



International Financial Management

In this chapter, we have to decide based on NPV whether to invest in a project in foreign country or not

Formula to calculate NPV = Present Value of cash inflows - Present value of cash outflows

If investing in a project, we will calculate NPV from project point of view which means cash flows will be considered before making any payment to Debt holders, Equity and Preference shareholders.

Cash inflows and outflows is calculated as per below method but note that while calculating cash flows allocated overhead cost, sunk cost or historical costs are to be ignored:

Cash Outflows from the project

Amount Initially invested in the project	xx
Amount Initially invested in working capital requirement	xx
TOTAL	xx

Cash Inflows during lifetime from the project

Sales	xx
(-) Expenses	(xx)
Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA)	Xx
(-) Depreciation	(xx)
Earnings before Interest and Tax (EBIT)	xx
(-) Tax	(xx)
Profit after Tax	xx
(+) Depreciation	xx
(+/-) Change in working capital	xx
Cash Flows from the project	xx

Cash Inflows at end of life of project

Salvage value of project after adjusting any tax	xx
Amount received from release of working capital	xx
TOTAL	xx

Note: Weighted average cost of capital will be used for discounting above cash flows from project

$$WACC = (W_e \times K_e) + (W_p \times K_p) + (W_d \times K_d)$$

K_e = Cost of Equity as per CAPM method [$R_f + b(R_m - R_f)$]

K_p = Dividend rate of Preference

K_d = Debt Interest rate (1 - Tax rate)

Note: If WACC is not given in question and directly discounting rate is given then **Risk Adjusted discount rate (RADR)** will be used for discounting cash flows:

Formula of RADR: $(1 + RADR) = (1 + \text{Risk Free Rate of Return}) (1 + \text{Risk Premium})$

There are 2 types of cash flows:

- Nominal Cash Flows (Cash flows after giving effect of inflation)
- Real Cash Flows (Cash flows without giving effect of inflation)

Formula to calculate nominal cash flow from real cash flows:

Nominal Cash Flows: $Real\ Cash\ Flows \times (1 + Inflation\ Rate)^t$

There are 2 types of discounting rates:

- Nominal Discounting rate: Used when cash flows given are nominal cash flows
- Real Discounting rate: Used when cash flows given are real cash flows

Formula to calculate nominal discounting rate from real discounting rate:

Nominal discounting Rate: $(1 + Real\ Rate)(1 + Inflation\ Rate) - 1$

There are 2 approaches to calculate NPV:

- Home Currency approach
- Foreign Currency approach

Home Currency Approach (also called the "single currency approach"):

In home currency approach, you convert all future cash flows (both inflows and outflows) into home currency at relevant exchange rate and then calculate the NPV in the home currency.

Steps:

1. Estimate future cash flows in foreign currency (currency where project or investment is based).
2. Convert these foreign cash flows into home currency using expected exchange rates for each period.
3. Discount converted cash flows at appropriate home currency discount rate
4. Sum discounted cash flows to get the NPV in the home currency.

Foreign Currency Approach (also called the "dual currency approach"):

In foreign currency approach, you calculate NPV in foreign currency first, and then convert final NPV value into home currency at current exchange rate

Steps:

1. Estimate future cash flows in foreign currency.
2. Discount cash flows in foreign currency at Foreign currency discount rate
3. Sum the discounted cash flows in the foreign currency to get the NPV in the foreign currency.
4. Convert final NPV from foreign currency to home currency at spot rate

Important Note: Forward exchange rate will be calculated from spot rate using Interest rate parity theory or Purchasing power parity theory as studied in Forex Chapter

Concept of Modified NPV: MNPV modifies NPV approach by assuming that interim cash flows (those received before the final period) are reinvested till the end of life of project

Step 1: Calculate cash flows received at end of project

Step 2: Discount them with discounting rate given in question

$$PV\ of\ cash\ inflows = \frac{Cash\ Flows\ at\ end\ of\ project\ as\ per\ Step\ 1}{(1 + Discounting\ rate)^t}$$

Step 3: $MNPV = PV\ of\ cash\ inflows - PV\ of\ cash\ outflows$

Note: Internal rate of return (IRR): Rate at which NPV become zero

Concept of Modified IRR(MIRR): This is the rate at which $PV\ of\ cash\ inflows = PV\ of\ cash\ flows$ or we can say the rate at which MNPV becomes zero

Concept of GDR

GDR is financial instrument used by Indian companies to list their shares on foreign stock markets (like in London or New York), without foreign investors having to buy shares directly on Indian exchanges.

How Does It Work?

- Indian Company Issues GDRs: Let's say company in India, like Tata Motors, wants to raise money from foreign investors but doesn't want to go through complex process of listing on an international exchange. Instead, it can issue GDRs.
- Depository bank in foreign country buys a certain number of shares of the Indian company.
- Bank then issues GDRs that represent those shares, and these GDRs are traded on international stock markets.
- For example, if you live in the UK, you can buy GDRs for Indian company like Tata Motors, which are listed in your local market.

$$\text{Cost of GDR to be issued} = \frac{D_1}{P_0} \times 100 + g$$

D₁= Expected dividend to be paid on each GDR

P₀= Net proceeds from issue of GDR (Issue price - Floatation cost)

g= Growth rate

Example (Taken from Illustration 4 of ICAI module)

X Ltd. is interested in expanding its operation and planning to install manufacturing plant at US. For the proposed project it requires a fund of \$ 10 million (net of issue expenses/ floatation cost). The estimated floatation cost is 2%. To finance this project it proposes to issue GDRs.

You as financial consultant is required to compute the number of GDRs to be issued and cost of the GDR with the help of following additional information.

- Expected market price of share at the time of issue of GDR is Rs 250 (Face Value Rs 100)
- 2 Shares shall underly each GDR and shall be priced at 10% discount to market price.
- Expected exchange rate Rs 60/\$.
- Dividend expected to be paid is 20% with growth rate 12%.

Solution:

Net Issue Size = \$10 million

$$\text{Gross Issue} = \frac{\$10 \text{ million}}{0.98} = \$10.204 \text{ million}$$

Issue Price per GDR in (250 × 2 × 90%)	Rs 450
Issue Price per GDR in \$ (450/60)	\$ 7.50
Dividend Per GDR (D ₁) (20 × 2)	Rs 40
Net Proceeds Per GDR (450 × 0.98)	Rs 441.00

$$(a) \quad \text{Number of GDR to be issued} = \frac{\$10.204 \text{ million}}{\$7.50} = 1.3605 \text{ million}$$

$$(b) \quad \text{Cost of GDR to X Ltd. } K_e = \frac{40.00}{441.00} + 0.12 = 21.07\%$$