

THE COST OF CAPITAL AND FINANCIAL RISK FROM INVESTORS' PERSPECTIVE

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Abstract: *Investing in a business presents higher or lower risks, depending on the size of the company. A small, private enterprise is at higher risk than a public one listed on the Stock Exchange. One of the financial risks with consequence in the chain is the neglect or misunderstanding of the importance of the cost of the invested capital. In this context, this paper is aiming to review the recent publications related to the cost of capital definition and importance in management decision-making. Nevertheless, this paper provides an overview of the cost of capital components, the sources of data and the cost of capital calculation for a better understanding of the relationship between the financial risks and the cost of capital from the investors' point of view.*

Keywords: financial risks, cost of capital financing, cost of debts financing, average weighed cost of capital, investors.

JEL Classification: G11, G12, G19.

1. Introduction

In any investment, whether it is a strategic one, such as setting up a new business or a joint venture business, or whether it is one within a company that has already been set up, such as the acquisition of equipment or technology, its financing is needed. Also, current operations need financing (e.g. inventory of raw materials, materials and products), which may be from internal sources (equity) or from external sources (bank credit, supplier credit, government subsidies, common or preferred stocks, convertibles, and others).

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The way of financing makes the structure of the permanent capital to be different from one firm to the other, that is to say, it includes only the equity capital (the registered capital, the retained reserve and the retained profit), or besides, the engaged capital also includes long-term debts (bank loans or other types of external financing, such as non-reimbursable financing, leasing and others). What distinguishes firms in terms of capital structure is the proportion of elements in the engaged capital structure (Peavler, 2016).

The equity investor (the company's holder or the shareholder in the company) expects to obtain a benefit from the invested capital, which may materialize in profit and / or increase the value of the enterprise as the bank expects interest on the borrowed capital or bond investors await on the coupon. "Expectations about returns determine not only what projects managers will and will not invest in, but also whether the company succeeds financially" (Jacobs & Shivdasani, 2012).

On the other hand, any financing for the investment has a cost, called the cost of capital. "Business owners do not usually invest in new projects unless the return on the capital they invest in these projects. The cost of capital is the key to all business decisions" (Peavler, 2016).

The profitability of the investment results from the positive difference between financing the investment and the cost of financing. "The key to cost of capital for a company is that a company's return on capital must always equal or exceed the cost of capital for any project in which the firm wants to invest" (Peavler, 2016).

Although the concept of cost of capital has been used for more than 60 years (Solomon, 1956; Modigliani & Miller, 1963, Reilly & Wecker 1973, Arditti 1973, Nantell & Carlson, 1975) most investors and managers do not give the importance of capital cost or do not understand its sense and usefulness in decisions, so financial risks grow and lead to diminishing opportunities for increasing the value of the company. Exceptions are made by companies listed on the Stock Exchange, where investors know the importance of the cost of capital from the brokerage reports (McClure, 2018).

2. Definition and importance of the Cost of Capital

The cost of capital is the minimum rate of return that an investor is expected to earn for the capital invested in a company or a project in order to remain at the market value.

Some financial experts are given different definition for a better understanding the concept, but all of them are balancing the same meaning:

- The “Cost of capital is the minimum required rate of earnings or cut-off rate of capital expenditure” (Solomon, 1956).
- Exley & Smith (2006) stated that the cost of capital is a measure of the returns required by those capital providers.
- According to Khan and Jain (2008), the cost of capital means “the minimum rate of return that a firm must earn on its investment for the market value of the firm to remain unchanged”.
- The cost of capital is a tool for investors to decide whether to invest (McClure, 2018).

However, the companies have to meet the investors’ expectations by earning enough revenue to cover the cost of capital.

The importance of the cost of capital is stated by Pant (2018):

- Maximisation of the Value of the Firm by minimizing the cost of capital;
- Capital Budgeting Decisions, as the cost of capital acts as a standard for allocating the firm’s investible funds in the most optimum manner; the estimation of cost of capital is also necessary in taking leasing decisions of business concern;
- Management of Working Capital: the cost of capital may be used to calculate the cost of carrying investment in receivables and inventory;
- Dividend Decisions: by comparing the internal rate of return and the cost of capital and giving an indication of the company’s growth or decline;
- Determination of Capital Structure by choosing such a mix of debt and equity so that the overall cost of capital is minimised;
- Evaluation of Financial Performance by comparing the company’s profitability with the overall cost of capital.

