9.5 Cost of capital

Name: _____ Class: _____ Date: _____ **Total: 11 marks**

KEY WORDS weighted average cost of capital • tax shield

Objective

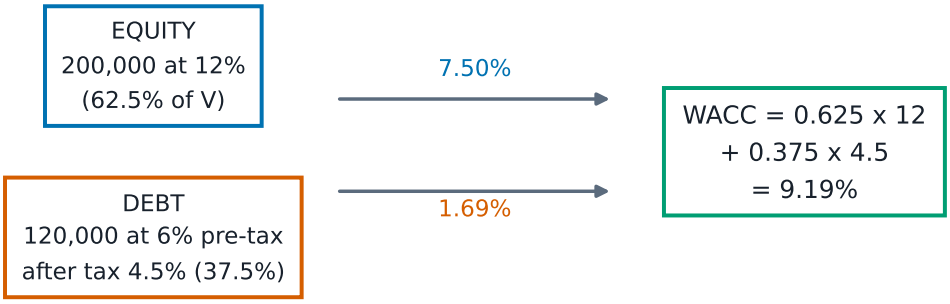
Compute WACC with market-value weights; source each input; read the debt U-curve honestly.

1 Key knowledge and worked examples

■ The blend

WACC = (E/V)k_e + (D/V)k_d(1−t) at market weights; private k_e by proxy with judgements written down.

The hurdle is a blend of market values



previously assumed 8%: every NPV was 2,735 too fat;
the proxy working: k_e = 4 + 1.1 x 6 + 1.4 private

A blend of market values

■ Worked example. Nimbus

E 200,000 (12%), D 120,000 (6% → 4.5%): WACC 9.19% ✓.

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2 Practice

A design studio: 500,000 shares at £1.80; debt £270,000 at 7% pre-tax; tax 20%; k_e 13.5%.

2.1 Compute E, V, the weights, and the WACC (two decimals). [4]

2.2 The studio's book shows equity at £0.50 par. What weight would the book method give, and why is it wrong? [2]

2.3 k_e came from a proxy: quoted rival β 1.3, market 9.5%, risk-free 3%. Reconstruct the CAPM k_e and the implied private premium. [3]

2.4 Borrowing £150,000 more at 7% cuts the blend to 10.99%. In two lines: why will it stop cutting? [2]

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Solutions

2.1

- $E = 500{,}000 \times 1.80 = £900{,}000$; $V = 1{,}170{,}000$.
- Weights: 76.9% / 23.1%.
- $WACC = 0.769(13.5) + 0.231(7 \times 0.8) = 10.38 + 1.29 = 11.67\%$.

2.2

- Book: 250,000/520,000 = 48% equity weight – roughly the double-count of the market's.
- Investors require returns on what their stake is WORTH; the market price is the worth.

2.3

- $k_e = 3 + 1.3(9.5 - 3) = 11.45\%$.
- Implied private premium = $13.5 - 11.45 = 2.05$ points – a judgement, written down.

2.4

- Each tranche raises the equity beta (k_e climbs) and the new debt prices above 7% for the riskier borrower.
- The curve is U-shaped: the bottom is the right debt, not the most available.

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