The impact of the economic crisis on the cost of capital. Evidences from Spain

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Abstract

The economic crisis has caused an upheaval in the financial markets which had affected all the parameters involved in fixing the cost of capital. This study aims to determine how these changes in markets have influenced the WACC of two different Spanish industries. On the one hand a stable and steady industry as the food industry with a low income elasticity of demand. On the other hand the homebuilding industry, this industry had a huge growth before the crisis, almost a bubble, and has suffered the aftermath in a very marked way. The evolution of the cost of capital in the 1998-2013 period shows that the cost of capital of the food sector is very stable whatever the model used whereas the cost of capital of the homebuilding industry suffered a sharp decline.

Keywords: WACC, cost of equity, cost of debt, risk-free rate, market risk, CAPM, return on equity, homebuilding industry, food processing industry, SMEs, betas, leverage.

Introduction

The Weighted Average Cost of Capital (WACC) is widely used to discount cash flows when valuing companies. The WACC is made up of the cost of equity and the cost of debt both weighted by taking into account the capital structure of the company. The cost of equity is the return required by the owners of the company and it is usually obtained by means of the Capital Asset Pricing Model (CAPM). The cost of debt is equivalent to the interest rate paid for external financial sources, namely loans. The economic crisis has caused an upheaval in the financial markets which had affected all the parameters involved in fixing the WACC. In this context this study aims to determine how these changes in markets have influenced the WACC of two different Spanish industries. On the one hand a stable and steady industry as the food industry with a low income elasticity of demand. On the other hand the homebuilding industry, this industry had a huge growth before the crisis, almost a bubble, and has suffered the aftermath in a very marked way.

In economic crisis times the cost of debt shows higher interest rates in the first stages and can decrease in the last stages as the Governments try to encourage economic growing. On the other hand negative corporate profits can lead to negative return on investments. Depending on the evolution of all of these rates the cost of capital can be decreased which would lead to higher company values or could be increases which would imply lower company values.

Methods

To determine the cost of capital of the aforementioned industries financial statements of Small and Medium Enterprises from 1998 to 2013 have been gathered. The data contain 1,268 food SMEs and 784 homebuilding SMEs. The revenues of all of these Spanish companies are in the 2-50 million € range. The WACC can be broken down into the cost of equity $k_e$ and the cost of the external sources of finance, $k_d$.
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Both costs are weighted by the capital structure E (Equity) and D (debt), the effect of the corporate tax (t) is also taken into account.

\[ WACC = \frac{E \cdot k_e + D \cdot k_d (1-t)}{E + D} \]  

[1]

The different variables of equation [1] have been determined in the following way:

Corporate tax rate: The tax rate has changed in the study period: from 1998 to 2006 (35%), in 2007 (32.5%), and from 2008 to 2015 (30%). The capital structure has been obtained from the book values of equity and debt. The cost of debt (k_d) is estimated using the mortgage market reference interest rate and other preferential rates offered by banks. The cost of equity (k_e) is defined as the sum of a risk-free rate and a risk premium. The risk premium is determined using two approaches: the Capital Asset Pricing Model (CAPM) and historical return on equity of each industry. The first approach assumes an optimizing investor in the Markowitz sense while the second relies on the historical returns as the best way to determine the return required by the shareholders.

The CAPM equation is shown (equation [2])

\[ E(r_i) = k_e = r_f + \beta_i \cdot (r_m - r_f) \]  

[2]

- \( r_f \) = risk-free rate. It has been fixed from the interest rate of the 10-year Spanish bonds in the primary market. 10-year is the usual maturity when fixing the free rate for valuation purposes.
- \( r_m \) = market return. Madrid stock market is the main Spanish stock market. Market returns are measured by using the IGBM (Madrid Stock Exchange General Index).
- \( \beta \) = it measures the sensitivity of an industry to changes in the global market. The published Beta coefficients take into account the level of leverage (debt) of the companies. For this reason, it is necessary unleveraged coefficients (using each company’s financial structure) before using them for the calculation of required return on equity. According to Copeland et al. (2004):

\[ \beta_L = \left[ 1 + (1 - t) \cdot \frac{E}{D} \right] \beta_U \Rightarrow \beta_U = \frac{\beta_L}{1 + (1 - t) \cdot \frac{E}{D}} \]  

[3]

Being: \( \beta_L \): Levered Beta, \( \beta_U \): Unlevered Beta, E: Equity, D: Debt (liabilities), t: corporate tax

The CAPM relies on data from the stock market, nevertheless there are few companies of the assessed industries in the Spanish Stock Market. Due to this fact the Betas are obtained from the European and US markets assuming that the behavior of those markets is similar to the Spanish market.

The historical return on equity is worked out by using the difference between the five-year moving average of the return on equity and the 10-year Spanish bonds. The difference between both moving averages provides the risk premium for each industry and year.

Results

The results are shown in table 1. Model 1 uses the CAPM as the way to fix the cost of equity, whereas Model 2 takes the historical ROE as the main source of the cost of equity.
Using the CAPM model, the WACC of the homebuilding industry is higher than the food industry in several years (1998; 2003-2007; 2009-2013) (figure 1). The average WACC of the homebuilding industry is 8.94% while the food sector shows a 8.61% average WACC. Figure 1 also shows the greater variability of the homebuilding WACC.
Regardless the model used to fix the cost of equity the food industry WACC is much more stable than the homebuilding industry one. The evolution of the homebuilding industry WACC obtained by means of the model 2 shows a sharp decline coinciding with the beginning of the economic crisis as the GDP growth shows.

For the period 2009-2010 the cost of capital of both sectors converges when calculated with the model 2.

Conclusions

The cost of equity has been estimated by using the CAPM and by means of the historical industry return on equity. The first approach relies on the systematic risk and assumes a diversifying investor while the second relies in the returns of the shareholders. Interestingly the cost of capital is higher in the first approach.

The cost of equity appears to be the most influential factor in the evolution of the cost of capital in the studied period for the food sector; nevertheless the homebuilding sector is not very influenced by this factor, since it is a leveraged sector. In model 2 the decline in profits entails a lower cost of equity and a lower cost of capital. A lower cost of capital leads to a higher company value if the cash flows are kept constant.

For both sectors the applied methods tend to diverge in recent years. The discount rate is increased if we employ the Model 1, and decreases if we use to the Model 2. This more pronounced difference in the homebuilding than in the food sector.

The evolution (1998-2013) of the discount rate for the food sector represents a 34.45% decrease (Model 1) and a decrease of 28.00% (Model 2). The homebuilding sector presents an evolution of 32.20% decrease (Model 1), and a decrease of 34.23% (Model 2).
Using the CAPM implies greater variability in the cost of capital in both industries. The Betas of the homebuilding industry show a higher variability which leads to a higher variability in the cost of capital.

References


