Perfect Capital Markets		Financial Markets with Imperfections	
Naming			
S	Market value of the company's own resources	S^t_U	Market value of the company's own resources (non-indebted company)
		S^t_L	Market value of the company's own resources (indebted company)
B	Market value of the company's external resources	B	Market value of the company's external resources
V	Market value of the company: $V = S + B$	V^t_U	Market value of the non-indebted company $V^t_U = S^t_U$
		V^t_L	Market value of the indebted company $V^t_L = S^t_L + B$
B/S	Coefficient or ratio of indebtedness	B/S^t	Coefficient or ratio of indebtedness
Y	Expected gross profit, Earning Before Interest and Taxes	Y	Expected gross profit, Earning Before Interest and Taxes
r_B	Cost of external resources to the company	r_B	Cost of external resources to the company
r_S	Cost of equity, return of shareholders or financial return: - With no debts: $r_S = \frac{Y}{S}$ - With debts: $r_S = \frac{Y - r_B B}{S}$	r^t_s	Cost of equity, return of shareholders or financial return after taxes: - With no debts: $r^t_S = \frac{Y(1-t_c)}{S^t_U}$ - With debts: $r^t_S = \frac{(Y - r_B B)(1-t_c)}{S^t_L}$
		t_c	Corporate Taxes

r_0	Economic return: $r_o = \frac{Y}{V}$ Weighted average cost of company capital without debt	r_0	Economic return: $r_0 = \frac{Y(1-t_c)}{V_U^t}$ - Without debt: $r_S^t = r_O$
r_{WACC}	Weighted average cost of company capital: $r_{wACC} = rs\frac{SL}{V_L} + rb\frac{B}{V_L}$ Without taxes: $r_{WACC} = r_0$	$r^t{}_{WACC}$	Weighted average cost of company capital after taxes: $r_{wACC}tc = rs\frac{SL}{V_L} + rb\frac{B}{V_L}(1 - tc)$ With taxes: $r_{WACC} \neq r_0$ Except when the company is not indebted, so in this case: $r_{WACC} = r_0$

Perfect Capital Markets	Financial Markets with Imperfections
Modigliani and Miller (Proposition I)	**Modigliani and Miller (Proposition I)**
In equilibrium: $V = S + D = \frac{E(\tilde{X})}{r_0}$	$V'_L = \frac{E(\tilde{X}) \cdot (1-t)}{r_0} + \frac{t \cdot r_B \cdot B}{r_B} = V'_U + t \cdot B$ $V'_L = V'_U + t \cdot B$
Modigliani and Miller (Proposition II)	**Modigliani and Miller (Proposition II)**
$r_S = r_0 + (r_0 - r_B) \cdot \frac{B}{S}$	$r_s^{\ tc} = r_0 + (r_0 - rb)\frac{B}{S_L}(1 - tc)$
Consequences of Modigliani and Miller Propositions	**Consequences of Modigliani and Miller Propositions**
- Financial structure is not optimal.	$r_{WACC}t = r_0 \cdot \left(1 - t_c \cdot \frac{B}{V_L}\right)$ → $r_{WACC}{}^t \leq r_0$ - When the company is not debt: $r_{WACC}{}^t = r_0$ - The optimal financial structure is when there are all debts.

Financial Market with Imperfections: the Miller Model	
tc	Corporate tax rate.
t_{ps}	Tax rate on personal income from shareholder remuneration, i.e. the weighted average effective personal rate of dividends and capital gains.
t_{pb}	Tax rate on personal income from interest collected on funds lent to the company.
V_U	Market value of the non-indebted company in the Miller model. $V_U^M = \frac{Y(1-t_c)}{r_0}$
V_L	Market value of the indebted company in the Miller model. $V_L = V_U + B \cdot \left[1 - \frac{(1-t_c)\cdot(1-t_{ps})}{(1-t_{pb})}\right]$ If $t_{ps} = t_{pb} \rightarrow (1-t_{ps}) = (1-t_{pb}) \rightarrow V_L = V_U + t_c \cdot B$ If $t_{ps} < t_{pb} \rightarrow \frac{(1-t_{ps})}{(1-t_{pb})} > 1$ If $(1-t_c)(1-t_{ps}) > (1-t_{pb}) \rightarrow \frac{(1-t_c)(1-t_{ps})}{(1-t_{pb})} > 1 \rightarrow V_L < V_U$ If $(1-t_c)(1-t_{ps}) = (1-t_{pb}) \rightarrow \frac{(1-t_c)(1-t_{ps})}{(1-t_{pb})} = 1 \rightarrow V_L = V_U$