

VALUATION

Discounted Cash Flow Methodology – About WACC

In the Discounted Cash Flow (DCF) valuation approach, future unlevered free cash flows are discounted to estimate the present value of an investment proposition, the enterprise value. Thereby, the Weighted Average Cash Flow (WACC) is used as a discount factor.

The WACC is a concept to simulate the average rate of return which a company requires to compensate its financial sponsors and investors. In the DCF approach it also serves as the principle discount factor applied on future expected unlevered free cash flows (UFCFs) to calculate their respective present values so to derive a firm's enterprise value.

In its basic and principle form, the WACC is composed of the blended expected returns for providers of equity capital – Cost of Equity (CoE) – and of debt capital – Cost of Debt (CoD). However, the WACC should reflect the respective after-tax returns: This is in particular relevant in regards to the CoD which needs to be adjusted for the tax shield benefits due to the fact that interest expenses are tax deductible. Therefore, this adjustment results in the actual cash costs of the CoD.

Further it is important to note that the WACC does not necessarily reflect the firm's present capital structure as per the balance sheet: Instead the WACC represents a firm's long-term viable and stable capital structure. Therefore the WACC is assumed to stay constant over time. – Deviating from this principle could make sense when a firm's capital structure is expected to change

significantly, such as when under distress or in restructuring. Nevertheless, as in the DCF approach cash flows reach far out into the future, ultimately represented in the terminal value, it is utmost relevant to carefully structure a long-term steady and stable WACC, at least for this parameter.

Therefore, a WACC should also incorporate assumptions with a focus on long-term debt rates, instead of current ones. In any case, nominal rates of return are to be applied – driven by both, real rates and expected inflation -, as the expected UFCFs are usually also expressed in nominal terms.

Finally, the components of the funding structure of a firm – foremost equity and debt - have to be weighted by their respective market values: This is because only market values – other than the book values as represented in the balance sheet - reflect the full and appropriate economic claim of each type of financing.

Two aspects are especially relevant in identifying the appropriate WACC: First, if a beta factor is publicly available for the firm to be assessed and if the target capital structure is not expected to change going forward, then this beta can be applied for calculating the CoE. However, if such factor is not readily available – and therefore has to be implied from selected peer companies – or if the capital structure is expected to change significantly, then the beta factor applied will have to reflect the future expected and stable capital structure: In essence, the beta factor used would have to be adjusted in that it would have to be first de-levered and subsequently re-levered.

Finally, a different future expected capital structure than the current one may also have an impact on the default spreads and consequently on the CoD. This would have to be taken into account for as well.

$$\begin{aligned}
 \text{EQUITY VALUE} &= \sum \frac{\text{UFCFS}}{(1+WACC)} - \text{NET DEBT} \\
 WACC &= \frac{MVE}{MVE+MVD} \times \text{COE} + \frac{MVD}{MVE+MVD} \times \text{COD} (1-t) \\
 \text{COE} &= \text{RFR} + \beta \times \text{MRP} \\
 \beta &= \beta_{\text{UNLEVERED}} \times \left[1 + (1-t) \times \frac{MVD}{MVE} \right]
 \end{aligned}$$

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