

PROJECT FINANCE



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VCE Internship

1. While preparing a financial model what are the assumptions we need to take. Please list down the list of assumptions with the values, assuming the project will be set up in India.

The details of the project are given as follows

|  |  |  |
| --- | --- | --- |
| PROJECT DETAILS | | |
| Size in Sq. Ft | 3000 | 10.35 |
| Equity | 30% | 3.11 |
| Debt | 70% | 7.25 |
| Debt Service Reserve (DSR) | 0.25 yrs. |  |

In the project details table,

* The rule of Equity + Debt = 1 is always applicable.
* The total cost of the project in millions of Rupees is 10.35
* The equity value of the total cost of the project in millions is 3.11
* Likewise, debt value of the total cost of the project in millions is 7.25

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ASSUMPTIONS | | | | | |
| Inflation | 7.00% | Debt rate | 10.0% | USD/INR | 70.00 |
| DDT | 0.00% | Moratorium | 0.25 yrs. | Discount | 10% |
| Tax Holiday | 0 yrs. | Debt tenure | 10.0 yrs. | Construction | 0.25 yrs. |
| Tax rate | 25.00% | Depreciation | 7.00% | MAT | 18.5% |

In the table, we can see that the details of the assumption are specified.

It is always essential to assume the financial parameters of the project based on the past performance of any project to create a financial model that estimates the profitability of the project.

* The rate of inflation and depreciation is assumed to be fixed by 7% for estimating the operating expenses and assets for the following term period.
* There is no Division Distribution Tax is avail because there is no dividend to be paid as a tax by the investors which is exempted.
* Usually, tax holidays are available to reduce Sales tax, there is no tax holiday is provided.
* The tax rate is assumed to be 25% for the project.
* The Debt rate is assumed to be 10% for the project until 40 repayment periods.
* The Exchange rate for the currency is assumed to be Rs.70 per USD for a decade.
* Construction is for a quarter in a year i.e. COD period from today.
* The Discount of 10% remains constant for the upcoming decade.
* Moratorium period is when a particular period is exempted to repay the debt i.e. June 2020 period in debt sheet.
* Since the debt repayment is for 40 periods and then it is repaid in every quarter so the debt tenure is 10 years.
* Minimum Alternative Tax is 18.5% which is provided to the Government to facilitate the company which provides zero-tax to pay the MAT. Since we already assumed the tax rate is 25% so the project does not require MAT.
* In the cost, revenue and debt sheet some parameters are assumed like the rates of the expenses which are fixed, average occupancy, rent appreciation, deposit, rent per month, interest on the rental deposit.

2. Explain the functions of cost, Revenue and Debt sheet of a financial model?

# ***COST FUNCTION***

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Cost** |  |  |  |
|  | Rate (Rs./sq.ft) | **3000** | **% of Project Cost** |
| Flat | 2500 | 75,00,000 | 72.5% |
| Interior Decoration | 125 | 3,75,000 | 3.6% |
| Furniture | 250 | 7,50,000 | 7.2% |
| Fixtures | 10 | 30,000 | 0.3% |
| Building Registration | 10 | 30,000 | 0.3% |
|  |  |  |  |
| Broker Fee | 75 | 2,25,000 | 2.2% |
| Stamp Duty | 250 | 7,50,000 | 7.2% |
| Fund Raising Fee | 25 | 75,000 | 0.7% |
| Transfer of Deed Fee | 50 | 1,50,000 | 1.4% |
|  |  |  |  |
| Interest During Moratorium | 120 | 3,60,000 | 3.5% |
| Loan and Documentation Fee | 25 | 75,000 | 0.7% |
|  |  |  |  |
| CSR, HSE, Training | 10 | 30,000 | 0.3% |
|  |  |  |  |
|  |  |  |  |
| **Total Project Cost** |  | **1,03,50,000** |  |

* In the above Cost table, we notice there are 12 different types of expenses are mentioned in the 1st Column.
* There is a rate that is allocated for each type of cost per square feet (mentioned in 2nd column in blue).
* The following are the cost of 3000 sq. feet of the expenses which are mentioned in the 3rd Column.
* Flat = = 7500000
* Interior Decoration = = 375000
* Furniture = = 750000
* Fixtures = = 30000
* Building Registration = = 30000
* Broker Fee = = 225000
* Stamp Duty = = 750000
* Fund Raising Fee = = 75000
* Transfer of Deed Fee = = 150000
* Interest during Moratorium = = 360000
* Loan and documentation fee = = 75000
* CSR, HSE, Training = = 30000

Total Project Cost = = 10350000

* Percent of the cost column (4th Column) refers to the percentage it contributes to the Total Project Cost

For Example, Flat = = 72.46%

Likewise, it follows for all the costs.