The cost of capital is also used as discounted rate for the future cash flow in investment projects or to evaluate the company. In this case “the discount rate must be coherent with the definition of the cash flow used” (Negulescu, 2017).

3. Cost of capital components

The cost of capital consists of the cost of debt financing and the cost of capital financing (fig. 1).

The cost of capital depends upon (Pant, 2018):

- Demand and supply of capital,
- Expected rate of inflation,
- Various risk involved, and
- Debt-equity ratio of the firm etc.

The companies are raising their capital from different sources: external equity (new investment, financed by the new issue of common shares), retained earnings, convertible securities (bonds, debentures or preference shares) (Chand, 2018) or may borrow capital from banks, financial institutions, suppliers and others. It is a real difference between large companies, corporations listed on the stock market, and the small or very small companies.

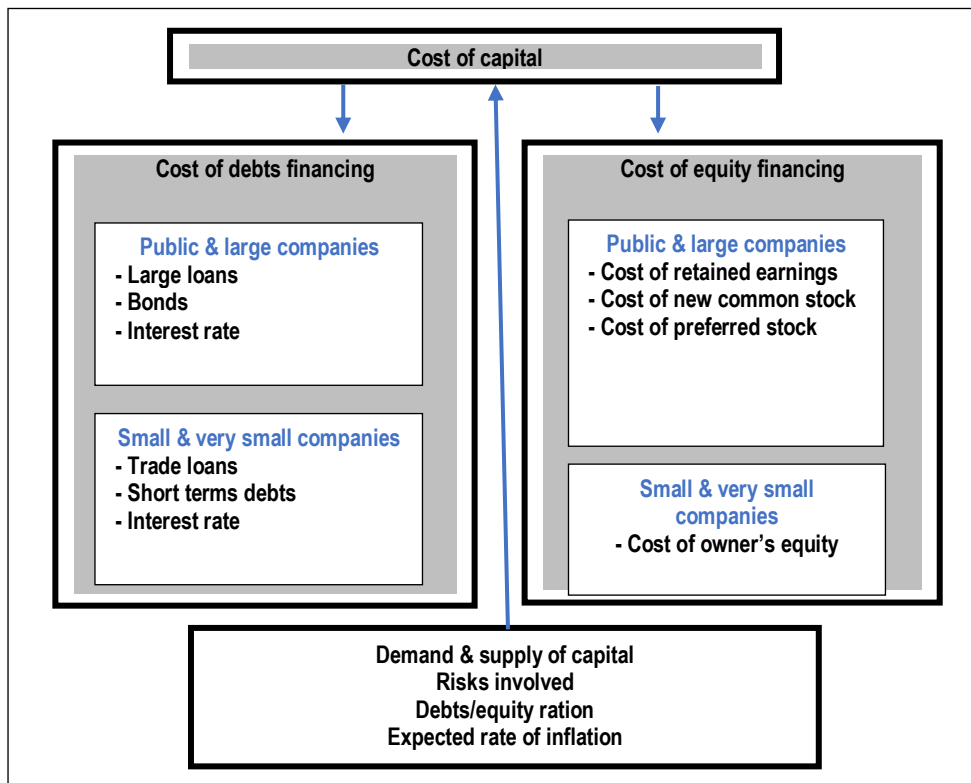


Fig. 1 The cost of capital's components

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Small firms, with the higher risk of failure, also have a higher capital cost compared to large firms or the public, because their profit must be so high as to cover this cost (Patrick, 2012). The author states that most small businesses which does not want to get credits and to develop cannot get a profit higher than 5%. Instead, large firms and corporations listed on the Stock Exchange can control and anticipate business risks and therefore have a lower cost of capital (Boles, 1986; Bertomeu et al, 2011; Jurek, & Stafford, 2015; Frank, & Shen, 2016; McClure, 2018; Gellert, 2018).

The market information for quoted companies is also used to determine the market value of common stock by market capitalization (Damodaran, 2013; Selsick, 2016).

Knowing all the different elements that form the cost of capital is the first step to taking action to lowering it. With regards to debt, companies can lower their cost of issuing bonds by lowering the interest rate they must offer to investors (Gellert, 2018).

Since the structure of the elements that make up the cost of capital is different in order to determine this cost on the total investment the investors calculate a weighted average cost of capital (WACC) as the sum of the product between the cost of the elements that make up the total cost and the weight of each in the total cost. "A company will raise capital from different sources and in different proportions to make up the total capital of the firm. To get a realistic cost of capital we must consider the proportions as well as cost associated with each individual source of capital. The best measure of cost of capital is therefore WACC, as it considers the proportion of capital raised from each source in relation to the associated cost of capital" (Chauhan, 2013).

A clearer explanation is given by McClure (2018): "To understand WACC, think of a company as a bag of money. The money in the bag comes from two sources: debt and equity. Money from business operations is not a third source because, after paying for debt, any cash left over that is

not returned to shareholders in the form of dividends is kept in the bag on behalf of shareholders”.

The cost of capital is also important because “a clear understanding of the concept is critical for policy makers, investors, and those involved directly in the R&D” (Chit et al, 2015).

4. Average weighted cost of capital calculation

The calculation of the weighted average cost of capital (WACC) is based on two drivers, the cost of equity and the cost of debt (Bertomeu et al, 2011; Chauhan, 2013; Watson, 2015; Peavler, 2016; McClure, 2018, Evens, 2015; Jagannathan, 2017; Gellert, 2018), simplified emphasised in the fig. 2. Each driver’s components have different sources of information.

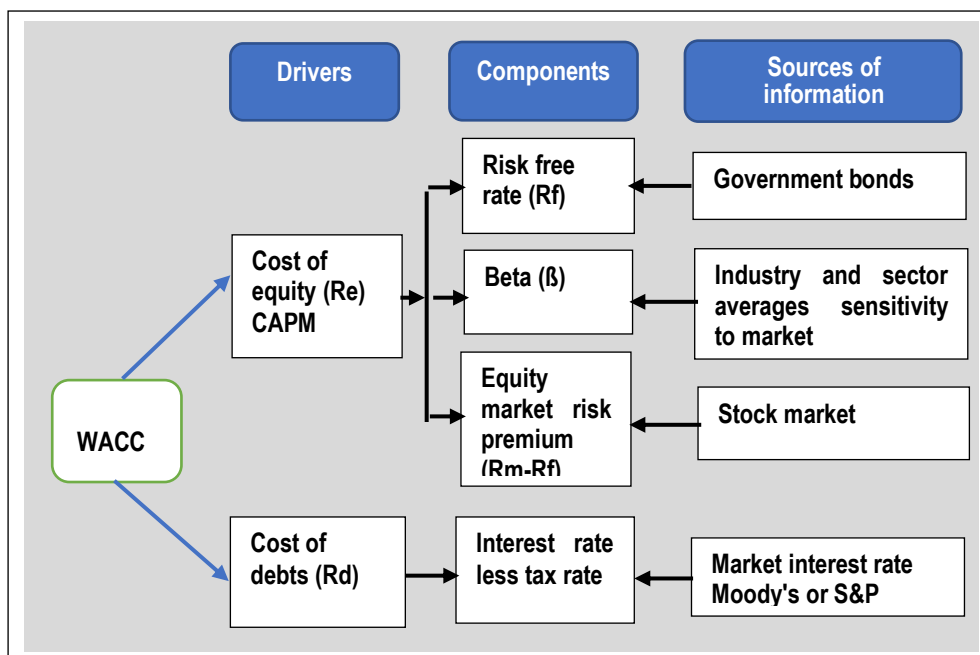


Fig.2. The WACC calculation overview

The WACC is a function of the mix between debt and equity and the cost of that debt and the cost that equity, based on the proportion of debt and equity in the company's capital structure (McClue, 2018).

