Pre and Post Merger Valuation- A Study of Tata Corus Merger Deal

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In recent times India has witnessed some mega mergers which is a clear sign of growth nature of the Indian firms to outshine fast in the globalization mania. The companies go for acquisition deals for various purposes like curtailing down competition by acquiring competitor with premium price (Tata-Corus), easy admittance to overseas market etc. Pre and post merger health of the bidder and the target companies will have to be analyzed based upon some parameters like EPS, NOPAT, and Market Capitalization. Merger & acquisition are the tools used by companies for the purpose of expanding their operations with the aim of long term profitability. Tata Steel acquired the European steel company, Anglo-Dutch steelmaker Corus in all cash deal at 455 pence per share, putting the enterprise value of Corus at about $12 billion, the biggest acquisition made so far by an Indian firm. The deal has improved the position Tata Steel in global steel industry from 56th position to 6th largest producer of steel and got the chance to get enlisted among the prestigious Fortune 500 companies.

Objective of the study

The major objectives of my project are as follows-

1. To study the Merger & Acquisition Valuation System
2. To carry out the valuation of the deals (Tata Corus)
3. To analyze the Mergers and Acquisition deals from the strategic prospective
4. To analyze the Pre merger and post merger condition of the two companies

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Methodology:

The valuation is conducted of the Tata Corus Deal.

Discounted cash flow (or DCF) approach describes a method of valuing a project, company, or asset using the concepts of the time value of money. All future cash flows are estimated and discounted to find present value**.** The discount rate used is generally the appropriate cost of capital, and may incorporate judgments of the uncertainty (riskiness) of the future cash flows.

Firm value = PV (Free cash flow over the life)

Sales Revenue -Operating Cost-Taxes- Net Investment- Change is Working Capital = Free Cash Flow

Taxes are calculated as a percentage of net operating profit as prescribed. **Net Investment** is calculated from the difference of the total assets from the present to previous year. **Change in working capital** is considered same as the changes in sales revenue.

Life of a firm = Forecast period + Terminal year, Forecast period = Interval over which firm enjoys competitive advantage

WACC (weighted average cost of capital) is used as the discount rate for the cash flow of the company.

Cost of Equity (Ke) is calculated from the "Capital asset pricing model", as follows

Ke= Rf +(Rm-Rf)β Where, Rf =Risk Free rate, Rm = Market return, β=beta value

Cost of debt (Kd) is calculated as follows

Cost of Debt **Kd** = $\frac{Interest\ Paid}{(LTB+STB)-Repayments\ of\ Borrowings}$

Where, LTB= Long term borrowings

STB= Short term borrowings

Terminal value is calculated using Gordon Growth Model as follows

Terminal Value = Final Projected Year Cash Flow X (1+Long-Term Cash Flow Growth Rate)

(Discount Rate – Long-Term Cash Flow Growth Rate)

Valuation of the deal

The deal under consideration is valued using the Discount Cash Flow Method (DCF) under the following steps

1. Pre merger valuation of the two entities undergoing the deal
2. Post merger valuation of the combined entity and also synergy valuation

Concept of WACC for the discount rate, CAPM model for the cost of equity and Gordon growth Model for the calculation of the terminal value is used for the valuation of the deal. SPSS (Data mining tool) was also being used to get a suitable and true projected value for the sales and operating cost. Input data like past sales data, past price of steel & aluminum, past trend of input cost for the manufacturing of Steel & Aluminum were used for setting up the required trends.

Justification of the deal: Justification of the deal is being carried out based upon the valuation of the company under consideration and also the synergy or due diligence that is to be attached in the due course of the deal.

Maximum value the bidder company can pay = Value of the target company + Synergy value

The mega deal in India : TATA & CORUS DEAL

Enterprise deal amount = $12 million., Date: April 2, 2007

About the deal

Date: 02 Apr 2007

Tata Steel ("the Company") has completed its £6.2 billion (US$12 billion) acquisition of Corus Group plc (Corus) at a price of 608 pence per ordinary share in cash. The enlarged company will have a pro forma crude steel production of 27 million tonnes in 2007 and will be the world's fifth largest steel producer with 84,000 employees across four continents. The combination of Tata Steel would be the world's most profitable steel companies, Mr Ratan Tata, Chairman of Tata Steel and Corus, said: "The completion of this acquisition of Corus by Tata Steel is a major step forward in the Company's global strategy and represents an exciting future for both businesses. I firmly believe that both Tata Steel and Corus, two companies with long, proud histories, share a common business culture and a global vision for the business."Jim Leng, retiring Chairman of Corus, said: "Corus had twin objectives from the outset. One was to secure the best value for our shareholders and the other was to ensure the best strategic future for the business. With Tata Steel, we have delivered both, and the directors, senior management and other employees of Corus will see today as the

beginning of an exciting new era. The Corus and Tata Steel combination will enable us to build on complementary skills in global markets. I am very much looking forward to working with Mr. Ratan Tata and the Boards and directors in both companies."

