

The Pure Play Method

We learned in the prerequisite course (FIN 531 or its equivalent) that the discount rate used in the valuation of a project should be determined by the riskiness of the project, not that of the firm. Hence, the firm's costs of capital are only appropriate as a discount rate for a project when the project has similar systematic business risk as the firm, and the project has the same financing mix as the firm. In other words, the firm's WACC is the appropriate discount rate only for scale-enhancing projects that expand the firm's existing businesses.

In practice, many projects involve pursuing opportunities in industries with their systematic business risk being different from that of the firm, and hence are associated with a different cost of capital, i.e., r_0 . The **Pure Play Method** is an analytical tool that we can use to address the challenging task of estimating the cost of capital (the discount rate) needed for the valuation of non scale-enhancing projects that carry different levels of business risk.

Please closely reference Lecture Slides 18 - 24 for the set of numerical illustrations that accompany the learning of the pure play method for discount rate estimation. You are advised to study Slides 18 and 19 in details for selected data that are used in the analysis!

The most important first step in conducting the Pure Play Method in discount rate estimation is to **select one or more comparable firms** that have their main business operating in the industry where the new project belongs. In other words, the level of systematic business risk of a comparable firm represents that of the new (non scale-enhancing) project being considered.

In our example, WWE, i.e., the "home" firm, has a non scale-enhancing project that will operate in the widget industry.

AW, which has its single business line in the widget industry, serves well as the comparable firm used by WWE in its estimation of the appropriate discount rate for the valuation of its new widget project.

Once we select a set of comparable firms, we apply the three computational procedure of the Pure Play Method to estimate the cost of capital for the new project:

1. Estimate Comparable Firm's Cost of Levered Equity, r_{sc}

We learned in FIN 531 or its equivalent how to estimate the stock beta of the comparable firm. Or we can use the beta estimate published by media such as Yahoo.Finance, FactSet, Bloomberg, etc. Then, we apply the CAPM learned in FIN 531 or its equivalent to estimate each comparable firm's cost of levered equity, r_{sc} .

Based on the data provided, AW's cost of levered equity can be calculated as $r_{sc} = 0.08 + 1.5 * (0.085) = 0.2075$

2. Estimate Comparable Firm's Cost of Unlevered Equity, (r_0)

Unlever the cost of levered equity of each comparable firm. This step removes the impact of financial leverage of the comparable firm on its cost of levered equity. The output of this step is the cost of unlevered capital that reflects only the systematic business risk level of the comparable firm's operations. We apply MM Proposition II with corporate taxes in this step.

Recall from Chapter 16 that MM Proposition II with corporate taxes is:

$$r_s = r_0 + (B/S_L) * (1 - T_C) * (r_0 - r_B)$$

By rearranging the formula, the cost of unlevered equity can be expressed as:

$$r_0 = [r_s + (B/S_L) * (1 - T_C) * r_B] / [1 + (B/S_L) * (1 - T_C)]$$

Based on the data provided above, AW's cost of unlevered equity can be calculated as

$$r_0 = [.2075 + (.4/.6) * (1 - .21) * .12] / [1 + (.4/.6) * (1 - .21)] = 0.1773$$

Note: For the APV approach, r_0 is the choice of the discount rate for unlevered cash flows (UCF) in calculating the project value!

3. Estimate the Project's Cost of Levered Equity, r_s

Lever the cost of unlevered equity that reflects the systematic business risk level of the new project with the financial leverage of the "home" firm to estimate the cost of levered equity of the project. We apply MM Proposition II with corporate taxes in this step.

Recall from Chapter 16 that MM Proposition II with corporate taxes is:

$$r_s = r_0 + (B/S_L) * (1 - T_C) * (r_0 - r_B)$$

Based on the data provided above, **WWE's** cost of levered equity can be calculated as

$$r_s = .1773 + (.25/.75) * (.1773 - .10) * (1 - .21) = 0.1977$$

Note: For the FTE approach, r_s is the choice of the discount rate for levered cash flows (LCF) in calculating the value of the project to equity holders!

For the WACC approach, r_{WACC} can be estimated with the given interest rate, r_B , and the r_s estimate calculated above.

$$\text{Based on the data provided above, } \mathbf{WWE's } R_{WACC} = .25 * .10 * (1 - .21) + .75 * .1977 = 0.1680$$

Reference Lecture Slides 25 - 27 for additional numerical examples on the pure play method.