



Art'o'val Advisors

True Art of Valuation

Valuation Series

3 – Valuation of Distressed Companies

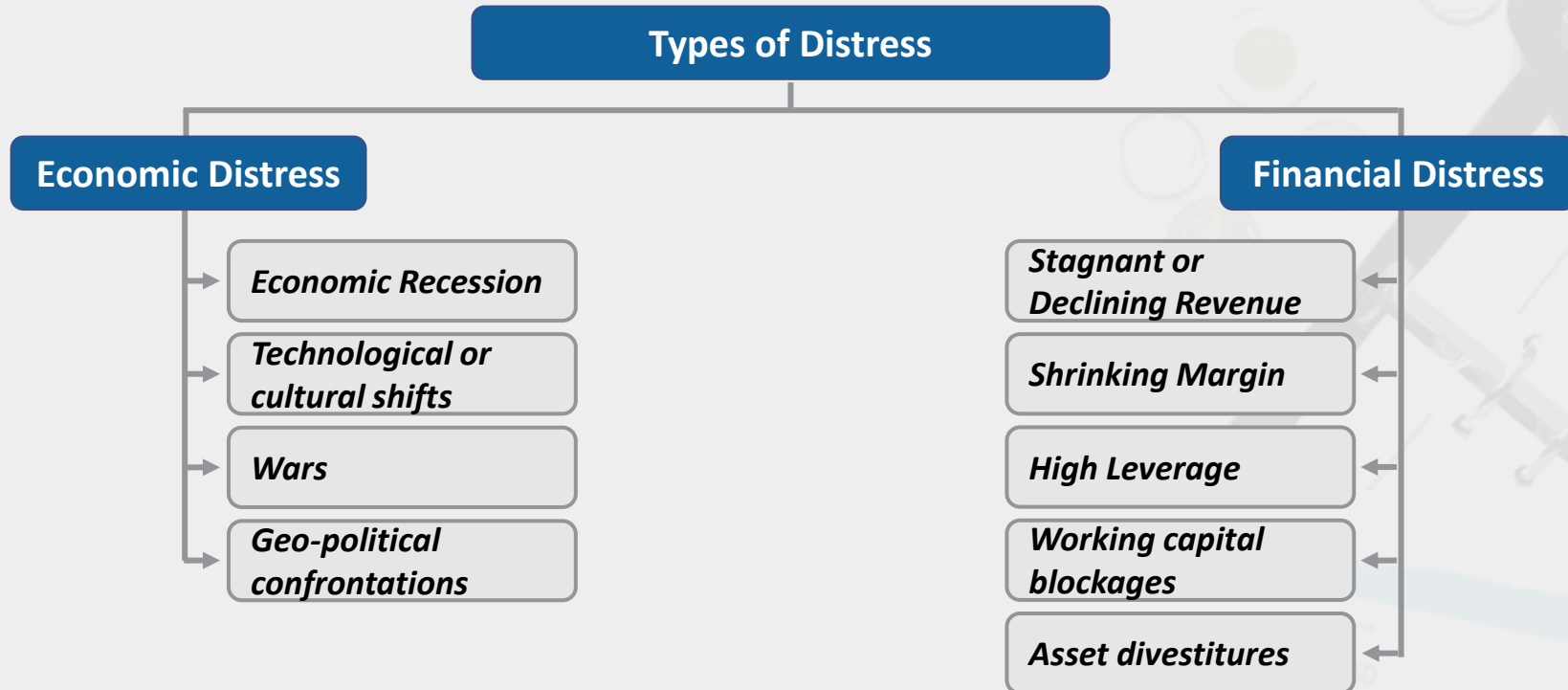
