



Debt Restructuring of Distressed Indian Construction Projects

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Abstract: A huge number of projects have undergone distress due to the slowdown in Indian economy. As a result the Indian banking system has been increased in NPA (Non-performing Assets) and restructured real estate projects during the recent years. With degradation in value the distressed assets don't produce any profit in economy. Financial distress is a trending topic these days in finance and the project's health is very important for investors as well as management. Investors deposit money in those projects which are financially healthy as risk of default is minimized for them, while management must be able to identify causes of distress which can be controlled by taking different measures. This paper deals with the elements of project financial distress as its major signs and sources as well as it suggests ways to eliminate the consequences. This result provides an effective way to resolve financial distress by restructuring it. Restructuring a project is always a better option in comparison with liquidation if the project has undergone distress. This paper also shows that restructuring can be looked at in three broad categories: event oriented process oriented and technical oriented. This paper describes each category: their identification in live case study project and elimination process. I integrate the theory of financial distress into a real estate project initial model and examine a financial distressed phenomenon from capital market perspective and have made a restructured financial model based on different restructuring approaches- Additional loan, Debt Curtailment, Equity share, Debt-Equity tradeoff, Selling of shares and discussing about the profitability for each approach considering their pessimistic and optimistic value and the risk factors involved. Comparing all the approaches this paper suggests about the most suitable model that can be adopted for maximum profitability.

Index Terms - Debt Restructuring, Financial distress, NPA, Project financing

I. INTRODUCTION

Financial distress is defined as a low cash flow state in which a company incurs losses without being insolvent (Purnanandam, 2008). Construction project in distress is a situation in project life cycle where completion of the project within previous time and cost is in doubt. Financial distress generally involves two characters – a debtor and a creditor. Hypothetically every enterprise including all equity firms are prone to financial distress. Specially Real Estate Firms having high financial leverage (Debt or loan is much higher than equity) are more prone to distress due to any downturn in market (Opler & Titman, 1994). There are two ways to resolve financial distress – Restructuring and Liquidation. Restructuring creates a plan to reorganize its debt and eventually restore its financial health but liquidation leads to sell the assets to recover debt. Debt restructuring is the process of reorganizing the whole debt capital of the company. It involves reshuffling of the balance sheet items as it contains the debt obligations of the company (Hidayat). There can be two parts of Debt restructuring – CDR (Corporate Debt Restructuring) and SDR (Strategic Debt Restructuring). So restructuring could save a lot of investment and bring confidence in construction industry.

II. NEED OF THE RESEARCH

Indian construction market is going through a severe distress condition –Amrapali has lagging behind 42000 homes in 16 projects costing around 7714 crore, Unitech has a figure of 65000 units over 74 projects costing around 14000 crore (“NBCC to acquire”, 2019). Jaypee is lagging behind 24000 units with a cost of 6500 crore. As per the data of JLL total number of stalled residential units are 4.54 lakhs (Sethi, 2019).The overdue loan of this distressed projects has increased the figure of NPA (Non-Performing Asset) in banking sectors affecting negatively in the economic condition of the country. As of March 31, 2018 the total volume of gross NPAs in the economy stands at Rs 10.35lakh crore. About 85% are from fresh loans and advances and public sector banks. (Paul, 2018). So restructuring these distressed projects can give a relief to the burden on the economy of any country.

III. AIM OF RESARCH

The aim of the research is to suggest a framework to restructure a distressed project using the debt restructuring procedure.

IV. OBJECTIVES

1. To Define financial distress its dimension and potential source of a distressed project.
2. To Study different debt restructuring strategies and incorporate risks factors in each strategies.
3. To Propose a framework to Restructure the project with the alternatives in new financial feasibility to achieve maximum profitability
4. To Evaluate the restructuring strategies depending on the varying market conditions – pessimistic, optimistic and most likely values (sensitivity analysis)

V. RESEARCH METHODOLOGY

To meet the research objectives the following research steps have been followed:

Step 1- Study the downward spiral of financial distress and categorize it on the basis of factors from literature and assign the reasons for the factors

Step 2- Study the different debt restructuring strategies used to restructure projects and their application in the stages of financial distress to remove the distress factors. A case study will be studied on the basis of its initial and present financial plan to find the distress factors and assign the potential strategies that can be applied

Step 3- Create a framework for the restructuring strategies to be applied on any project. Create financial plans (DCF model) for the project to revive from distress on the basis of selected restructuring strategies. To compare the strategies based on the profitability the NPV and IRR from the DCF model will be studied.

