MN50324: Additional Corporate Finance Slides

- Comparing MM and CAPM.
- => MM equations.

Comparison of MM and CAPM Cost of Capital Equations

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Type of Capital	CAPM	MM
Debt	$K_d = R_f + [E(R_m) - R_f]\beta_d$	$K_d = R_f, \beta_d = 0.$
Unlevered Equity	$\rho = R_f + [E(R_m) - R_f]\beta_U$	$\rho = \rho.$
Levered Equity	$K_{LE} = R_f + [E(R_m) - R_f]\beta_{LE}$	$K_{LE} = \rho + [\rho - K_b](1-t)\frac{V_d}{V_e}$
WACC	$WACC = K_d(1-t)\frac{V_d}{V_d + V_e} + K_e\frac{V_e}{V_d + V_e}$	$WACC = \rho(1 - t\frac{V_d}{V_d + V_e})$

Numerical Example

- Firm X has $\frac{V_d}{V_d + V_e} = 20\%.$
- Firm wants to change to $\frac{V_d}{V_d + V_e} = 35\%.$
- Risk free rate = 7%.
- Tax rate = 50%, E(Rm) = 17%, Leveraged Beta = 0.5.
- What is current WACC?
- Current Ke?
- What will new Ke and WACC be?

Answer:

Current Ke (CAPM) $K_S = 7 + 0.5[17 - 7] = 12\%$

$\Rightarrow$Current WACC $WACC = (1 - 0.5)7 * 0.2 + 12 * 0.8 = 10.3\%.$

$\Rightarrow$Ke.unlevered $\rho = \frac{10.3}{1 - 0.5(0.2)} = 11.44\%$

$\Rightarrow$New WACC $WACC = 0.1144[1 - 0.5(0.35)] = 9.438\%.$

$\Rightarrow$Firm Value = NCF(1-t)/WACC

$\Rightarrow$Old Value = 100(1-0.5)/WACC = 485

$\Rightarrow$New Value = 100 (1-0.5)/ WACC = 529 (tax shield)

MM Diagrams

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