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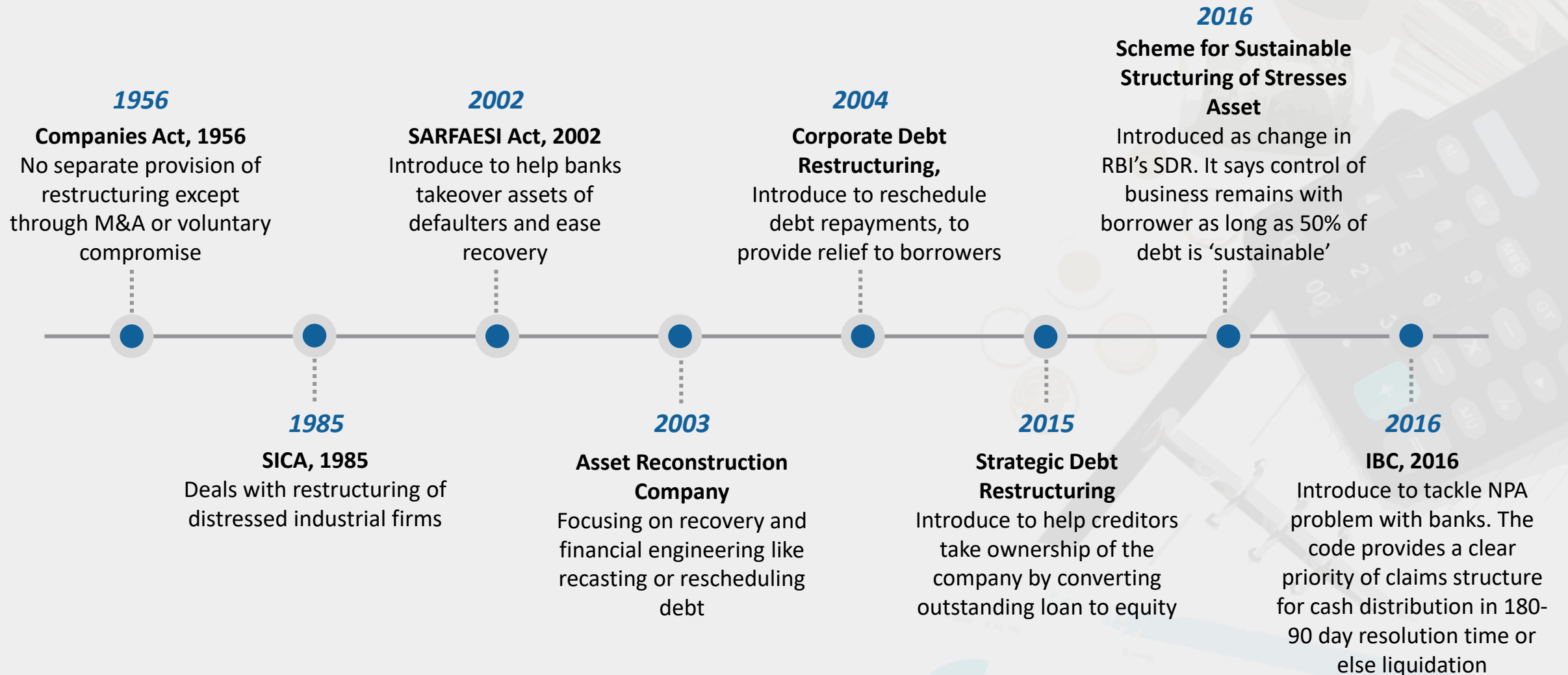
Distressed Companies