Step 4- A probabilistic study – sensitivity analysis would be done as the parameters considered for the financial plan can vary. Probabilistic Model will be introduced and the results will be compared after simulation on the basis of profitability.

VI. LITERATURE REVIEW

The literature review elaborates the keywords found in the research –Financial distress, Debt restructuring, NPA (Non-Performing Assets), Bankruptcy and Insolvency proceedings. The main focus of the research was to create and methodology to restructure a distressed project, hence relevant literature from key journals, publications, textbooks, online newspapers and websites are referred.

6.1 Distress Condition

A huge number of projects are either plunged into financial distress at preliminary phases, construction phases or operational phases. The different factors of financial distress – event oriented, process oriented and technical oriented factors during the lifecycle of a project (Mawutor, 2014).

6.1.1 Event oriented distress

It can be described as the failure of the borrower to meet its financial commitments. The Factors are Loan default, Non-payment, Wrong governance structure etc.

6.1.2 Process oriented financial distress

The Process oriented financial distress arise mainly in execution and operational phases of the project. These financial distresses are visible by the failure to meet the projected cash flow. The factors area Optimal capital Mix, Credit and Political risk, Inability of the financier to extend the credit of the project

6.1.3 Technical oriented financial distress

Technical oriented financial distress is caused by the technical macroeconomic factors. These factors are not specific to any single project, but are same for each one of the project in the sector. The factors are unexpected hike in interest rates, Currency transfer risk etc.

The occurrence of negative cash flow and negative NPV as signs of potential project distress. Negative cash flow or cash deficit can happen in the project anytime, Raising operating costs are common explanations for this phenomenon (Pustylnick, Restructuring the Financial characteristics of projects in Financial distress, Global Journal of Business Research, Vol. 6, No. 2, 2012).

Forecasting data sometimes cannot be the same – As a case of Eurotunnel the project went through distress. Wrong governance structure and sale projection (Annual passengers were actually 1/3 of the figure projected (21 million)).The project took approximately 20% longer than planned and came in 80% over budget (Vilanova, 2004).

The financial distress can be divided into four categories: Early performance decline, economic failure, technical insolvency, and default. If a company defaults on its debt and the decision not to liquidate is made, it can go through the legal process of bankruptcy; otherwise, financial restructuring may be undertaken out of court. It has been described in the figure below

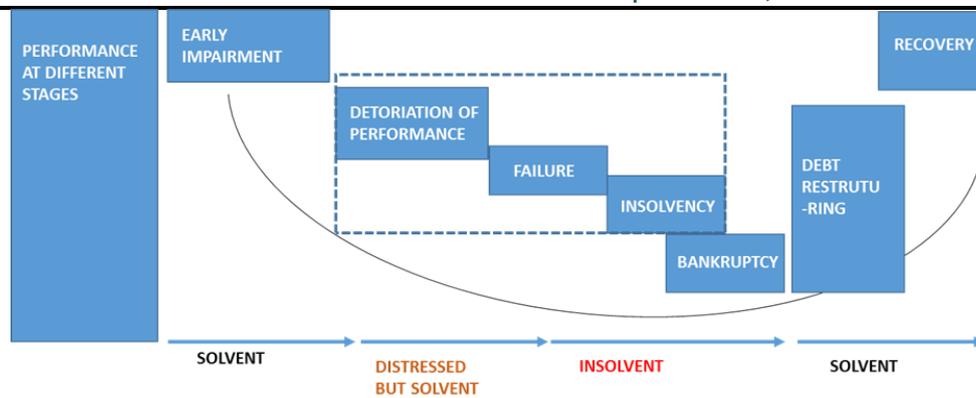


Figure 6.1.1: Downward spiral of a project

6.2 NPA (Non-Performing Assets)

As per RBI guideline 2013 NPA is an asset that stop generating income or interest is overdue for a long period. It has been classified as – Special Mention account (Due of loan for up to 90 days), Substandard Asset (Due of loan for 90 days to 12 months), Doubtful asset (Due of loan for over 12 months) (“Understanding Non-performing Assets”, 2016). The way to revive the NPA is restructuring the firm or project those have undergone distress.

6.3 Debt Restructuring

Under the debt restructuring system lenders and borrowers come together to formulate such plans that will aid the distressed corporate in getting a way out of its problems otherwise the stressed assets would be lost. The restructuring can have three categories:

Corporate Debt restructuring (CDR), Strategic Debt Restructuring (SDR) and Selling of Shares. CDR includes the reduction of interest rates or the increment in the period on interest payment as was introduced in August 23, 2001 by RBI. It can be divided in two parts – Additional Loan (Taking additional Loan) and Debt curtailment (Reducing interest rates). SDR includes banking sectors converting their loans to equity and was announced by RBI in 2015. It includes Equity share (Getting some equity holders) (Debt equity tradeoff (Converting loans to equity)). Selling of shares includes selling of some assets to incur the cash flow for recovery.

In a study by Kaur (2017) the effectiveness of CDR has been shown by comparing the post-restructuring performance of the firms with their pre restructuring performance. According to Bowman et al. (1999), although a restructuring exercise may have immediate intermediate effects in the form of increased strategic focus, greater economies, cash flows, greater employee satisfaction but ultimate effects are traceable only after a long period of time. Gopakumar (2018) in his study has mentioned about the drawbacks of CDR (Corporate Debt Restructuring) scheme as the firms extend the period of loan infinitely.

6.4 Project Financing

Esty (2004) defines project finance as the creation of a legally independent project company financed with equity from one or more sponsoring firms and nonrecourse debt for the purpose of investing in a capital asset. Garcia (2015) in describing project finance has described about the SPV (Special Purpose Vehicle) that the sponsors create independent of the mother firm to draw funds or loans from banks. Project financing can remove the distress factors in the project all the risks – credit risks, financing risks, market risks, environmental risks, legal and political risks if they are counted in the design strategy.

Indian Government has approved a window of 25000 crore as stress relief fund as they can be used in distress projects. The projects can be eligible for the fund if it has positive net worth and unit size should not increase 200 sqm.

VII. PROPOSAL OF FRAMEWORK

From various literatures it has been found that to restructure a project under distress the steps that should be followed are Understand, Audit, Negotiation, Restart and Execution. A detail framework has been prepared to restructure a distressed project. The steps are

Step 1 – The project should be analyzed or due diligence report has to be prepared on the basis of

- The overdue loan or debt
- Total no of units left unsold
- Cost for the unconstructed units

Step 2 – The financial statement of the company or project has to be checked, the parameters are

- Valuation of assets
- DSCR (Debt-Service coverage ratio)
- Break even analysis
- Gross Profit margin

Step 3 – The DCF model is prepared for all the restructuring strategies and the NPV and IRR are calculated with the risks involved in those strategies. Moratorium period for the preparation of this plan is 180 days

Step 4 – 75% of the creditors should agree upon the repayment plan for any restructuring strategy otherwise the project should go for liquidation.

VIII. CASE STUDY

A Case study was selected where the project has undergone financial distress and project has to be restructured. The project was started on Nov-2010 and was scheduled for completion by April 2013, with a sale prediction of 100% of the inventory. This was a very aggressive business strategy and was not feasible. The land cost was about 87 crore and the construction estimation was Rs. 620 crore (reduced from

Conditions	Loan	Cash outflow	Cash Inflow	IRR & NPV	Risk factor
<ul style="list-style-type: none"> Project started from Nov, 2010 70% sold out property Selling of flats started from May, 2014 	<ul style="list-style-type: none"> 300 crores loan @15% per year EMI at the tenure of 12 months. 200 crores loan have been repaid and 100 crores yet to be repaid 	<ul style="list-style-type: none"> Land cost Proposed Project interim construction cost EMI for loan 	<ul style="list-style-type: none"> Sale structure: Prepared 5%, 20%, 5%, 5%, 10%, 5%, 10%, 5%, 5%, 5%, 10%, 5%, 5% in monthly basis Revenue from buyers: <ul style="list-style-type: none"> 2 types of 2BHK 2 types of 3BHK 1 type of 4BHK 	<ul style="list-style-type: none"> IRR is 3.24% NPV is -51 cr 	<ul style="list-style-type: none"> Selling off flats started late. With loan builder will end up the project in profit and cannot be able to make much revenue.

an estimate of about 740 crore). The total investment was around 508 crores. But due to liquidity crunch the project was paused. The main reasons of the distress found were

- The sale was dependent on the metro which was to come up by 2013 but was unexpectedly delayed, this was the main attracting force for development in that area. As the metro project was delayed the customers lost interest and the project had gone under distress
- Unexpected and unrealistic sale conditions
- Change of contractor as the payment was not done to the previous contractor properly
- Funds were transferred to buy lands

Distress factors found in the project were

- Event oriented (Agency conflict, Non-payment of loan, Huge cost overrun)
- Process oriented (Optimal capital mix, Inability of the financier to extend the project)
- Technical oriented (Unexpected sale/market condition)

There are five types of flats in the project distribute in the 22 towers. The typology of the flats are:

T1: 2BHK flat of 900 sqft, T2: 2 BHK flat 1150 sqft, T3: 3 BHK flat 1350 sqft, T4:3 BHK flat 1550 sqft, T5: 4 BHK flat 1650 sqft

To get the cash flow from different sale condition the typology of flats has been listed:

- Flats sold = (Flats in Possession + Flats with Payment left)
- Flats left = (Flats left to sell + Unconstructed flats)

Table 8.1: Sale of flats

Type	No. of flats	Flats sold	Possession	Payment left	Flats left to sell	Flats unconstructed
T1	945	661	463	198	91	192
T2	493	345	242	104	48	100
T3	755	528	370	158	73	154
T4	503	352	262	88	49	102
T5	199	138	104	35	19	43

Out of 2895 flats 2024 flats are sold, 280 left unsold and 591 unconstructed and unsold, payment (25%) left from 583 flats.

Initial and present cash flow data has been studied and analyzed on the basis of financial parameters. It has been represented below

Table 8.2: Initial Project financial Plan

Table 8.3: Present project Financial Plan

Now the overdue Loan is 100 crore and project present NPV is -51 cr and IRR in 3.24% with a discount rate of 5% and from the data collected on site 192.05 crore is extra needed for constructing the remaining flats.

Now as the metro project has come up the demand may increase for the project and flats can be sold to the customers. On the basis of the sale a cash flow has been prepared for the inflow of cash with the consideration below

Table 8.4: Considerations for Cash inflow

Item	Consideration
Base Sale price	<ul style="list-style-type: none"> 3800 Rs/Sqft for Unconstructed flats 4300 Rs/ Sqft for Constructed and unsold flats For Sold flats(25% payment left) the same as previous
Unit Sale Structure	<ul style="list-style-type: none"> 5%, 20%, 5%, 5%, 10%, 5%, 10%, 5%, 5%, 5%, 10%, 5%, 5% in monthly basis as previous
Payment Schedule	<ul style="list-style-type: none"> 9%, 7%, 9%, 9%, 13%, 7%, 7%, 7%, 9%, 7%, 8%, 8% as per construction linked plan. 5%,5%,5%,5%,5% for the Sold flats whose 25% payment was left
Loan overdue	<ul style="list-style-type: none"> 100 crores
Cash flow needed for unconstructed flats	<ul style="list-style-type: none"> 192.05 crores

Now valuation of the assets has been done for the analysis of the value of the distressed project. Capital value of unsold and under constructed flats has taken lower than those constructed flats

Table 8.5: Valuation of assets

Type	Area(sqft)	Cap value (Rs/sqft)	Unsold and Constructed flats	Sale price (Crore)	Cap value (Rs/sqft)	Unsold and Unconstructed flats	Price (Crore)
T1	900	3800	91	₹ 31.23	2200	193	₹ 38.15
T2	1150	3800	48	₹ 20.83	2200	100	₹ 25.39
T3	1350	3800	73	₹ 37.42	2200	154	₹ 45.76
T4	1550	3800	49	₹ 28.64	2200	102	₹ 34.91
T5	1650	3800	19	₹ 11.95	2200	42	₹ 15.22
				₹ 130.06			₹ 159.43
Total							₹ 289.49

So the stressed assets value can be considered to be 290 crore approx. Now the repayment plan with DCF model has been prepared for different restructuring strategies.