# Monthly Costs

|  |  |  |  |
| --- | --- | --- | --- |
| **O & M Cost (Monthly Breakdown)** |  | **3000** |  |
| Building Maintenance | 15 | 45,000 |  |
| Utilities (Electric + Water + Internet) | 4 | 12,000 |  |
| Salary (Maid + Accountant) | 4 | 12,000 |  |
| Plumber + Electrician + Misc. etc. | 3 | 9,000 |  |
| Insurance (0.35 %) | 10 | 30,000 |  |
|  |  |  |  |
| **Total O&M Cost (per year)** |  | **9,66,000** |  |

* In the above Cost table, each type of expense is on every month (except Insurance which is yearly basis) whereas the earlier cost table is yearly.
* The 2nd Column is the cost of expenses per square feet.
* The third column refers to the costs of the expenses for the size 3000 square feet the following are the costs mentioned

Building Maintenance = = **45000**

Utilities = = **12000**

Salary = = **12000**

Plumber + Electrician + Miscellaneous etc. = = **9000**

Insurance = = **30000**

**Total O&M Cost (per year) = = 966000**

# ***REVENUE FUNCTION***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Revenue Parameters** |  |  |  |  |
| City | Mumbai |  |  |  |
| Size (Sq. feet) | 3,000.00 |  |  |  |
| Avg. Occupancy (Months) | 10.00 |  |  |  |
| Rent (Rupees./Month) | 2,50,000.00 |  |  |  |
| Deposit (Months) | 4.00 | *(OR One-Third of Annual Rent)* | | |
| Rent Appreciation | 5% |  |  |  |
| Interest on Rental Deposit | 8% |  |  |  |

The Revenue parameters are assumed to estimate the revenues that will be earned in the future period.

# Revenue Calculation for a year

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year---> | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Rent (Million INR) | 2.500 | 2.625 | 2.756 | 2.894 | 3.039 | 3.191 | 3.350 |
| Interest on Deposit | 0.067 | 0.070 | 0.074 | 0.077 | 0.081 | 0.085 | 0.089 |
| Revenue (million INR) | 2.567 | 2.695 | 2.830 | 2.971 | 3.120 | 3.276 | 3.440 |

Note: There are 25 periods of revenue to be estimated and only the first 7 periods are mentioned here for knowledge purpose.

In the above table, the first row refers to the period in a year which begins in 2021 as the first period.

We notice that Rent for the year (in the 2nd Row) = = (250000 × 10) = 2.5 Million in the 1st period

In the case of the 2nd period, we calculate the rent for the year (2nd period) = = 2.5(1+0.05) = 2.625 Million

Likewise, we calculate the 3rd period to the 25th period using the formula mentioned above.

The following is the way to calculate Interest on Deposit,

Interest on deposit for period 1 = = = 0.06667

Which is similar to PNR of Simple Interest formula.

Likewise, we calculate it for periods 2 to 25.

Revenue for the 1st period = = (2.5 + 0.0667) = 2.567

Similarly, we calculate for the other periods.

# ***DEBT FUNCTION***

|  |  |
| --- | --- |
| Debt Amount | 7.25 |
| Debt rate | 10.00% |
| Moratorium | 0.25 years |
| Term | 10.0 years |
| Payment Periods | 40 |
| *One period is one quarter* | |
| COD | 6-Jun-2020 |
| First Quarter End | 4-Sep-2020 |

The debt parameters are assumed as above.

