PROJECT ENGINEERING

Chapter 6- Introduction to Project Financing

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Introduction to Project Financing

Contents:

Project Finance

- Project finance is **long term financing** of the infrastructure and industrial (manufacturing) projects and public services based upon the limited recourse financial structure where project debt and equity used to finance the project are paid back from the cash flow generated by the project.
- Project finance is the **long term financing** of the infrastructure based upon the projected cash flows of the project rather than the balance sheets of the project sponsors.

Project Financing vs Conventional Financing

- In conventional financing, cash flow from different assets and business are co-mingled. In project financing, cash flows from the project related assets are considered for assessing the repaying capacity.
- In conventional financing end use of the borrowed funds is not strictly monitored by the lenders. In project financing the creditors ensure proper utilization of funds and certain of assets as envisaged in the project proposal.

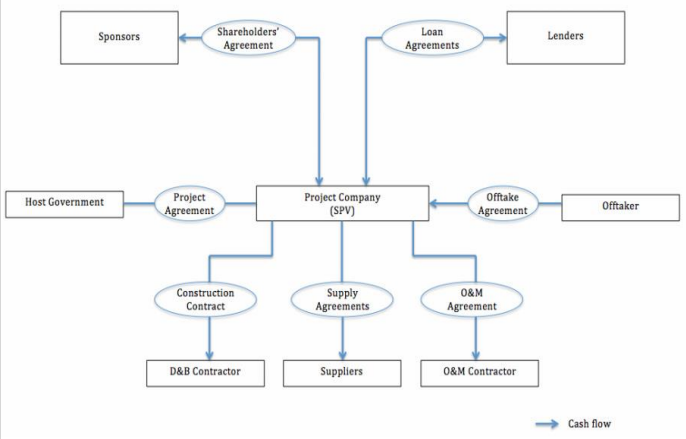
Project Financing vs Conventional Financing

- In conventional financing the creditors are not interested in monitoring the performance of the enterprise and they are interested only in their money getting repaid in one way or other.
- Project financiers are keen to watch the performance of the enterprise and suggest/take remedial measures as and when required to ensure that project repays the debt out of its cash generations.

Parties involved in project Financing

- Project itself
- Sponsors
- Financial advisors
- Technical advisors
- Legal advisors
- Debt financiers
- Equity investors
- Regulatory agencies
- Multilateral agencies

Parties involved in project Financing



Capital Structure Planning

Capital Structure

- Capital structure sometime known as financial plan (capital plan, financial plan) refers to the composition (make up) of the long term sources of funds such as debentures, long term debt, preference share capital and equity share capital including reserve and surplus.
- While planning capital structure one needs to decide on following aspects :
  - Long term debt
  - Bond
  - Promoters'/investors investment (equity share)

Definition of Terms

Capital:

- Capital is a term describing wealth, which may be utilized to economic advantages.
- Cash, land, equipment raw material, finished product, humans etc. are the forms of such capital.

Equity Capital

- Equity Capital (Common Share) is supplied and used by its owner in the expectation that a profit will be earned.

Debt capital :

- Debt capital is a borrowed capital.
- When borrowed funds are used, a fixed rate of interests must be paid to the supplier of the capital, and the debt must be repaid at the specified time.
- The borrower of the debt does not share the profits resulting from the use of capital.

Bond:

- A bond is essentially a long term note given to the lender by the borrower stipulating the terms of repayments and other conditions.
- Basically this is long term debt.

Debenture

- A debenture is a bond issued without any collateral. It is also called as unsecured bond.
- A debenture holders are the general creditors of the company.
- A company having strong credit position and highly profitable investment, and high amount of assets issue debenture.

Preference Share Capital

- It is that capital which has the characteristics of both the equity capital and debt capital.
- Two types of dividend are provided to the preference share holder. They are:
  a. dividends based on fixed percentage (like debt capital) which is paid after tax deduction
  b. dividends based on earning (like equity share holders)
- This is a long term debt and sometime referred as hybrid capital.

Important Feature of Sound Capital Structure

- **Profitability:** The capital structure of the company should be maximum advantageous. Within the constraints maximum use of leverage at a minimum cost should be available.
- **Solvency:** Use of excessive debt threatens the solvency of the company. Debt should be added only point up to a level which does not add substantial risk to the company
- **Flexibility:** It means the firms' ability to decide on its capital structure to meet dynamic need. So the company's' capital structure should be flexible enough to meet the dynamic need of the company.