8.1 Restructuring with Additional Loan

- Land Cost: Rs.87crores already paid
- Remaining flats to be sold by May, 2020 additional 6 months from the date of completion.
- Total remaining cost estimated for remaining works (including consultant's fees and organizational charges): Rs.192.05 crores
- Construction linked plan adopted for the sale process

Conditions	Loan	Cash outflow	Cash Inflow	IRR & NPV	Risk factor
<ul style="list-style-type: none"> Project started from Nov, 2010 Project supposed to be end on April 2013 100% sold out property 	<ul style="list-style-type: none"> YES 300 crores loan 15% interest rate per annum 	<ul style="list-style-type: none"> Land cost Proposed Project interim construction cost 	<ul style="list-style-type: none"> Sale structure: Prepared 5%, 20%, 5%, 5%, 10%, 5%, 10%, 5%, 5%, 5%, 10%, 5% in monthly basis Revenue from buyers: <ul style="list-style-type: none"> 2 types of 2BHK 2 types of 3BHK 1 type of 4BHK 	<ul style="list-style-type: none"> IRR is 15% NPV is 81 	<ul style="list-style-type: none"> Project inflow might not be coming the way it has been thought. Taking loan of 300 crores is high risky

- 18 months' duration assumed for the construction i.e. from June,2018 to November, 2019

- Basic rate per square feet – Rs 3800(@10% less from current market price.)

- Rs 100 crores remaining debt @ 15% per annum, an additional loan of Rs. 80 crores taken @ 12% interest paid within 16 months.
- As stressed asset's valuation was 290 crore and NPV is -51 cr. So the value will be $(290-51) = 239$ crore, on which 75% loan can be taken, but 100 crore loan is already overdue. So additional loan of approx. 80 crore can be taken.

8.1.1: Table for the cash flow of Additional loan

CASH FLOW AS PER CASE 1 - ADDITIONAL LOAN																						
Period	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20
Construction cost outflow	-₹ 3.28	-₹ 5.76	-₹ 8.45	-₹ 10.66	-₹ 14.48	-₹ 17.87	-₹ 18.11	-₹ 18.80	-₹ 18.90	-₹ 17.75	-₹ 14.86	-₹ 9.84	-₹ 9.10	-₹ 7.27	-₹ 7.04	-₹ 4.27	-₹ 3.51					
Soft cost outflow	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.19	-₹ 0.08	-₹ 0.08	-₹ 0.08
Payment to contractor	-₹ 1.04	-₹ 1.04	-₹ 1.04	-₹ 1.04	-₹ 1.04	-₹ 1.04	-₹ 1.04															
Total cash outflow	-₹ 4.51	-₹ 6.99	-₹ 9.68	-₹ 11.89	-₹ 15.71	-₹ 19.10	-₹ 19.34	-₹ 18.99	-₹ 19.09	-₹ 17.94	-₹ 15.05	-₹ 10.03	-₹ 9.29	-₹ 7.46	-₹ 7.23	-₹ 4.46	-₹ 3.70	-₹ 0.19	-₹ 0.19	-₹ 0.08	-₹ 0.08	-₹ 0.08
Cash inflow from unsold flats	₹ 0.73	₹ 4.02	₹ 6.58	₹ 7.67	₹ 5.48	₹ 10.23	₹ 8.41	₹ 11.72	₹ 10.21	₹ 10.51	₹ 10.95	₹ 8.39	₹ 12.02	₹ 7.66	₹ 9.51	₹ 9.11	₹ 10.56					
Cash inflow from unconstructed flats			₹ 1.26	₹ 5.03	₹ 7.06	₹ 2.23	₹ 15.72	₹ 3.49	₹ 29.04	₹ 4.75	₹ 30.15	₹ 6.56	₹ 29.73	₹ 7.54	₹ 34.62	₹ 0.00	₹ 19.54	₹ 0.00	₹ 25.13	₹ 19.54	₹ 22.33	₹ 22.33
Cash inflow from sold flats						₹ 7.73	₹ 7.73	₹ 7.73	₹ 0.00	₹ 10.68	₹ 0.00	₹ 10.68	₹ 0.00	₹ 10.68	₹ 0.00	₹ 2.94	₹ 0.00	₹ 2.94				
Total cash inflow	₹ 0.73	₹ 4.02	₹ 7.83	₹ 12.70	₹ 12.54	₹ 20.20	₹ 31.87	₹ 22.94	₹ 39.25	₹ 25.93	₹ 41.10	₹ 25.62	₹ 41.76	₹ 25.87	₹ 44.12	₹ 12.06	₹ 30.10	₹ 2.94	₹ 25.13	₹ 19.54	₹ 22.33	₹ 22.33
Total cashflow	-₹ 3.78	-₹ 2.97	-₹ 1.85	₹ 0.81	-₹ 3.17	₹ 1.10	₹ 12.53	₹ 3.95	₹ 20.16	₹ 7.99	₹ 26.05	₹ 15.59	₹ 32.47	₹ 18.41	₹ 36.89	₹ 7.60	₹ 26.40	₹ 2.75	₹ 24.94	₹ 19.46	₹ 22.25	₹ 22.25
Existing loan @100cr																						
EMI @ 15%	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93	-₹ 6.93						
New Loan @ 80 crore	₹ 16.00	₹ 16.00	₹ 16.00	₹ 16.00	₹ 16.00																	
EMI @ 12%						-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43	-₹ 5.43
ALL Inflow	₹ 16.73	₹ 20.02	₹ 23.83	₹ 28.70	₹ 28.54	₹ 20.20	₹ 31.87	₹ 22.94	₹ 39.25	₹ 25.93	₹ 41.10	₹ 25.62	₹ 41.76	₹ 25.87	₹ 44.12	₹ 12.06	₹ 30.10	₹ 2.94	₹ 25.13	₹ 19.54	₹ 22.33	₹ 22.33
ALL Outflow	-₹ 11.44	-₹ 13.92	-₹ 16.61	-₹ 18.82	-₹ 22.64	-₹ 31.46	-₹ 31.70	-₹ 31.35	-₹ 31.45	-₹ 30.30	-₹ 27.41	-₹ 22.39	-₹ 21.65	-₹ 19.82	-₹ 19.59	-₹ 16.82	-₹ 9.13	-₹ 5.62	-₹ 5.62	-₹ 5.51	-₹ 5.51	-₹ 0.08
total	₹ 5.29	₹ 6.10	₹ 7.22	₹ 9.88	₹ 5.90	-₹ 11.26	₹ 0.17	-₹ 8.41	₹ 7.80	-₹ 4.37	₹ 13.69	₹ 3.23	₹ 20.11	₹ 6.05	₹ 24.53	-₹ 4.76	₹ 20.97	-₹ 2.68	₹ 19.51	₹ 14.03	₹ 16.82	₹ 22.25
Cummulative	₹ 5.29	₹ 11.39	₹ 18.61	₹ 28.49	₹ 34.39	₹ 23.12	₹ 23.29	₹ 14.88	₹ 22.68	₹ 18.31	₹ 32.01	₹ 35.24	₹ 55.34	₹ 61.39	₹ 85.93	₹ 81.16	₹ 102.14	₹ 99.46	₹ 118.97	₹ 133.00	₹ 149.82	₹ 172.07

The above table is showing the Cash inflow and outflow and loan repayment schedule, after that the DCF has been made to calculate the NPV and IRR

8.1.2: Table for DCF of Additional loan

ADDITIONAL LOAN						
YEAR	NO	CASH OUT FLOW (RS. IN CRORE)	PV OF CASH OUTFLOW	CASH INFLOW (RS. IN CRORE)	PV OF CASH INFLOW	NET CASH FLOW (RS. IN CRORE)
2010	0	-₹ 97.47	-₹ 97.47	₹ 9.98	₹ 9.98	-₹ 87.49
2011	1	-₹ 82.79	-₹ 78.85	₹ 66.54	₹ 63.37	-₹ 16.25
2012	2	-₹ 112.79	-₹ 102.30	₹ 83.17	₹ 75.44	-₹ 29.62
2013	3	-₹ 127.79	-₹ 110.39	₹ 23.29	₹ 20.12	-₹ 104.50
2014	4	-₹ 87.79	-₹ 72.23	₹ 41.59	₹ 34.22	-₹ 46.20
2015	5	-₹ 16.62	-₹ 13.02	₹ 74.86	₹ 58.65	₹ 58.24
2016	6	-₹ 16.62	-₹ 12.40	₹ 116.44	₹ 86.89	₹ 99.82
2017	7	-₹ 31.62	-₹ 22.47	₹ 116.44	₹ 82.75	₹ 84.82
2018	8	-₹ 168.53	-₹ 114.07	₹ 228.43	₹ 154.61	₹ 59.90
2019	9	-₹ 241.15	-₹ 155.45	₹ 336.82	₹ 217.12	₹ 95.67
2020	10	-₹ 11.10	-₹ 6.81	₹ 64.21	₹ 39.42	₹ 53.11
		-₹ 994.27	-₹ 785.46	₹ 1,161.77	₹ 842.57	8.964%
Discount rate	5.00%					IRR
Net profit	₹ 167.50					
PV profit	₹ 57.11					

