

Week 9: International Corporate Issues

Cost of Capital

$$WACC = w_d * r_d + w_e * r_e$$

Weights:

w_d and w_e

Weight of debt and equity (based on market Value)

- If $\frac{D}{E}$ is given then $w_d = \frac{\frac{D}{E}}{1 + \frac{D}{E}}$

Debt (AFTER TAX)

1. Method 1: Percentage Change method:

$$r_d = r_{foreign}(1 - t)(1 + c) + c$$

Where c: the % change in the foreign currency.

■ i.e., %change in EURO ER = $\frac{ER_1 - ER_0}{ER_0}$

2. Method 2: Loan Amount Method (SEE PAGE 96 + 97)

■ Interest = Loan Principal (FC) * Interest Rate

■ After Tax-interest = Interest *(1-TR)

■ Total After tax repayment (FC) = Principle (FC) + After Tax Interest

■ (Start here if no tax):

Total After-tax Repayment (DC) = total After-tax repayment (FC) * Exchange Rate (FC/DC)

■ Cost of loan = $\frac{\text{Total After tax Repayment (DC)}}{\text{Initial Proceeds (DC)}} - 1$

➔ Result: The fraction (or percentage) is the after-tax ex-post cost of the loan.

Equity:

$$r_e = r_f + B(r_m - r_f)$$

Where B:

$$B = \frac{\text{Cov}(r_i, r_m)}{\text{Var}(r_m)}$$

Lever and un-lever beta:

1. Unlever beta using local (comparable firms information):

$$B_U = \frac{B_L}{1 + \frac{D}{E}(1 - t)}$$

2. Relever beta using the projects information:

$$B_L = B_U * (1 + \frac{D}{E}(1 - t))$$

NPV: parent v Project perspective:

$$NPV = \text{PV of Future Cash Flows} - \text{Investment Cost}$$

Project Perspective: (values investment in the foreign currency where it operates)

1. Forecast cash flows in the foreign currency.

2. Discount those cash flows using the foreign currency discount rate.

3. Sum the present values to get the NPV in foreign currency

4. Convert the resulting NPV into the domestic currency using the current spot exchange rate.

$$V_0^{project} = S_{D/f} * \sum_{t=1}^T \frac{E[CF_t^f]}{(1 + i_f)^t}$$

- Where:

■ $S_{D/f}$ = spot exchange rate (domestic per foreign unit)

■ $E[CF_t^f]$ = expected cash flows in foreign currency

■ i_f = foreign currency discount rate

■ T = project life in years

Parents Perspective:

1. **Step 1: Forecast foreign currency cash flows**
2. **Convert each year's cash flow into domestic currency using expected future exchange rates**
3. **Discount these domestic currency flows using the domestic discount rate**
4. **Subtract the domestic currency value of the initial investment to get NPV**

$$V_0^{parent} = \sum_{t=1}^T \frac{E[CF_t^f] * S_{D/f,t}}{(1 + i_d)^t}$$

- **Where:**

- $S_{D/f,t}$ = forecasted exchange rate at time t (domestic per foreign unit)
- i_d = domestic currency discount rate

		Parents Perspective	
		CFS are converted to the domestic currency at the expected future spot rates, and then discounted	
		NPV < 0	NPV > 0
Projects Perspective CFS are discounted in the foreign currency and converted to the domestic currency at the current spot rate	NPV < 0	Reject the Project 	Reject the project The project's intrinsic value is negative. NPV is <u>positive due to the favourable currency movements</u> . We can use other FX tools (or money market transactions) to capture those if we want to speculate on the favourable movements.
	NPV > 0	Accept the project with care The project's intrinsic value is positive. NPV is negative due to the adverse currency movements. <u>We can use FX tools to hedge those risks (borrowing from the local currency (money market transaction), forward, future, option, swap, etc.).</u>	Accept the Project The project's intrinsic value is positive. Note that if the project's NPV is greater than the parent's perspective, it implies adverse exchange movements; thus, hedging can be beneficial.

Overall Need to Consider:

- Opportunity costs e.g., blocked funds, expropriation
- Side effects e.g., sales cannibalisation

Intercompany Fund Flow Mechanics:

Transfer Pricing

- Assume affiliate A sells goods to affiliate B
 - **If $T_A > T_B$** : set the Transfer price as LOW as possible
 - **If $T_A < T_B$** : set the transfer price to as HIGH as possible
- IF with Tariffs:
 - Choose Low Transfer Price if: **$(T_A - T_B) < \text{Tariff Rate}$**
 - Choose High Transfer Price if: **$(T_A - T_B) > \text{Tariff Rate}$**

Tax-Minimising Transfer price (No Tariff):

- **$\text{Tax Saving} = Q * (P_{old} - P_{new}) * (t_{low-tax} - t_{high-tax})$**
 - Where:
 - ➔ Q: units transferred
 - ➔ P: transfer Price
 - ➔ T: marginal tax ate
- (Maximise savings → shift profits to LOW tax country).

Transfer Price with Ad Valorem Tariff: