

Case Study 2: XYZ Pharmaceuticals - Distressed Firm

NOTE: Same as Case study 1 but I have changed the data on probability of distress (Refer Excel sheet 2)

XYZ Pharmaceuticals is a distressed pharmaceutical company. The firm has been facing financial difficulties due to multiple factors, including intense competition, regulatory challenges, and a decline in market share. XYZ Pharmaceuticals has a high debt burden resulting from an unsuccessful product launch and increasing research and development costs.

The firms latest financial statements are shown in Exhibit 1 and Exhibit 2 below:

Exhibit 1: Income Statement for the year just ended (Rs. in Crores)	
Revenue	12000
EBIT (5%)	600
Int expense (10%)	700
PBT	-100
Tax (@25%)	0
PAT	-100

Exhibit 2: Balance Sheet at T=0 (Rs. in Crores)	
Uses of fund	
Fixed assets	10000
Current assets	2000
Less: Current liability	2500
Net Current Assets	-500
Invested capital	9500
Source of fund	
10% Long term debt	7000
Equity share capital(Rs. 10 Face Value)	3000
P&L A/c Debit Balance	-500
Net worth	2500
Invested capital	9500

Other relevant information is given in Exhibit 3

Exhibit 3: Other Information (Rs. in Crores)	
Market value of equity	2400
Market value of debt	5000
Tax rate	25%
Rf	6%
Market Risk Premium	5%
Debt Rating	B

Based on bond ratings, **Exhibit 4** shows the default risk premium over and above R_f over a 5 years period.

Exhibit 4

Rating	Default risk premium
AAA	1
AA	2
A	3
BBB	4
BB	6
B	7
CCC	10
CC	14
C	20

The conditional probability of distress (i.e. probability of distress in a year given no distress in the previous year) is given below:

Years	1	2	3	4	5
Conditional PD	20%	15%	10%	5%	5%

You are a research analyst and specialized in the valuation of distressed companies. A client of yours is contemplating buying the stock of the company as it has falling by more than 50% in the last two weeks. Hence he has approached you for advise. You recently read Aswath Damodaran's famous book "**Dark side of valuation**" and decided to use the method of "DCF Valuation + Distress Value".

Value of equity = Going concern value (1-Probability of distress) + Distress sale value of equity (Probability of distress)

For the purpose of estimated going concern value, use the following-

- Take a 5 year horizon
- Revenue is expected to fall by 5% p.a. for the next 2 years, stay flat for the 3rd year, grow by 3% for the 4th year and then stabilize at 7% p.a. from the 5th years onward forever.
- Operating margin will fall to 3% for the 1st 2 years, 4% for the 3rd year, 5% for the 4th year and 6% from the 5th year onwards forever.
- Tax rate 25%
- Re-investment rate as a percentage of NOPAT would be -10% for year 1, -5% for year 2, flat year 3, 2% year 4 and 4% year 5 onwards forever

- Debt equity ratio (Market value based) is forecasted to be 2 for year 1 (rating B), 1.5 year 2 (rating BB), 1.2 year 3 (rating BBB), 1.1 year 4 (rating BBB) and stabilize at 1 (rating A) from the 5th year onwards.
- There are three comparable firms to XYZ Pharmaceuticals which are declining but not under distress-

Firms	Beta	D/E
A	1.6	1.5
B	1.9	2
C	0.9	0.2

Unlevered beta may be taken as an average of the above

- Beyond year 5, FCFF will grow at 7% p.a. forever

For the purpose of distress sale value, we can take that to be 20% of invested capital.

Calculate the per share value of equity, **compare** that with the existing market price and advise.

ANSWER:

Particulars	1	2	3	4	5
Revenue g	-5%	-5%	0	3%	7%
OPM	3%	3%	4%	5%	6%
Revenue	11,400	10,830	10,830	11,155	11,936
EBIT	342	325	433	558	716
NOPAT	257	244	325	418	537
Reinvestment rate	-10%	-5%	0	2%	4%
FCFF	282.15	255.86	324.90	409.94	515.62
Debt equity ratio	2	1.5	1.2	1.1	1
Levered beta	1.913	1.62605	1.45388	1.39649	1.3391
Ke	0.15565	0.1413025	0.132694	0.1298245	0.126955
Rating	B	BB	BBB	BBB	A
Default risk premium	7%	6%	4%	4%	3%
Pre tax Kd	13%	12%	10%	10%	9%
Post tax Kd	9.75%	9.00%	7.50%	7.50%	6.75%
Wd	0.67	0.60	0.55	0.52	0.50
We	0.33	0.40	0.45	0.48	0.50
Kc	11.69%	11.05%	10.12%	10.11%	9.72%
PV of CF	252.62	206.28	237.87	272.57	312.46
Terminal Value					20263.26
PV of terminal value					12279.27
Going concern value	13561.08				
Conditional PD	20%	15%	10%	5%	5%
Conditional Probability of survival	80%	85%	90%	95%	95%

Cumulative prob of survival	55.23%				
Cumulative Prob of distress	44.77%				
Scenario 1: Going concern					
Going concern value	13561.08				
Less: Market value of Debt	5000				
Equity Value	8561.08				
Scenario 2: Distress					
Book value of invested capital	9500				
Distress sale value (20%)	1900				
Market value of debt	5000				
Distress sale value of equity	0				
Distress Adjusted value of equity	4728.54				
Number of equity shares	300				
Value per share	15.76				
Market price of the share	8				
Comment	Underpriced				
Advise	Buy/Go long				

Working Note

Firms	Levered Beta	D/E	Post tax debt equity ratio	Unlevered beta
A	1.6	1.5	1.125	0.7529
B	1.9	2	1.5	0.76
C	0.9	0.2	0.15	0.7826
Average i.e. beta unlevered				0.7652