The cash flow data before Jun-18 has been taken from the yearly balance sheet. So after restructuring the NPV is 57.11 Crore and IRR is 8.964%, so the project is showing positive net worth. Now the project will be restructured using other strategies with the basic consideration for cash flow remaining same

8.2 Restructuring with Debt Curtailment

- Rs 100 crores remaining debt restructured @ 12% per annum, 3% Interest rate has been reduced
- An additional loan of Rs.70 crores @ 12% per annum taken. (As 9.28 cr. or approx. 10 cr. Interest may come short) and repayment done in 16 months.

After the DCF for this strategy the NPV would be 57.19 cr. and IRR would be 8.941%. For the DCF refer to that of section 8.1

8.3 Restructuring with Equity Share

- Rs 100 crores remaining debt @ 15% per annum
- 30% equity of unsold flats give for 60 crores. (Asset value = 290cr, Initial Projected cost = 620cr, Present Projected cost = 800crore, 30% distress factor. So asset value now become 203 crore, if 30% given on equity the amount of equity would be 60 cr). @ 12cr. per month, repayment done at last

After the DCF for this strategy the NPV would be 50.80 cr and IRR would be 8.650%. For the DCF refer to that of section 8.1

8.4 Restructuring with Debt-Equity tradeoff

- Total equity Rs.60 crores for 30% of the unsold flats.
- Rs. 100 crores remaining debt @ 15% per annum traded with Rs.20 crore equity

- Remaining Loan 80 cr @ 15% per annum to be repaid in 16 months
- 40 crore equity is incurred in the cash flow @10 cr per month

After the DCF for this strategy the NPV would be 56.40 crore and IRR would be 8.954%

8.5 Restructuring with Selling of Shares

- Rs 100 crores remaining debt @ 15% per annum
- 110 flats sold to single buyer @ Rs3600 per Sqft totalling to Rs 50.24 crores payable monthly in instalment of 10% each construction.
- 5.03 cr per month has been taken for 10 months in the cash flow

After the DCF for this strategy the NPV would be 58.20 crore and IRR would be 8.947%

So after comparing the results of NPV and IRR the Selling of shares has shown the most profitable outcome followed by Additional loan who has given the second most profitable outcome. But the value of profit may vary on the parameters considered under the restructuring strategies. So sensitivity analysis would be performed on the basis of

IX. SENSITIVITY ANALYSIS

All the Debt Restructure approach that has been applied here is based on the data happened to be the most likely as per the market condition. But the assumption may vary in pessimistic and optimistic way. So now the restructure approach will be done on the basis of the pessimistic and optimistic data that may vary. The procedure to perform the sensitivity analysis is given here below:

- Step 1: Calculate the min, most likely and maximum value of the variable
- Step 2: Create random numbers with the data of Minimum, Most likely and Maximum value
- Step 3: Run the simulation for outcome for required times (here 200 times)
- Step 4: Check the Minimum, Mean, Maximum value of the output from those runs
- Step 5: Check the frequency for the required or needed output
- Step 6: Create histogram against frequency with probability distribution

The restructuring strategies have some parameters that may vary and affect the result. The parameters for different restructuring strategies are

- Parameters for Additional Loan : Interest rate, Loan amount, Sale of flats, Price of flat (inflation)
- Parameters for Debt Curtailment: Interest rate, Loan amount, Sale of flats, Price of flat (inflation)
- Parameters for Equity Share: Loan- equity Ratio, Interest rate, Sale of flats, Price of flat (inflation)
- Parameters for Debt-equity trade-off: Loan- equity Ratio, Interest rate, Loan amount, Sale of flats, Price of flat (inflation)
- Parameters for Selling of Shares: Share of flats, Interest rate, Loan amount, Sale of flats, Price of flat (inflation)

Now 6 case examples of residential projects have been taken and the value (Minimum, Most likely and Maximum) of this parameters have been achieved and the results are simulated on their basis for each strategy

