Corporate Finance Module 18, WACC and taxes

*Question 18.1: WACC

The weighted average cost of capital (WACC) is

A. An after-tax return
B. A pre-tax return
C. A weighted average of the after-tax return on debt and the pre-tax return on equity
D. A weighted average of the after-tax return on equity and the pre-tax return on debt
E. The WACC assumes the tax rate is zero, so pre-tax equals after-tax

Answer 18.1: A

The weighted average cost of capital is the after-tax return the firm must achieve to pay its creditors and investors for the use of their capital. The WACC is after the firm's corporate income taxes and before the personal income taxes of the equity providers. The WACC says: "What must be the firm's after-tax return to provide the returns expected by bondholders and shareholders?" We refer to this as an after-tax cost of capital.

- If the investors demand a 15% return on equity capital, the firm must earn 15% *after-tax*, or 15% / (1 – 35%) = 23.08% pre-tax.
- If the creditors demand an 8% return on debt capital, the first earn 8% pre-tax, since debt payments are a tax deduction. Its *after-tax* return must be 8% × (1 – 35%) = 5.20%.

The weighted average cost of capital is $R_a = \alpha \times R_d \times (1 - \tau) + (1 - \alpha) \times R_e$, where α is the percentage of debt, τ is the corporate tax rate, R_a is the return on assets, R_d is the return on debt, and R_e is the return on equity. We adjust the pre-tax return on debt by the complement of the tax rate, since the debt payments are tax deductible.