

CHAPTER 21

CONVERTIBLE DEBENTURES AND WARRANTS

Problem 1

The following are the facts about the fully convertible debenture:

Fully convertible debenture:	
Interest rate	10%
Number of debentures (lakh)	50
Par value (Rs)	1000
Conversion period (years)	2
Conversion ratio: shares/per debenture	5
Conversion price (Rs)	200
Current share price (Rs)	120
Conversion value (now): conversion ratio × share price	600

At the current share price is Rs 120, the conversion value is: $\text{Rs } 120 \times 5 = \text{Rs } 600$, which is less than Rs 1000. The debenture holders would be expecting the share price to increase so that they could gain on conversion. Since the conversion is compulsory, after two years, the company will have to issue: $50 \times 5 = 250$ lakh shares. This will dilute the earnings per share and control - the ownership of the company will be shared by the debenture holders becoming the shareholders.

The features of the partly convertible debentures are as follows:

Partly convertible debenture:	
Convertible:	
Interest rate	10%
Number of debentures (lakh)	50
Par value (Rs)	2000
Convertible portion - par value	1000
Conversion period (years)	2
Conversion ratio: shares/per debenture	5
Conversion price (Rs)	200
Current share price (Rs)	120
Conversion value (now): conversion ratio × share price	600
Non-convertible:	
Non-convertible portion - par value	1000
Maturity of non-convertible portion (years)	10
Annual interest (Rs)	100
Maturity value (Rs)	1000
Discount rate (assumed)	12%
Value of NCD (Rs)	887
Discount rate (assumed)	10%
Value of NCD (Rs)	1,000

As is the case with the fully convertible debenture, there would be dilution of earnings and ownership upon conversion. The debenture holders will gain from conversion only if the share price at that time is higher than the conversion price (Rs 200).

The non-convertible part of debenture is like a straight debenture and can be easily valued if we knew the discount rate. If the discount rate is equal to the interest rate and the debenture is redeemed at par, the value of the debenture will be Rs 1000. However, if the discount rate is higher than the interest rate, the value will be lower than Rs 1000. The value of the debenture will be higher if the discount rate is lower than the interest rate.

Problem 2

The existing assets (market value) are valued at Rs 1,200 crore and equity at Rs 800 crore. Hence, the equity-to-assets ratio is 0.67 and debt-to-assets ratio 0.33. The equity variability is 4.5. Assuming that debt is risk-free, asset variability will be: $4.5 \times 0.67 + 0 \times 0.33 = 3$.

The four crore debentures will bring additional amount of Rs 400 crore as debt. Each debenture gets one warrant for Rs 10. Thus, there would be additional flow of cash of Rs 40 crore which will be a part of equity since warrant holders can exercise their option of converting their warrants into shares. The new equity price will be Rs 42 (32 + 10) and equity amount will be Rs 840 crore and new debt Rs 800 crore. The new equity/assets ratio will be: 0.512. Thus, the revised variability of equity will be: $3 = \text{equity variability} \times 0.512 + 0 \times 0.488 = 3/(1/0.512) = 5.86$.

A warrant is similar to a call option. We can use the Black-Scholes formula to value a warrant. Note that after warrants are exercised, the equity shares will increase which causes dilution. The call value is adjusted for the dilution effect to determine the value of the warrant. Calculations are shown below.

Equity market value (25 crore shares), (Rs crore)	800
Share price (Rs): 800/25	32
Debt (Rs crore)	400
Total assets (market value) (Rs crore)	1200
Debenture issue (Rs 100 each), (Rs crore)	400
Number of debentures (crore)	4
Number of warrants (one debenture/one warrant/one share)	4
Warrant price (Rs)	10
Warrant money (Rs crore)	40
Exercise price (Rs)	15
Expiry period (years)	2
Share price variability (before debenture issue)	4.5
Risk-free rate	10%

Equity/Assets (before warrant issue): 800/1200	0.667
Debt/Assets (before warrant issue): 400/1200	0.333
Asset variability (stdev.) (assuming risk free debt)	3