Particular relevance to the weighted average cost of capital is the cost of equity value. Since market price of equity is not generally static, the true cost of equity varies and since investors' expectations vary the cost of capital may not be an exact figure (Shingha, 2015).

$$\text{WACC} = R_e \times E/V + R_d \times (1 - t) \times D/V \quad (1)$$

Where:

R_e = cost of equity

E = equity

$V = (E+D)$ = total capital (capital engaged)

R_d = cost of debts

D = debts

t = corporate tax rate

It should however be remembered that basing the rate or return on the historical book value will not reflect the current economic reality. The justification for using market values therefore lies in the required rate of return that investors currently require relative to their current risk exposure (Watson, 2015). But, each of these two components (R_e and R_d) is calculated by different formulas.

The cost of equity

The cost of equity is basically what it costs the company to maintain a share price theoretically satisfactory to investors (Chauhan, 2013).

The most used method for determining the cost of equity is the *Capital asset pricing model* (CAPM) (Even, 2015; Watson, 2015; Johnson, 2016; McClure, 2018).

CAPM estimates the cost of equity by taking a risk-free rate and adjusting it by risks that are unique to the company or industry. CAPM is not perfect since it has many unrealistic assumptions and variations in estimates. For example, sources (Bloomberg, S & P, etc.) for reporting market risks of specific companies provide very different estimates. Additionally, the investor might find simple estimates are just as accurate as CAPM. For example, simply adding 3% to the cost of debt may provide a reasonably accurate estimate of the cost of capital. The investor can also look at the companies that are very similar to the company in discussion (Even, 2015).

$$R_e = R_f + \beta (R_m - R_f) \quad (2)$$

Or,

$$R_e = R_f + \beta (R_m - R_f) + \alpha \quad (3)$$

Where:

R_e = Cost of capital financing

R_f = Risk-free rate

β = Beta

$(R_m - R_f)$ = Equity Market Risk Premium

R_m = Historic return of the equity market

α = non-systematic risk (specific to the enterprise)

The explanation of the above components meaning could be find in the literature (Jacobs & Shivdasani, 2012; Vasi & King, 2012; Trainer, 2016; Levi & Welch, 2017; Jaghannatan et al., 2017; McClure, 2018; Chand, 2018 and others).

The risk-free rate

As the name of this component, the risk-free rate (R_f) is a rate of earnings that don't considers the inflation risk or other risks. The most accurate source of information is the government bonds (the rate of coupon), used as a benchmark, that is free of risks. The problem is that the investors are using this rate from different time horizon of the bonds' maturity (5, 10, 15, 20 or 30 years) and this fact is inducing errors to the cost of equity (Jacobs & Shivdasani, 2012).

Beta

Beta measures how much a company's share price reacts against the market as a whole. A beta of one, for instance, indicates that the company moves in line with the market. If the beta is in excess of one, the share is exaggerating the market's movements; less than one means the share is more stable. Occasionally, a company may have a negative beta (e.g. a gold-mining company), which means the share price moves in the opposite direction to the broader market (McClure, 2018).

Beta is calculated based on daily prices over the past five years. It is necessary to normalize beta to avoid it having undue influence on the cost of equity (Trainer, 2016). If own historical stock returns are not available, peer betas based on market cap should be used (Levi & Welch, 2017).

The equity market risk premium

The equity market risk premium represents the returns the investors expect to compensate them for taking extra risk by investing in the stock market over and above the risk-free rate. In other words, it is the difference between the risk-free rate and the market rate. It is based on the historical average annual excess return obtained from investing in the stock market above the risk-free rate. The average may either be calculated using an arithmetic mean or a geometric mean. The geometric mean provides an annually compounded rate of excess return and will in most cases be lower than the arithmetic mean. Both methods are popular but the arithmetic average has gained widespread acceptance. (McClure, 2018).

The non-systematic risk

The non-systematic risk (or diversifiable risk) is the portion of risk unexplained by the market factor. It is caused by the internal factors (business or financial) and it is specific to a particular security, company or industry. This type of risk is non-controllable, but it could be avoided by portfolio's diversification.

The cost of debts

The rate applied to determine the cost of debt (R_d) should be the current market rate the company is paying on its debt (McClure, 2018; Chand, 2018).

$$K_d = \text{Interest} / \text{Principal} \quad (4)$$

If the company is not using the market rates, an appropriate market rate payable by the company should be estimated. As companies benefit from the tax deductions available on interest paid, the net cost of the debt is actually the interest paid less the tax savings resulting from the tax-deductible interest payment (McClure, 2018).

$$R_d = R_d (1 - \text{corporate tax rate}). \quad (5)$$

For non-listed enterprises the cost of debts has different sources of data. Some experts are using the company's effective tax rate or the marginal tax rate and others a targeted tax rate, with significant differences on the final results (Jacobs & Shivdasani, 2012).