When is a Company said to be in Distress?

- A company is said to be in distress when the company is unable to meet, or has difficulty paying off, its financial obligations to its creditors, typically due to
 - High Fixed Cost
 - Illiquid Assets
 - Revenues being sensitive to economic downturns, etc.
- Companies are said to be “financially distressed”, to mean that it appears to be:
 - Reasonably unlikely that the company will be able to pay all of its debts as they fall due and payable within the immediately ensuing six months, or
 - Reasonably likely that the company will become insolvent within the immediately ensuing six months



Evolution of Insolvency Laws in India



Signs of a Distressed Companies

Following are some of the signs / indicators of a distressed company:



Working Capital/ Liquidity

- Declining or negative free cash flow
- Increase in accounts-receivable aging
- Increase in outstanding accounts payable



Profitability and Industry Outlook

- Reduced capital-investment programs
- Shrinking EBITDA margin
- The adverse regulatory environment and regulatory inquiries



Financial

- Declining stock price and bond price
- Inability to meet debt covenants
- Diminishing liquidity and downgrades in debt ratings



Employees

- Large or unplanned reductions in the workforce
- Management turnover
- Disruptions in the unionized workforce

Judging Financial Soundness

Altman Z-score

- Altman's Z-score Model is a numerical measurement that is used to predict the chances of bankruptcy.
- American Edward Altman published the Z-score Model in 1968 as a measure of the probability of a company going bankrupt.
- Altman's Z-score model combines five financial ratios to predict the probability of a company becoming insolvent in the next two years.

- **Altman's Z-score formula :**

$$\zeta = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

Where -

- Zeta (ζ) is the **Altman's Z-score**
- A is the **Working Capital/Total Assets** ratio
- B is the **Retained Earnings/Total Assets** ratio
- C is the **Earnings Before Interest and Tax/Total Assets** ratio
- D is the **Market Value of Equity/Total Liabilities** ratio
- E is the **Total Sales/Total Assets** ratio

Interpretation of Z-Scores –

- The Altman Z - scores shows the figures that can be used to categorize a company into the financial distressed and non – financial distressed company.
- The descriptions of the categories are as follows –

Sr. No.	Range of Z-score	Interpretation
1.	> 2.99	The institution is in good position and safe from financial problem
2.	2.99 – 1.81	Warning Sign! It is considered as grey area as the financial institution have chances to faces bankruptcy problem
3.	< 1.81	Bad Indication! The financial institution is most likely to be heading towards bankruptcy problem. Necessary actions are needed to avoid from the worst situation.

Possibility of Accounting Manipulation

Beneish M-score

- Beneish's M-Score is a model that uses eight financial ratios weighted by coefficients to identify whether a company has manipulated its profits.
- It was created by Professor Messod Beneish who published a paper in June 1999 called The Detection of Earnings Manipulation.
- Beneish surmises that companies are incentivized to manipulate profits if they have high sales growth, deteriorating gross margins, rising operating expenses and rising leverage.

• **Beneish M-Score formula :**
$$M = -4.84 + 0.92*DSRI + 0.528*GMI + 0.404*AQI + 0.892*SGI + 0.115*DEPI - 0.172*SGAI + 4.679*TATA - 0.327*LVGI$$

Where -

- M is the **Beneish M-score**
- DSRI is the **Days' Sales in Receivables Index**
- GMI is the **Gross Margin Index**
- AQI is the **Asset Quality Index**
- SGI is the **Sales Growth Index**
- DEPI is the **Depreciation Index**
- SGAI is the **Sales, General and Administrative Expenses Index (SGAI)**
- TATA is the **Total Accruals to Total Assets**
- LVGI is the **Leverage Index**

Interpretation of M-Scores –

- The variables are constructed from the data in the company's financial statements to create an M-Score that serves to describe how much the earnings have been manipulated. A primary application of the Beneish model is as a tool to uncover financial fraud.

M-score	Interpretation
< -1.78	The company is unlikely to be a manipulator. For example, an M-score value of -2.50 suggests a low likelihood of manipulation.
> -1.78	The company is likely to be manipulator. For example, an M-score value of -1.50 suggests a high likelihood of manipulation.