Share value after warrant issue (Rs): 32 + 10	42
Equity value after warrants issue (Rs crore): 800 + 40	840
Assets after debenture issue (Rs crore): 1200+400+40	1640
Equity/Assets (after warrant issue)	0.512
Debt/Assets (after warrant issue)	0.488
Revised variability of equity	5.86

Value of Warrant by Black-Scholes formula:	
Revised share price after warrant issue (Rs)	42
Exercise price (Rs)	15
Expiry period (years)	2
Revised variability of equity	5.86
Risk-free rate	10%
d_1	4.2901
d_2	-3.9932
$N(d_1)$	1.0000
$N(d_2)$	0.0000
Call value	42.00
New shares after warrants are exercised (crore)	4
New shares/existing shares (w)	0.16
Total shares after warrants are exercised	29
Dilution factor	0.862
Warrant value (Rs): $(1/(1 + w)) \times \text{call value}$	36.21

CASES

Case 21.1: Tata Steel

Tata steel is planning to implement a massive modernisation and expansion programme involving a cost of Rs 1,500 crore. A part of this cost will be financed through convertible debenture. The company is issuing 12% debenture of the face value of Rs 1,200, consisting two parts. Part A of Rs 600 is convertible and Part B of remaining Rs 600 is non-convertible and will be redeemed after 8 years. Interest is payable half-yearly. The conversion ratio is 1; that is, each convertible debenture of Rs 600 will be converted into one share of Rs 100 at a premium of Rs 500. The debentures will be compulsorily convertible into share after 6 months of the date of allotment. Thus the conversion price is Rs 600. Will the debenture holders benefit at the time of conversion? It will depend on the market value of the share at the time of conversion. The current market price of the share is Rs 1,265. Assuming that the share price at the time of conversion (after 6 months of the allotment) remains at Rs 1,265, the debenture holders will gain and the difference between the market price of the share and the conversion value (that is, conversion ratio x conversion price) will be the debenture holders conversion premium. Thus

$$\text{Conversion premium} = \frac{1,265 - (1 \times 600)}{(1 \times 600)} = 1.11 \text{ or } 111\%$$

Debenture holders will have tremendous benefit. They will benefit from conversion provided the share price is more than Rs 600 (conversion value). Will the share price be more than Rs 600 or Rs 1,265?

The sales growth and the profitability of the company as given below has been good. The sales are likely to up further. Its debt-equity ratio is around 1:1. The current price of the share is about 2.4 times of the book value and P/E ratio is more than 23 times. With improved performance the P/E ratio could be expected to increase. Assuming that it remains at 23 at the time of conversion, and EPS also does not change, then the price should stay around Rs 1,265. Thus from the investor's point of view, the convertible debenture is quite attractive. The company is able to issue deferred equity at a high premium. At the time of this issue, CCI was controlling the pricing of shares. The formula used by CCI would consider past profits, the book value and the market value. It was very unlikely that CCI would have allowed such a high premium if the company would have issued shares instead of convertible debentures.

Tisco's Financial performance:	1987	1988	1989	3-year average	Projection 1990
Sales growth	10.1%	7.6%	16.3%	11.3%	17.5%
Profit margin	5.6%	5.8%	9.2%	6.8%	7.6%
ROE		10.2%	16.5%	13.3%	
D/E			0.74: 1	0.65: 1	0.93: 1

Case 21.2: Western Hatcheries

The sales and profits of the company have shown significant growth. Sales have grown at a compound annual rate of 55% and net profits at 102% during 1983-84 to 1987-88. The prospects for 1988-89 are very bright. Given the past performance of the company, the expansion project should add to its growth and profitability. Thus the company is likely to add considerable value to the shareholders which should reflect in the price of the company's share. The share price is likely to be high at the time of conversion (unless there is any downturn in the market itself). This will benefit the shareholders. The benefit to the company is that it can issue deferred equity at premium (by adding the conversion feature to the debenture) at a time when the company's share price is not quoting in the market. Until the debentures are converted into equity, the company can take advantage of interest tax shield.