- **Conservation:** It deals with cash flow ability of the company. To some extent, the capital structure of the company should be conservative in a sense that the debt capacity of the company should not be exceeded.

- **Control:** The capital structure should involve minimum risk of loss of control of the company. In other word capital structure should be planned in such a way that the company should always be able to keep control on it.

Determinants of Capital Structure

- Leverage effect on earning per share
- Growth and stability of sales
- Cost of capital
- Size of the company
- Marketability
- Floatation costs

Leverage on EPS

- The use of fixed cost source of finance, such as debt or preference share capital, to finance the assets of the company is known as financial leverage or trading on equity.
- Influence of EPS when debt or preference share capital is used against equity share capital is leverage effect.
- Such leverage impact is realized mainly due to following characteristics of debt and preference share capitals.
  - Cost of debt is usually lower than the cost of preference share capital
  - Interest paid on debt or bond is from pre tax profit. While interest (dividends paid on the basis of fixed percentage) paid on preference share capital is from tax profit.

Growth and Stability of Sales

- A company's capital structure is also shaped by the growth and stability of sales.
- A firm having stable sales can employ large amount of debt (high degree of leverage), because they will not face difficulty in paying back the debt.
- Similar is the situation in growth of sales. A company expected to have larger growth of sales can employ larger debt.

Cost of Capital

- Capital structure of a firm is also shaped by the cost of the capital. This means a company may employ cheaper capital.
- Usually debt is a cheaper source of funds than equity. This is generally the case even when the taxes are considered.
- The tax deductibility of the interest charges further reduces the cost of debt.

Size of the Company

- The size of the company greatly influences the availability of funds from different sources.
- A small company finds great difficulty in raising long term loans. If it is available it will be at higher rate of interest and inconvenient terms.
- A large company has a greater flexibility in designing its capital structure.
- It obtains loans at easy term and sell common shares, preference share and debentures to the public.

Marketability

- Marketability means the readiness of the investors to purchase a particular type of security in a given periods of time.
- Marketability does not influence the initial capital structure, but it is an important consideration to decide about the appropriate timing of security issues.
- If the share market is depressed, the company should not issue common share but issue debt and wait to issue common share until the share market revives.

Floatation Costs

- Floatation costs are not a very important factor influencing the capital structure of a company.
- Floatation cost are incurred only when the funds are raised.
- Generally the cost of floating a debt is less than a cost of floating an equity issue.
- This may encourage a company to issue debt than issue common shares

Numerical

- A firm has total capital of Rs. 10,00,000 which consists of 3000 ordinary share @ Rs 100 per share, RS 200,000 performance share at 10% interest rateper year and Rs. 5,00,000 debts at 12% pa. If Firm's earnings before interest and tax are Rs 2,50,000 and tax rate applicable is 30%, determine earning per share.

Solution:

- Ordinary Share = 3000 @ 100 = 300,000
- Preference Share = 2,00,000 @ 10% pa
- Debt Capital = 5,00,000 @ 12% pa

a) Firm's earining before interest and tax (EBIT) = 2,50,000
b) Interest on loan = 12% of Rs 5,00,000 = 60,000
c) Earning after interest before tax (EAIBT) = (a-b) =1,90,000
d) Tax @ 30% of EAIBT = 57,000
e) Earning after interest and Tax (EAIT) = 133,000
f) Interest (dividend) to preference share holders = 10% of 2,00,000 = 20,000
g) Dividends to Ordinary Share Holders (e-f) = 1,13,000
h) Earning per share (EPS) = 1,13,000/3000 = **37.67**

Capital Budgeting Decision

- Capital Budgeting Decision is the investment decisions of the firm.
- It may be defined as the *firms decision to invest its current funds most efficiently in long term activities in anticipation of an expected flow of future benefit* over the series of years.
- The investment decision (capital budgeting decisions of a firm) include following types of investment.
  - Addition, disposition, modification and replacements of assets in a long term basis.
  - Introducing new product
  - Expanding the business.

Importance of Capital Budgeting

Irreversible Decisions

- Most of the cases the decision made in capital budgeting are irreversible decisions.
- Once the decision taken the firm may not be in the position to revert back unless it is ready to absorb heavy losses.

Growth

- The capital budgeting decisions have long term effects on the growth.
- A wrong decision can prove disastrous for continual survival of the firm.

Large amount of funds

- The capital budgeting decisions are generally involves large amount of funds and as a result substantial portion of capital funds are blocked in the capital budgeting decisions.
- Therefore more attention is required for capital budgeting decisions otherwise the firm may suffer from the heavy capital losses in time too come.