Financial Distressed Vs Insolvency

Financial Distress

- 1 Financial distress is something that happens to companies because of operating decisions or external forces
- 2 Financial distress may lead a firm to default on a contract and is the pre-condition of insolvency
- 3 Financial distress is a situation where a firm's operating cash flows are not sufficient to satisfy current obligations

Insolvency/Bankruptcy

- 1 Bankruptcy is something that companies choose to do to protect their assets from creditors
- 2 Bankruptcy occurs subsequent to a period of financial distress
- 3 Insolvency is a situation when a firm is unable to meet their financial obligations

Challenges in Valuing Distress Companies

The following factors discuss why conventional methods are not usefully deployed when valuing companies in distress:



Existing Assets

- In declining firms, existing assets, earn less than the cost of capital
- If existing assets generates profit less than the cost of capital, the logical response is to sell or divest the firm, however, divestitures of assets create discontinuities in past data and make forecasts more difficult



Growth Assets

- Declining firms derive little from growth assets, so the valuation of these assets should not have a significant impact on value
- If these assets earn less than the cost of capital, the value of adding new assets will be negative, and reinvestment will lower the firm's value



Terminal Value

- Conventional valuation methods involve the computation of terminal value i.e., the value of the subject going into perpetuity
- This may not hold true for companies in distress for which an assumption of perpetuity is not practically relevant and feasible



Discount Rates

- Discount rates or multiples used in traditional methods reflect operations of companies that are operationally as well as financially sound
- They cannot be used in their pure forms without adjusting them for the probabilities of failures of the companies in case of distressed companies

Methods of Valuation of Distressed Companies

Modified Discounted Cash Flows

- This method is based on the underlying principles of the discounted cash flow method but adjustment for the risk of default needs to be carried out for cash flows as well as discount rate. The same can be done as follows:

Estimating the Cash Flows

- Cash flows across each scenarios must be estimated with the respective probabilities of each scenario
- The expected cash flow for a particular year is calculated as = SUM (Estimated cash flow under each scenario x Probability of respective scenario)
- It is important to note that the adjustment for distress is a cumulative one and will have a greater impact on the cash flows in the later years

Estimating the Discount Rate

- **The following approaches may be used for addressing the risk of distress in the discount rate:**
 - Using bottom-up betas and updated debt to equity ratios (rather than historical or regression betas) to estimate the cost of equity. The bottom-up unlevered beta should be used and re-levered using the subject company's current debt to equity ratio and the effective tax rate
 - OR**
 - Estimate a distressed premium which is to be added to the cost of equity calculated using standard measures. One of the ways of computing the distress premium is to compare the company's pre-tax cost of debt to the industry's cost of debt

Methods of Valuation of Distressed Companies

DCF Valuation + Distress Value

- A DCF valuation values a firm as a going concern. If there is a significant likelihood of the firm failing before it reaches stable growth and if the assets will then be sold for a value less than the present value of the expected cashflows (a distress sale value), DCF valuations will understate the value of the firm:

$$\text{Value of Equity} = \text{DCF Value of Equity} \times (1 - \text{Probability of Distress}) + \frac{\text{Distress Sale Value of Equity}}{\text{Probability of Distress}}$$

Steps to be Followed:

1

Going Concern Value

Carry out the conventional DCF valuation exercise with going concern as the underlying assumption

2

Estimating the Probability of Distress

- We need to estimate a cumulative probability of distress over the lifetime of the DCF analysis - often 10 years
- Bond Rating is one of the indicators to estimate the probability of distress

3

Estimating Distress Sale Value

- The distress sale value of equity can be estimated –
- As a % of book value (and this value will be lower if the economy is doing badly and there are other firms in the same business also in distress)
 - As a % of the DCF value, estimated as a going concern

Methods of Valuation of Distressed Companies

Relative Valuation

- Revenue and EBITDA multiples are used more often to value distressed firms than healthy firms
- However, multiples such as P/E or P/BV often cannot even be computed for a distressed firm

Following are the approaches available for relative valuation:

Compare the distressed company's valuation to that of other distressed companies

- In this approach, unless there are a large number of distressed firms in the said sector, this approach will not work

Compare with healthy companies but adjust for the distress

- Identify the healthy companies in the sector, however, coming up with objective criteria for determining the level of distress that work well may be difficult to do

Consider the possibility of distress explicitly

- $\text{Distress adjusted value} = \text{Relative value based upon healthy firms} (1 - \text{Probability of Distress}) + \text{Distress Sale Proceeds} (\text{Probability of Distress})$

Methods of Valuation of Distressed Companies

Monte Carlo Simulations

- Following are the steps for Monte Carlo Simulations:

Preliminary Step

Define the circumstances under which you would expect a firm to be pushed into distress.