# Debt Schedule for the periods

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Period No.** | **Date (EoQ)** | **Int. Pmt.** | **Prin. Pmt.** | **Total Pmt.** | **Prin. Balance** |
| 0 | 7-Jun-2020 | 0.18113 | 0.00000 | 0.18113 | 7.25000 |
| 1 | 5-Sep-2020 | 0.18113 | 0.10749 | 0.28861 | 7.14251 |
| 2 | 4-Dec-2020 | 0.17844 | 0.11018 | 0.28861 | 7.03234 |
| 3 | 4-Mar-2021 | 0.17568 | 0.11293 | 0.28861 | 6.91941 |
| 4 | 2-Jun-2021 | 0.17286 | 0.11575 | 0.28861 | 6.80365 |
| 5 | 31-Aug-2021 | 0.16997 | 0.11865 | 0.28861 | 6.68501 |
| 6 | 29-Nov-2021 | 0.16700 | 0.12161 | 0.28861 | 6.56339 |
| 7 | 27-Feb-2022 | 0.16396 | 0.12465 | 0.28861 | 6.43874 |
| 8 | 28-May-2022 | 0.16084 | 0.12777 | 0.28861 | 6.31097 |
| 9 | 26-Aug-2022 | 0.15765 | 0.13096 | 0.28861 | 6.18000 |
| 10 | 24-Nov-2022 | 0.15438 | 0.13424 | 0.28861 | 6.04577 |

Note: There are 40 periods in the debt schedule

* We can Calculate Interest payment and the principal amount of payment using the debt rate, repayment periods and debt amount and the total period.
* In period 0, the interest payment = 0.18113 whereas the principal amount of payment is 0 because the interest payment is paid in the moratorium period so there is no principal amount of payment in that payment period.
* In period 1, the interest payment = 0.18113 and the principal amount of payment = 0.10749.
* Similarly, until the period 40 is calculated
* To calculate, ***Total payment*** =
* In period 0, Total payment = (0.18113 + 0) = 0.18113
* In period 1. Total payment = (0.18113 + 0.10749) = 0.28861
* Calculate until 40th period.
* To calculate, ***Principal Balance =***
* In the period 0, Principal balance = (7.25 – 0) = 7.25 (i.e., the initial debt rate is the previous principal balance - there is no principal amount in the period 0 because it is the moratorium period)
* In the period 1, Principal balance = (7.25 – 0.10749) = 7.14251
* Similarly, we could calculate until the last period.

# Debt Schedule for a year

|  |  |  |  |
| --- | --- | --- | --- |
| **Date (EoQ)** | **Int. Pmt.** | **Prin. Pmt.** | **Total Pmt.** |
| 30-Jun-2021 | 0.708 | 0.45 | 1.154 |
| 30-Jun-2022 | 0.662 | 0.49 | 1.154 |
| 30-Jun-2023 | 0.611 | 0.54 | 1.154 |
| 29-Jun-2024 | 0.554 | 0.60 | 1.154 |
| 29-Jun-2025 | 0.492 | 0.66 | 1.154 |
| 29-Jun-2026 | 0.423 | 0.73 | 1.154 |
| 29-Jun-2027 | 0.347 | 0.81 | 1.154 |
| 28-Jun-2028 | 0.263 | 0.89 | 1.154 |
| 28-Jun-2029 | 0.171 | 0.98 | 1.154 |
| 28-Jun-2030 | 0.069 | 1.09 | 1.154 |
| **Total** | **4.300** | **7.25** | **11.545** |

* The above table is the interest payment and print payment and total payment for a year.

Since the payment period is for 40 terms i.e., quarters in a year, so the debt is repaid in 10 years from 2020 to 2030.

* Calculating Interest payment for the year,
* The Interest payment for the year 2021 = (Sum of the interest payment from period 1 to 4) = (0.18113+0.17844+0.17568+0.17286) = 0.708
* The Interest payment for the year 2022 = (Sum of the interest payment from period 5 to 8).
* Similarly, we calculate until the end period.
* Calculating Principal amount of payment for the year,
* The Principal amount payment for the year 2021 = (Sum of the principal amount of payment from period 1 to 4) = (0.10749+0.11018+0.11293+0.11575) = 0.446
* The Principal amount payment for the year 2022 = (Sum of the principal amount of payment from period 5 to 8)
* Similarly, we calculate until 2030.
* Calculating Total payment,

***Total payment =***

* Total payment for the year 2021 = (0.708+0.446) = 1.154
* Likewise, we calculate the balance total payment for the following years.

1. Explain in detail the various steps involved (with the importance) in the fin flows sheet. Why and what the bank needs to check before financing the project.