Risk

- A long term commitment of funds may also change the risk position of the firm.
- If the adoption of the investment increases and its earnings the firm will become more risky

Complex

- Long term investment decisions are the most difficult decisions. Future events which are difficult to predict.
- It is very complex to correctly estimate the future cash flow of the investment.

Capital Budgeting Process

- Planning
- Analysis
- Selection
- Financing
- Implementation
- Review

Planning

- The planning phase of a project's capital budgeting process is concern with the investment strategy and the generation and preliminary screening of the project proposals.
- The investment strategy of the firm delineates to undertake the types of investment.
- Once a project is identified, it needs to be examined and preliminary analysis is done.

Analysis

- If the preliminary screening suggests that the project is prima facie (on the first impression) worthwhile a detailed analysis of the marketing, technical, financial, economic and geological aspect is undertaken.
- In this phase of capital budgeting focus is on gathering, preparing and summarizing relevant information about various project proposals.
- In this analysis the cost and benefits associated with the project can be defined

Selection

- Payback Period, accounting rate of return, net present value, internal rate of return and benefit cost ratio are the criteria that help to judge and select the best alternative of the project.

Financing

- Two main sources of financing of the project are the debt capital and equity capital. After selection of best project we should finance it by various sources of financing.

Implementation

- Implementation phase of a project consist of several stages like project and engineering design, negotiations and contracting, construction, training and plant commissioning.
- Delays implementation which are common can lead to substantial cost overruns.

Review

- Review phase starts after the completion of the project commissioning of the project. Performance review should be done periodically to compare actual performance with projected performance.

Investment decision criteria/ evaluation criteria/ techniques of capital budgeting

A) Non Discounted Cash Flow

- This is a traditional methods and conceptually less satisfactory because they ignore
- ➢ Time value of money
- ➢ The bigger the better (total benefit)
- ➢ Nevertheless the payback period method is a widely used in actual practice as it reflects the liquidity of the investment.
  - i) Simple Payback Period
  - ii) Discounted payback Period

- Payback period is the number of required time period to recover the initial investment.
- The discounted payback method is similar to the regular payback period except that it discounts the cash flow at the projects cost of capital.

a) Simple Payback Period

- In case of even cash flows
  - PBP = Initial Outlay /annual cash flow
- In case of uneven cash flow
  - PBP = Minimum Year + amount to recover/ cash flow during a year
- Amount to recover = investment-minimum years' cumulative cash flow

Decision =

- Accept if PBP < Maximum acceptable PBP
- Reject if PBP > Maximum acceptable PBP

Discounted Payback period

- DPBP= minimum years + unrecovered amount/ discounted cumulative Cash flow of next year (PV of CF during the year)

B) Discounted Cash Flow Criteria (Modern)

- The discounted cash flow methods are theoretically superior to the traditional methods.
- Their superiority is the use of Time value of money. They satisfy the theoretically correct appraisal method.
- ➢ Net present value/ Net Future Value/Net Annual Value
- ➢ Profitability Index or B/C ratio
- ➢ Internal Rate of Return

Net Present Value Method (NPV)

- The net present value method is the classic economic method of evaluating the investment proposal. NPV is the present value of future returns discounted at the firms' cost of capital minus the cost investment.
- In this method first the present value of the cash inflow and present value of cash outflow are computed separately. NPV is the difference between these two present values.
- NPV= CF1/(1+i)^1+CF2/(1+i)^2…….CFn/(1+i)^n-I
- Accept NPV>0
- Reject NPV<0

Profitability Index or B/C ratio

- It may be defined as the ratio of present value of future cash flows to the initial outlay.
- It is the ratio of the present value of future cash inflow at the required rate of return to the present value of cash out flow
- Profitability index (B/C ratio) = PV of future cash inflow/ PV of investment
- Accept BC ratio >=1
- Reject BCR < 1

Internal Rate of Return

- It can be defined as the breakeven interest rate which equates the present value of cash inflow with the present value of cash outflow of the investment.
- In other words rate at which NPV is zero
- IRR needs to be computed following trial and error method. In this method first discount rate is assumed present value of both the cash inflow and cash outflow is computed separately. Differences between these two present values are notes.
- According the discounted rate is adjusted in such a way that the present value of both the cash inflow and cash out flow becomes same.
- Accept IRR> MARR (Cost of Capital)
- Reject IRR < MARR

Thank You

Course Completed