Week 9: International corporate issues

Outline for Today:

1. **The Cost of Capital for Foreign Investment**
2. **Project vs. Parent value**
3. **The Value of the Multinational Financial System**

The Cost of Capital for foreign Investment:

The Weighted Average Cost of Capital (WACC)

- Foreign investment is often financed by a **combination of equity and debt.**
  - To reflect this, we use the **weighted average cost of capital (WACC**), which accounts for the proportionate cost of each component of financing.
  - $WACC = W_e K_e + W_d k_d$ **(Note use of AFTER-TAX COST OF DEBT)**
    - ➔ $where$:
    - ➔ $k_e = cost\ of\ equity$
    - ➔ $k_d = AFTER\ TAX\ COST\ OF\ DEBT$
    - ➔ $w = \ relevant\ propotion\ of\ capital\ coming\ from\ equity\ (w_e) and\ debt\ (w_d)$

Key Considerations in WACC Calculation

- MNCs typically **set target capital structures specific to each project**.
  - *This gives an indication of the respective weights of the permanent sources of financing.*
- If no project-specific capital structure exists → **use firms overll capital structure as proxy.**
- Cost of equity and cost of debt must be project-specific, reflecting the risk of the individual project.
- Weights should reflect future capital structure for the project or subsidiary.
  - Many projects (or subsidiaries or assets) follow the **parent's capital** structure.
  - Some projects require different debt levels (***e.g., projects in high-risk environments may sustain less debt***).

Example – Shell in Indonesia

- Shell is evaluating a new project in Indonesia.
  - The firm uses two sources of financing: long-term debt and common equity.
  - Debt ratio: 47% (so equity = 53%)
  - Cost of equity (ke): 14.70%
  - Pre-tax cost of debt (kd): 6%
  - Corporate tax rate: 21%
  - Compute WACC:
    - ➔ $WACC = 53\% * 14.7\% + (1 - 21\%) * 6 * 47\% = 10.0188\%$

Cost of Equity

- Equity holders have a **residual claim on the firm's free cash flow (claim after ALL other shareholders)**, making them the most exposed to risk.
  - **Cost of equity (ke):** minimum (required) rate of return necessary to compensate investors to buy or hold the firm's stock
    - ➔ Used for valuing future equity cash flows.

Capital Asset Pricing Model (CAPM)

- **CAPM** translates market risk into expected return for equity:
  - **For an individual asset I its expected return E(Ri) is:**
  - Where
    - ➔ **E(Ri) = Rf + Bi[E(Rm) - Rf]**
    - ➔ Rris the risk-free rate, i.e. the return required on the time value of money.
    - ➔ ßi is the beta of asset i, which measure how the asset's return comoves with the market
    - ➔ E(Rm) is the expected return on the market portfolio
    - ➔ E(Rm) - RF is the premium demanded by investors for investing in the market portfolio.

Challenges for Foreign Projects

- Many projects lack historical data which is **NEEDED for proxy betas** from comparable firm or projects that share similar risk characteristics.

- *Issues to consider:*
  1. **Should we use domestic or foreign (local) comparable firms as proxy?**
     - ➔ Prefer local firms in the same country and industry.
     - ➔ Local firms better reflect the locak projects risk exposure.
     - ➔ Use multiple proxies for reliability.
  2. **Should we use domestic, foreign, or world market portfolio as the benchmark portfolio?**
     - ➔ Country-specific risk is diversifiable through international portfolio management.
       - Globalization lead to lower cost of capital
     - ➔ Should use the parent's market portfolio or world market portfolio depending on the parent's portfolio and belief on global market integration
       - Use world portfolio if believe capital markets are globally integrated
       - If not, use parent portfolio, also ensure comparability with domestic projects
     - ➔ Using foreign market portfolio may overestimate cost of capital

Cost of Equity: Hamada Equation

- Beta from comparable firms reflects leveraged (debt-influenced) risk.
- Different proxy firms have different capital structures from that of the project

General Steps for estimating beta of a project:

- **Calculate comparable firms beta relative to the parent's market**
- **De-lever the beta for each comparable firm**
- **Calculate the average all-equity/ unlevered beta**

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

- **Relevel the beta using project specific capital structure**

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

Cost of debt:

- The **cost of debt** is the return that lenders demand for financing a project with a given level of risk.

Borrowing Options for Foreign Subsidiaries

- Foreign subsidiaries can borrow:
  - In the parent company's market, or
  - In the local (subsidiary's) market

Key Considerations

- Borrowing in the **parent's market** does **not eliminate foreign exchange risk**.
- Borrowing in the **subsidiary's market** may reduce FX risk if the parent **can offset revenues with borrowing costs.**
- **After adjusting for currency appreciation/depreciation** (using parity conditions), the parent should theoretically **be indifferent** between borrowing in the parent or local marke

After-Tax Cost of Foreign Currency Debt

- **The after-tax cost is influenced by:**
  - **Interest rate** on debt (r)
  - **Currency gains or losses (c)**
  - **Tax Effects (t)**

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

Project and Parent Perspectives:

There are two ways to value a foreign project:

- Both are designed to measure the value of an international investment, but they view cash flows and discounting differently.
  - If international parity conditions hold (e.g., PPP, UIP) bot approaches should lead to the same NPV.
    - ➔ In practice differences often arise due to **exchange rate risk**, inflation differentials and market imperfections.

(1) **From The Projects Perspective:**

- The **project's perspective** values the investment in the *foreign currency* where it operates.
  The steps are:
  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**.

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

Logic: treat the foreign project as if it were standalone in its own economy. Only after determining its value in foreign currency do, you translate it into the domestic currency.

(2) **From the Parents Perspective:**

- The **parent's perspective** translates **each future foreign cash flow** into domestic currency first (using forecasted exchange rates), then discounts them at the **domestic discount rate**.
  The Steps are:

  1. **Forecast foreign currency cash flows** E[CFtf}
  2. **Convert each year's cash flow** into domestic currency using **expected future exchange rates** Sd/f,t.
  3. **Discount these domestic currency flows** using the **domestic discount rate** idi
  4. Subtract the domestic currency value of the initial investment to get NPV

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

Logic: This approach directly measures the value from the perspective of the parent company's shareholders, incorporating exchange rate forecasts into each year's cash flows.

PROJECT AND PARENT PERSPECTIVES DECISION MAKING:

		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 positive due to the favourable currency movements. 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. We can use FX tools to hedge those risks (borrowing from the local currency (money market transaction), forward, future, option, swap, etc.).	**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.