9.1 Sensitivity Analysis for Additional Loan

The value for the parameters under this strategy are

- Interest rate: Min: 12%, Most likely: 15%, Maximum: 18%
- Loan amount (on asset value): Min: 70% (67.3cr), Most likely: 75% (80crore), Maximum: 80% (91.2 crore)
- Sale price of units : Min: 4520rs/sqft, Most likely: 4550 rs/sqft, Max: 4600 rs/sqft
- Sale of units: Min: 85%, Most likely 87.5%, Maximum:100%

Now the results have been simulated for 200 times and the outcome has shown on the table below

Table 9.1.1 Results for Sensitivity analysis (200 runs)

(NPV)		(IRR)	
No of samples	200	No of samples	200
Expected NPV (Mean)	52.10	Expected IRR(Mean)	8.691%
Minimum NPV	44.61	Minimum IRR	8.255%
Maximum NPV	60.02	Maximum IRR	9.172%
Standard Deviation	2.92	Standard Deviation	0.001911

So the expected mean NPV is 52.10 crore where maximum is 60.02crore and minimum is 44.61 crore. The expected mean IRR is 8.691%, where maximum is 9.172% and minimum is 8.225%. The probability of having the value within 1 standard deviation is 68%, 2 standard deviation is 95%, 3 standard deviation is 99.7% In similar process the results have been calculated for other strategies on the basis of their parameters and are compared in the section X

X. RESULTS AND DISCUSSION

The results for all the strategies after simulation has been compared to get the most profitable option

10.1 Comparison of Results among the strategies

Table 10.1.1: Comparison of NPV

Methods	Minimum	Most likely	Maximum	Stand. Dev.
Additional Loan	44.61	52.10	60.02	2.92
Debt Curtailment	37.69	48.97	57.17	3.74
Equity Share	37.35	45.77	55.87	3.08
Debt Equity Tradeoff	33.20	42.49	50.82	2.86
Selling Of Shares	46.28	53.15	59.02	2.49

Table 10.1.1 shows that Sellings of shares is the most profitable option followed by the Additional loan, though they have a very marginal difference but Additional loan gives the highest return if the highest value is considered. But again considering standard deviation selling of shares is profitable as it has lowest sd. (Standard deviation) 2.49. The result for Debt curtailment can vary the most and Debt equity tradeoff has the minimum NPV among these.

Table 10.1.2: Comparison of IRR

Methods	Minimum	Most likely	Maximum	Stand. Dev.
Additional Loan	8.25%	8.69%	9.17%	0.001911
Debt Curtailment	7.72%	8.43%	8.94%	0.002333
Equity Share	7.78%	8.33%	8.97%	0.00201
Debt Equity Tradeoff	7.507%	8.09%	8.64%	0.001944
Selling Of Shares	8.22%	8.64%	8.99%	0.001497

Table 10.1.2 shows that Additional Loan is the most profitable option followed by the Selling of shares. But again considering standard deviation selling of shares is profitable as it has lowest sd. (Standard deviation) 0.001497. The result for Debt Equity tradeoff shows the minimum profit.

10.2 Limitations

All of the process can be applied with respect to the condition of the project. Depending on the market trend the values may change – as per price/sqft or the interest rate or the statutory taxes. So depending on those parameters the most effective or profitable approach may be different. The location of the project has also a good impact on the project restructuring approach. So depending on all the parameters an approach for restructuring for any distress project can be taken.

But all the restructuring strategies have some limitations:

- Additional Loan: The amount of loan and interest rate is dependent on the bank and RBI policy and it can carry accordingly
- Debt Curtailment: The cut in interest rate and the loan amount is also dependent on the negotiation of bank and other financial institutions
- Equity Share: The amount of equity is dependent on the investor's interest as the risk for the distress project is shared with the investor
- Debt Equity Trade-off: The amount of loan to be transferred to equity is completely depending on the amount of equity the investor is interested to share
- Selling of Shares: The Selling of share is also completely dependent on the interest of a potential buyer.

XI. CONCLUSION

Thus it can be concluded that a particular strategy can't be said to be the most profitable strategy as all the project have their own limitation in terms of Price, sale, loan and interest rate. So any project under distress should undergo all the strategies with their limitations in parameters and then to be calculated and compared for the most profitable one.

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