The details below are essential assumptions to estimate the financial cash flow

|  |  |  |
| --- | --- | --- |
| PROJECT DETAILS | | |
| Size in Sq. Ft | 3000 | 10.35 |
| Equity | 30% | 3.11 |
| Debt | 70% | 7.25 |
| Debt Service Reserve (DSR) | 0.25 yrs. |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ASSUMPTIONS | | | | | |
| Inflation | 7.00% | Debt rate | 10.0% | USD/INR | 70.00 |
| DDT | 0.00% | Moratorium | 0.25 yrs. | Discount | 10% |
| Tax Holiday | 0 years | Debt tenure | 10.0 years | Construction | 0.25 yrs. |
| Tax rate | 25.00% | Depreciation | 7.00% | MAT | 18.5% |

# Financial Cash Flows Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year ------> |  | **Today** | **COD** | **1** | **2** |
| Date ---> |  | 8-Mar-2020 | 7-Jun-2020 | 30-Jun-2021 | 30-Jun-2022 |
| **Revenue Collection** | | | |  |  |
| Rent |  |  |  | 2.500 | 2.625 |
| Interest on Deposit |  |  |  | 0.067 | 0.070 |
| Other Sources |  |  |  | 0.000 | 0.000 |
| **Total Revenue (million INR)** |  |  |  | 2.567 | 2.695 |
| **Operating expenses** | | | |  |  |
| Building Maintenance |  |  |  | 0.540 | 0.578 |
| Utilities (Electric + Water + Internet) | |  |  | 0.144 | 0.154 |
| Salary (Maid + Accountant) |  |  |  | 0.144 | 0.154 |
| Plumber + Electrician + Misc. etc. | |  |  | 0.108 | 0.116 |
| Insurance (0.35 %) |  |  |  | 0.030 | 0.032 |
| **Total Operating Expenses** |  |  |  | 0.966 | 1.034 |
|  |  |  |  |  |  |
| **EBITDA** |  |  |  | 1.601 | 1.661 |
| **Non-Operating Expenses** | | | |  |  |
| Interest payment |  |  |  | -0.708 | -0.662 |
| Depreciation |  |  |  | -0.525 | -0.488 |
| **Total Non-Operating Expenses** | |  |  | -1.233 | -1.150 |
| Income before taxes |  |  |  | 0.368 | 0.511 |
| Tax |  |  |  | -0.092 | -0.128 |
| **Net Income** |  |  |  | 0.276 | 0.384 |
| **Cash Flow** | | | |  |  |
| Equity |  | -3.11 |  | 0.000 | 0.000 |
| Net Income |  |  |  | 0.276 | 0.384 |
| Add back depreciation |  |  |  | 0.525 | 0.488 |
| Principal Payment (-) |  |  |  | -0.446 | -0.493 |
| CSR (0.50 % of Net Income) (-) | |  |  | -0.004 | -0.004 |
| Final Project Cash flow (Equity) | | -3.11 | 0.0 | 0.350 | 0.375 |
| IRR 🡪 |  |  | 0.1 |  |  |
| DSCR 🡪 |  |  |  | 1.70 | 1.76 |
|  |  |  |  |  |  |
| Final Project Cash flow |  | -10.35 | 0.0 | 0.350 | 0.375 |

Note: There are 25 periods of financial cash flows that are to be estimated since knowing how to calculate for 2 periods is enough to calculate the rest of the period.

1. We notice that Rent for the year = = (250000 × 10) = 2.5 Million in the 1st period

In the case of the 2nd period, we calculate the rent for the year = = 2.5(1+0.05) = 2.625 Million

1. Interest on deposit for period 1 = = = 0.06667

Interest on deposit for period 2 = = = 0.070

1. Total Revenue for the 1st period = = (2.5 + 0.0667) = 2.567

Similarly, we calculate for the period 2 and other periods.

1. Building Maintenance for the 1st period = = **0.540 in Million Rs.**

Building Maintenance for the 2nd period = = [0.540×(1+0.07)] = 0.578 in Million Rs.

1. Utilities for the 1st period = = 0.144 in Million Rs.

Utilities for the 2nd period = = [0.144 × (1+0.07)] = 0.154 in Million Rs.

1. Salaries for the 1st period = = 0.144 in Million Rs.

Salaries for the 2nd period = = [0.144 × (1+0.07)] = 0.154 in Million Rs.

1. Plumber + Electrician + Miscellaneous etc. for the 1st period = = 0.108 in Million Rs.

Plumber + Electrician + Miscellaneous etc. for the 2nd period = = 0.116 in Million Rs.