After determining the weighted-average cost of capital, which apparently no two companies do the same way, the organization's management need to adjust it to account for the specific risk profile of a given investment or acquisition opportunity (Jacobs & Shivdasani, 2012; McClure, 2018).

These adjustments may increase or decrease company's risk profile. Such factors include the size of the company, pending lawsuits, concentration of customer base and dependence on key employees. Adjustments are entirely a matter of investor judgment and they vary from company to company (McClure, 2018).

In conclusion, the calculation of the weighted average cost of capital is based on market data and experts' judgments, so for the same company the results may differ depending on the concrete elements taken into account, the reasoning of the estimator and the time horizon considered.

Some experts are considering the cost of capital calculation in different ways, but because the investors are looking forward in the future and they are expecting higher returns for their investment funds, for long time the results are the same. They are considering that the long-term result is the same regardless of which approach is taken, but Hope (2015) said that this is not always correct. This opinion may be right if the influence of inflation rate, the tax rate and time horizon are taken into account.

The companies listed on the stock exchange market have the highest WACC between 11.7% and 12.7% and the lowest WACC between 4.0%-4.3%. If a company fails to generate a return on invested capital (ROIC) greater than its WACC, it is destroying shareholder value (Trainer, 2016).

The companies may benefit from reduced cost of capital through improved sustainability performance and a sound environmental risk management strategy (Sharfman & Fernando, 2008; Sandhu, 2011).

Other authors (Vasi & King, 2012) concluded about two very important findings from their research:

1. Firms that implement an environmental risk management strategy reduce their weighted average cost of capital.
2. Higher levels of environmental risk management yield several benefits, including:
 - Greater willingness of debt markets to provide debt financing;

- Higher tax benefits that partially offset the cost of debt capital;
- Reduced cost of equity capital from a decrease in systematic risk;
- Reduced cost of equity capital from an increased dispersion of shares.

A study developed by KPMG (2015) regarding the cost of capital by a survey conducted in 148 companies from Germany, Austria and Switzerland emphasises the following findings:

- The average weighted cost of capital (WACC) after corporate taxes: 7.1%; the highest level in media and telecommunication: 8% and automotive: 7.1% and the lower level in health care industry: 5.7%.
- Risk free rate: 1.8%.
- Market risk premium: 6.3%-6.4%.
- Beta factors: the highest in energy and natural resources; the lowest in automotive, chemicals and pharmaceuticals.
- Cost of debts: 3.4%.

To create value, a firm must invest in projects that provide a return greater than the cost of capital. The cost of capital is not observed and its estimation requires assumptions on investors' consumption, savings, and portfolio decisions (Jaghannatan et al., 2017). The weighted average cost of capital is the average of the costs of all external funding sources for a company (Trainer, 2016).

However, the listed companies cover a few industries and sectors of activity, and most of the medium, small and very small sized companies are not listed. This leads to the difficulty of using a credible source for WACC components and requires a clear judgment of the experts who use the data that look like the listed companies.

5. Conclusions

The cost of capital is important for investors from four major points of view:

- It measures the financial risks when the company is borrowing money from a lender (bank, financial institutions and others);
- It is used as a discounted rate to estimate the present value of future cash flows when the company invest in different projects;

- It measures the yield that the investors in stocks are expected to earn;
- It is used to estimate the enterprise's market value.

While the cost of capital is lower, the higher is the company's value and the investor's yield.

The cost of capital depends on the capital structure, balancing between equity and debts.

The cost of equity is better approximated with the CAPM formula, while the cost of debts is the ratio between interest and principal lowered by the tax deduction.

When the investment is in stock the market issues are used to estimate the cost of capital, but when the investment is done in a non-listed company its historical data or issues of other similar companies' data are used in WACC estimation.

This review may be a useful tool for investors and managers and it is serving to a better understanding of the importance, calculation and interpretation of the cost of capital as an economic and financial concept.

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