Step 1

Choose the variables in the DCF valuation that you want estimate probability distributions on

Step 2 & 3

Define the distributions (type and parameters) for each of these variables

Step 4

Run a simulation, where you draw one outcome from each distribution and compute the value of the firm. If the firm hits the “distress conditions”, value it as a distressed firm

Step 5

Repeat step 4 as many times as you can

Step 6

Estimate the expected value across repeated simulations

Case Study

Sanghvi Forging and Engineering Ltd

- Incorporated in 1989, headquartered at Vadodara, Gujarat.
- Engaged in manufacturing of forged flanges & Heavy forgings for the Defence and Aerospace, Power, Oil & Gas, Construction & Mining, Railways, Marine, and General Engineering sectors
- The Company exports its products to more than 20 countries across Europe, the USA, and the Middle East
- Operates with two manufacturing plants Heavy Forging Division and Flange & Component Division located at Vadodara, with 18,600 MTPA manufacturing capacity as of 2020

Sanghvi Forging and Engineering Ltd Admitted Distress

Particulars (INR Cr.)	2016	2017	2018	2019	2020
Revenue	69	56	57	64	60
EBITDA	15	3	3	4	6
Net Profit/(Loss)	(10)	(23)	(23)	(2)	(5)
Debt	133	114	96	97	145
Net Assets Value	44	21	(3)	(23)	(28)

- The company has continued to incur losses resulting in erosion of entire Net-worth, and Liabilities exceed Assets. Therefore, the company management decided to undergo Corporate Insolvency Resolution Process (CIRP) under the provisions of IBC, 2016

Case Study

Bharat Forge Industrial Solution Ltd acquired 100% stake in Sanghvi Forging and Engineering Ltd

- On 28, June, 2021, Bharat Forge acquired a 100% stake in Sanghvi Forging and Engineering Ltd through SPV Bharat Forge Industrial Solution Ltd and renamed Bharat Forge Industrial Technology and Solutions Ltd
- Following is the deal value of SFEL :

Total Deal Value (INR Cr.)	90
Equity Shares (INR Cr.)	4
Convertible Debentures (INR Cr.)	11
Paid to Financial Creditors of SFEL (INR Cr.)	75

Key Points

Business Turnaround

Over 9 months after acquisition by incorporating proper system and process along with intra team coordination, Bharat Forge enable to integrate and turnaround SFEL