1. Insurance for the 1st period = = **30000 Rs.**

Insurance for the 2nd period = = (30000×(1+0.07)) = 32,100 Rs.

1. Total operating Expenses for period 1 = (0.540+0.144+0.144+0.108+0.030) = 0.966 in Million Rs.

Similarly, we calculate for period 2 and other periods.

1. EBITDA for the period = (Total Revenue – Total Operating Expenses)

EBITDA for period 1 = (2.567 – 0.966) = 1.601 in Million Rs.

1. The Interest payment for period 1 = -(Sum of the interest payment from period 1 to 4) = -(0.18113+0.17844+0.17568+0.17286) = -0.708 Million Rs.

The Interest payment for period 2 = -(Sum of the interest payment from period 5 to 8) = -0.662 million Rs.

1. Depreciation for period 1 = -(Flat of 3000 sq. feet × Depreciation rate) = -0.525 Million Rs.

Depreciation for period 2 = - = -(0.525 – (0.525 × 0.07)) = -0.488 Million Rs.

1. Total Non-Operating Expenses for a period = - (Interest payment for that period × Depreciation for that period)

Total Non-Operating Expenses for period 1 = -(0.708 + 0.525) = -1.233 Million Rs.

Similarly, we calculate for the other following periods.

1. Income before Tax = (EBITDA + Total Non-Operating Expenses)

Income before Tax for period 1 = (1.601 – 1.233) = 0.368 Million Rs.

1. Tax = - (Tax rate × Income before Tax)

Tax for period 1 = -(0.368 × 0.25) =- 0.092 Million Rs.

1. Net Income = (Income before Tax + Tax)

Net Income for period 1 = (0.368 + 0.092) = 0.276 Million Rs.

1. Equity = -3.11 Million Rs. for only today and exempted from other periods.
2. Add back Depreciation = (- of depreciation) since depreciation is already (in –ve) so Add Back Depreciation is positive.
3. Principal amount payment for period 1 = -(Sum of the principal amount of payment from period 1 to 4 in debt schedule) = -(0.10749+0.11018+0.11293+0.11575) = -0.446

Principal amount period for period2 = -(Sum of the principal amount of payment from period 5 to 8 in debt schedule)

1. CSR (50% of Net Income) = - [(Add back Depreciation + Net Income) ×0.5]

CSR for period 1 = -(0.525+0.276) × 0.5 = -0.004

Note: For Interest payment, Depreciation, Total Non-Operating Expenses, Tax, Equity, Principal payment we denote it Negatively.

1. Final Project Cash flow(equity) = Sum of all possible cash flows = -3.11 Million Rs. for today
2. Final Project Cash flow = Sum of the cash flows = -10.35 Million Rs. for today

Note: from period 1 until the last period, the Final Project Cash flow = Final Equity Cash flow

1. IRR = 0.693 which implies that at 6.93% of interest rate cause Net Present Value to be 0.
2. DSCR = -

This formula is applied only if Interest payment

Conclusion:

DSCR for period 1 = 1.70

**Debt Service Coverage Ratio needs to be > 1 to obtain debt as it means that the project may able to repay the debt.**

**When the project is funded only by equity, then project IRR = Equity IRR.**

**In case, the project is only funded by the debt, equity IRR simply does not exist.**

For periods 3 to last period can be calculated using the related formula used for periods 1 and 2.

|  |  |
| --- | --- |
| **RESULTS** | |
| Equity IRR | 20.00% |
| Min DSCR | 1.70 |
| Average DSCR | 2.04 |
| Project IRR | 8.43% |
|  |  |

The above-given table of details is assumed. The Result table is estimated by the financial cash flows table. In the Result Table,

***Equity IRR*** ***> Project IRR which indicates that the project is profitable. This also indicates that the project is funded by both debt and equity.***

Minimum DSCR is 1.70 which is from period 1 i.e., from 2021 and the average DSCR is 2.04.

It refers that project cash flows the ability to repay the debt.

*Banks need to check Past Years Financial Statements, Memorandum of Agreement, Articles of Agreement, Business Bank Statement, Current Debt Statement from other banks, Project Cash Flow Report, Project Feasibility Report, Project Agreements, Income Source and Project Asset Details, Company and Management Profile to find that whether the company could able to repay the debt-financed by Bank.*

**------------------------------------------------------------THE END--------------------------------------------------------------**