy with financial experts. On the other hand, the creditors of such businesses should be more focused on providing financial analysis on the debtor's projects when applying for funds. Considering all the findings of this study, which can be used by financial advisors, policymakers, etc., we conclude that businesses in Albania face high levels of the cost of capital.

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