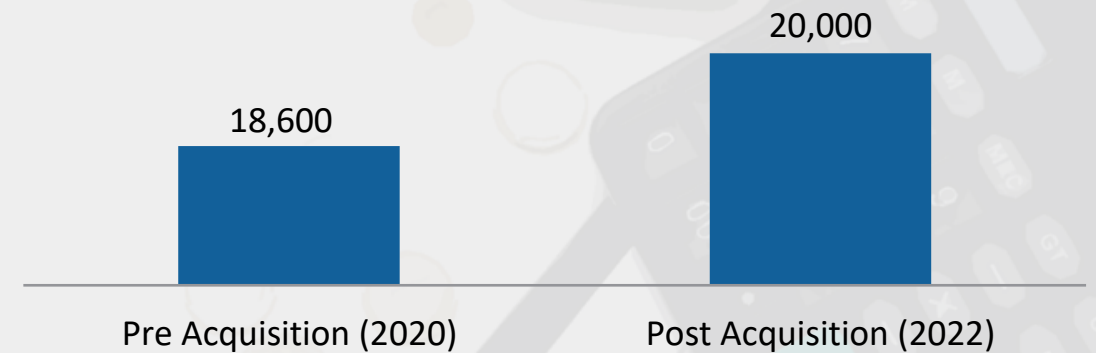
Forging Capacity

Also, the company, increased manufacturing capacity by ~8% post acquisition

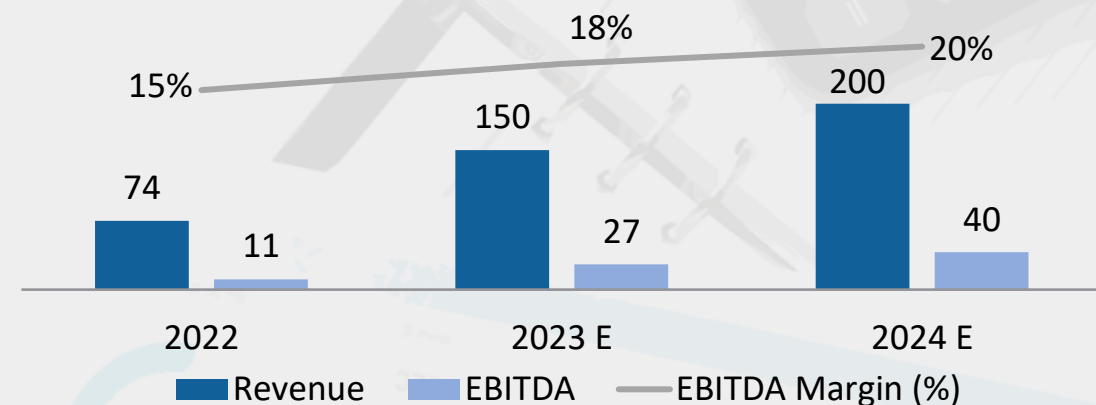
Top-Line Growth

As resultant, SFEL recorded a top line growth of 13% in 2022 as compared to INR ~65 Cr. in 2021 and projected to generate healthy margin in 2023 and 2024

Steel Forging Capacity of SFEL (MTPA)



SFEL Projected Revenue & EBITDA (INR Cr.)



Appendix

15 Years Global Corporate Average Cumulative Default Rates (1981–2017) by S&P (%)

Rating	Time Horizon (Years)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AAA	0.00	0.03	0.13	0.24	0.35	0.46	0.51	0.60	0.65	0.71	0.74	0.77	0.80	0.86	0.93
AA	0.02	0.06	0.12	0.22	0.32	0.43	0.53	0.60	0.68	0.75	0.82	0.89	0.95	1.01	1.07
A	0.06	0.14	0.24	0.37	0.51	0.66	0.85	1.01	1.17	1.34	1.50	1.64	1.79	1.93	2.09
BBB	0.17	0.49	0.84	1.26	1.70	2.13	2.50	2.87	3.23	3.58	3.94	4.24	4.52	4.81	5.11
BB	0.68	2.13	3.83	5.53	7.11	8.57	9.81	10.92	11.90	12.77	13.49	14.14	14.72	15.24	15.80
B	3.59	8.25	12.26	15.44	17.88	19.88	21.48	22.76	23.90	24.95	25.84	26.53	27.15	27.75	28.34
CCC/C	26.82	36.03	41.03	43.97	46.22	47.13	48.33	49.23	50.08	50.71	51.20	51.71	52.34	52.82	52.82
Investment Grade	0.10	0.26	0.45	0.68	0.92	1.17	1.40	1.61	1.82	2.03	2.23	2.40	2.57	2.73	2.91
Speculative Grade	3.75	7.31	10.39	12.90	14.95	16.64	18.05	19.23	20.27	21.21	22.00	22.65	23.25	23.80	24.34
All Rated	1.50	2.95	4.22	5.29	6.18	6.94	7.57	8.12	8.60	9.05	9.44	9.77	10.07	10.35	10.63



Art'o'val Advisors

True Art of Valuation

Thank You



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