What is WACC?

In business valuation, Discounted Cash Flow method (DCF) dominates the field.

Under the entity method, payments to all investors, after all business taxes, are

discounted using the Weighted Average Cost of Capital (WACC)[1]. The weighted

average cost of capitals is a way to calculate the required rate of return on an entire

firm; it incorporates debt, equity, and preferred shares of stock into required rate.

These are the various ways that s firm can raise capital. It is important to incorporate

this fact into the rate because firms do not raise all of their capital from one source.

They often gather it from a combination of all these sources. Each method of raising

capital has a different cost associated with it, and must be taken into account. This

rate of return that the WACC finds can then be used in different models, such as the

NPV model to value, for example, whether or not a company should be started.[2]

The company's WACC is a very important number, both to the stock market for stock

valuation purposes and to the company's management for capital budgeting purposes.

In an analysis of a potential investment by the company, investment projects that have

an expected return that is greater than the company's WACC will generate additional

free cash flow and will create positive net present value for stock owners. These

corporate investments should result in an increase in stock prices. These projects are

good things! Investments that earn less than the firm's WACC will result in a decrease

in stockholder value and should be avoided by the company.

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[1] see Copeland/ Koller/ Murrin (2000)
[2] http://www.mtholyoke.edu/~aahirsch/whywacc.html

The common intuition for using WACC is "To be valuable, a project should return more than what it costs us to raise the necessary financing, i.e. our WACC"[3]. However, this intuition is wrong, as most of the time, conceptually, the logic is flawed. Practically, it usually gives you a result far off the mark. The purpose of it is to evaluate projects; however, some major requirements have to be satisfied before the use of WACC can be justified. Firstly, the project is a marginal, scalar addition to the company's existing activities, with no overspill or synergistic impact likely to disturb the current valuation relationships. Secondly, project financing should involve no deviation from the current capital structure[4]. Thirdly, any new project has the same systematic risk as the company's existing operations. This may be a reasonable assumption for minor projects in existing areas and perhaps for replacements, but hardly for major new project developments. Lastly, all cash streams are level perpetuities[5].

Firms tend to calculate their WACC by using their current cost of debt; their own current capital structure; their own current cost of equity capital and the marginal tax rate they are facing. Moreover, they also discount all future Free Cash Flow (FCF)[6] with this (single) discount rate and maybe adjusted for other things e.g. project strategic value. However, this practical approach can be very misleading, especially if the new project is very difficult from the firm undertaking it. In practice, the WACC method does not work well when the capital structure is expected to vary substantially over the time.

The advantage of WACC is that it is most widely used and fewer computers are needed. Furthermore, it is more literal, easier to understand and to explain. However,

[3] Dirk Jenter, 2003, Finance Theory II (15.402), MIT Sloan
[4] otherwise the MCC should be used)
[5] Richard Pike & Bill Neale, 2003, 'Corporate Finance and Investment :decision and strategies', 4th edition, Prentice Hall
[6] are cash flows available to be paid all capital suppliers ignoring interest rate tax sheilds

it mixes up effects of assets and liabilities (errors/approximations in effect of liabilities contaminate the whole valuation). Also, it is not very flexible when it comes to risky debt and cost of hybrid securities, e.g. convertibles, also other effects of financing, non-constant debt ratio and personal taxes. Problem with WACC is that firstly, it assumes that project being valued is identical in risk and financing structure. Secondly, it only works for constant capital structure and risk. Thirdly, it can only address tax effects. Fourthly, it cause confusion about firm WACC and division or project WACC. Furthermore, it requires corporate interest tax deductions to be equal to pre-tax cost of debt of the market value of firm's debt. Despite the difficulties and problems related with calculating the weighted average cost of capital, there are still increasing number of companies use WACC in practice[7]. In recent years, WACC has also received attention from national regulatory bodies such as the UK Competition Commission and industry-specific regulatory bodies such as Oftel and Ofgen[8].

Another alternative method is to use Adjusted Present Value (APV). The rationale for the APV method was provided by Myers (1974), using Modigliani-Miller's (MM's) gearing model with corporate tax, but is valid only so long as the WACC profile is declining due to the value of the tax shield. In the APV method, the value of the levered company is found by calculating the value of an equivalent un-levered company and correcting this figure to account for the effects of financing decisions on value, particularly the tax benefit arising from the debt[9]. It is said to value the project as if it were all- equity financed. Good features of the APV method are that it is easy to extend to take other effects of financing into account. For instance, one can value

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[7] Denzil Watson & Antony Head, 2004, 'Corporate Finance : Principle & Practice', 3rd Edition, FT Prentice
[8] the regulators of the UK telecommunications and electricity-generating industries, respectively see Wright et al. 2003
[9] Brealey/Myers (2000)

an interest rate subsidy separately as the present value of interest savings. Besides, it is clear and easy to track down where value comes from. APV always works when WACC does and sometimes when WACC does not work also it contains added information of interest for managers. Furthermore, WACC can only address tax effects and even that only for simple capital structure. However, the down point is that almost nobody uses it. Overall, for complex, changing or highly leveraged capital structure (e.g. LBO), it is said that to use APV method would be more suitable. Otherwise, it does not matter which method you use.

CONCLUSIONS

Weighted average cost of capital is defined as the average rate of return determined from all sources of finance employed by a company, which can be used as a discount rate for investment appraisal decisions and is a key to consider in decisions concerning new finance (figure 2). The purpose of it is to evaluate projects. However, there is a few major requirements to be satisfied before the use of WACC can be justified (mentioned above). When tending WACC, firms usually use their current cost of debt, current capital structure, current cost of equity capital and the marginal tax rate they are facing for calculation. Advantage of WACC is that it is most widely used, less computations needed and easier to understand and explain. Despite the widespread use of the conventional WACC equation, there is a great uncertainty about its use in a steady growth framework. This ambiguity is mainly due to the fact that in a growing framework the APV approach and the traditional WACC equation seem to lead to different results.

Recommendation

This is a small Alternative Investment Market (AIM) listed company, symbolising its far from complex, changing or highly leveraged capital structure, therefore, I would recommend the firm to use weighted average cost of capital method. In practice, firms tend to use a constant WACC, so if our firm's capital structure is expected to stay stable over the times, WACC method will work well.

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