THE COST OF CAPITAL

WACC is a concept used to help calculate the value of an organisation, explains Sarah Boyce

While it might sound theoretical, the concept of weighted average cost of capital (WACC) is very useful to finance managers and its application and limitations need to be understood.

Firstly, it is widely accepted that the value of a corporation (and therefore its value to shareholders) is the net present value (NPV) of its future cash flows, discounted at the firm's WACC.

So companies seeking to maximise shareholder value have two primary aims:
◆ to enhance cash flows by increasing income and cutting costs; and
◆ to minimise the WACC (through optimising capital structure) by which those cash flows are discounted.

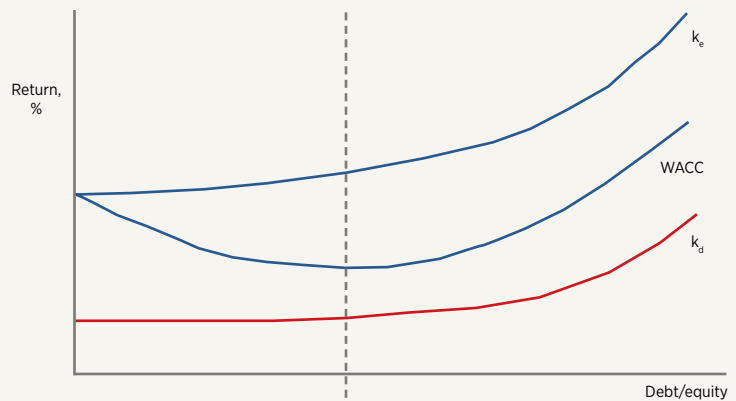This increases the NPV of those cash flows, maximising the market value of the corporation.

Secondly, financial strategy and optimal balance sheet structure can be identified through the calculation of a WACC at a range of gearing levels to formulate an optimal capital structure for the organisation. Note that while it is generally accepted that there is an optimal capital structure (in theory at least), where WACC can be minimised and the value of the company can be maximised, it is also generally accepted that the relationship between leverage and shareholder value is relatively flat around the optimum, meaning that exact calculation is less critical.

It is useful to view graphically how WACC alters as leverage changes. The classic picture seen here shows how WACC is high at low levels of leverage, but reaches an 'optimum' at the idealised WACC before rising quickly into the territory where financial distress (risk of bankruptcy) becomes a major factor.

The WACC calculation looks very straightforward, reflecting the weighting of debt and equity at their respective costs:

PRICE

THE COST OF CAPITAL AND THE VALUE OF THE CORPORATION

But there are a number of points to consider when calculating WACC:
1. The cost of debt (k_d) is simple to calculate, as it consists of the interest rate paid by the company and can be modelled as the risk-free rate plus a risk premium. The cost of debt is adjusted by the tax shield provided by interest deductibility ($1-T_c$).
2. The cost of equity (k_e) is more subjective as equity does not pay a set return to its investors. Therefore, k_e must be inferred by comparison with other investments with similar risk profiles to determine the market cost of equity. The capital asset pricing model measures the cost of equity through a beta coefficient and an assessment of the equity risk premium, and is perhaps the most widely used method. But there are many assumptions, such as one interest rate, one equity premium and a comparable beta, which raise difficulties. Different countries have different interest rates and inflation rates; the equity premium will differ; beta is a concept that doesn't translate too well into practice; and companies often comprise divisions that have very different business characteristics.
3. The proportions of capital should always be based on the market values of debt and equity (D+E), not their book values. Managers often simplify WACC calculations by using the nominal value of debt and its nominal interest rate. They defend this by pointing out that corporates commonly issue debt to maturity, and that market values are thus unimportant. But take a firm that issued £100m of perpetual bonds, with a face value of £100 and annual coupons of £4 when interest rates were 4%. Now, interest rates have moved so that bonds of this risk class need to offer 8%. Logically, the price of each bond has to fall to £50, so that they yield 8%. The market value of the bonds is now £50m and this should be used in the calculation, not the book value of £100m.

The market capitalisation figure should always be used for equity – the balance sheet value of equity is usually a small fraction of this amount, and is of little relevance to shareholders.

While many firms use WACC in their design of financial strategy and project assessment, arguably the concept of multiples is prevalent in practice and pervades financial market language. Thus debt might be limited to 3 x EBITDA, an interest cover multiple or a cash flow cover multiple. Additionally, there are other models used in capital structure design, such as the pecking order theory*. ❦

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*WHERE COMPANIES PRIORITISE FINANCING FROM READILY AVAILABLE SOURCES, SUCH AS INTERNAL FUNDING, AND THEN MOVE ON TO OTHER SOURCES THAT ARE HARDER TO TAP

$$WACC = k_d \times (1\text{-}T_c) \times \frac{D}{D+E} + k_e \times \frac{E}{D+E}$$