Trend Projection

Input Cost data

Year	Thermal Coal $/tonne	Coking Coal $/ton	Iron Ore Cents/dmtu	Natural Gas $/1000m3	Steel Scrap $/tonne	Electricity Cents/KwH	Total
2000	26.26667	44.38	28.8	124.325	93	4.633333	321.405
2001	32.31667	46.51	29.89167	139.4417	74	5.041667	327.2017
2002	27.08333	50.54	29.3	95.99167	88	4.875	295.79
2003	27.94167	50.64	31.55	125.5167	108	5.105833	348.7542
2004	56.73333	61.58	37.9	135.175	205	5.249167	501.6375
2005	51.025	84.08	65	212.975	189	5.724167	607.8042
2006	52.60833	93.32	77.35	295.65	214	6.150833	739.0792

Source: http://www.steelonthenet.com/commodity_prices.html

Past sales and operating Cost Data

YEAR	TURNOVER	OPERATING COST
2006	9733	9276
2005	9155	8512

2004	8373	7756
2003	8203	8161
2002	7407	7634
2001	7924	8084

Source: "Corus Group Annual report"
(http://www.corusgroup.com/en/company/financial_information/report_and_accounts)

Commodity prices (steel & aluminium)

YEAR	Group TURNOVER	Aluminium Division	Steel division	% Aluminium	% of steel
2006	9733	231	9502	0.24	0.76
2005	9155	1110	8045	0.12	0.88
2004	8373	1092	7281	0.13	0.87
2003	8203	1028	7175	0.13	0.87
2002	7407	957	6450	0.13	0.87
2001	7924	1085	6839	0.14	0.86

Source: "Corus Group Annual report"
(http://www.corusgroup.com/en/company/financial_information/report_and_accounts)

Historical Steel Price ($/ton)

Year	Flat-Rolled coil	Steel Tubular	Average
2001	397	685	541
2002	410	651	530.5
2003	422	630	526
2004	574	863	718.5
2005	617	1326	971.5
2006	634	1499	1066.5

Source: (http://www.econstats.com/rt_steel.htm)

Year	Steel price	% of steel	Aluminium Price	% of aluminium	Total Price

2000	534.5	406.22	1,640	393.6	928.1
2001	541	476.08	1,520	182.4	723.4
2002	530.5	461.54	1,430	185.9	716.4
2003	526	457.62	1,500	195	721
2004	718.5	625.1	1,850	240.5	959
2005	971.5	835.49	2,010	281.4	1252.9
2006	1066.5	959.85	2,676	267.6	1334.1

Source: Aluminum data (http://minerals.usgs.gov/ds/2005/140/aluminum.pdf) Steel data (http://www.econstats.com/rt_steel.htm

Exchange rate data

Since the date of the deal date was April 2, 2007 so the exchange rate has been taken on that particular date only.
Date: Wednesday, April 2, 2007
http://www.oanda.com/convert/fxdaily

Base Currency: British Pound, GBP

Currency	Code	GBP/1 Unit	Units/1 GBP
US Dollar	USD	0.505	1.9806

Source: http://www.oanda.com/convert/fxdaily

Base Currency: Indian Rupee, INR

Currency	Code	INR/1 Unit	Units/1 INR
US Dollar	USD	40.15	0.02491

Source: http://www.oanda.com/convert/fxdaily

Valuation Phase

Company Valuation

The individual companies undergoing the deal will be evaluated as per the method specified with relevant assumptions.

Corus Group Plc.

Valuation as per the past performance of the company

Stage 1

Year	2001	2002	2003	2004	2005	2006
Growth in sales		-6.52%	10.75%	2.07%	9.34%	6.31%
Annual Sales	7924	7407	8203	8373	9155	9733
Operating Cost	8084	7634	8161	7756	8512	9276
Operating Profit	-160	-227	42	617	643	457
Taxes	43	61	53	119	116	119
After tax Profit	-203	-288	-11	498	527	338
Net Investment (% or revenue)		-9% -687.000	-0.63% -52.000	11% 912.000	7% 651.000	1% 138
Working capital	1323	748	1813	-793	-535	-19
Change in working capital		-575	1065	-2606	258	516
Free cash flow		974.000	-1024.000	2192.000	-382.000	-316.000

Stage 2

Forecasted Period	Year 1 (2001)	Year 2 (2002)	Year 3 (2003)	Year 4 (2004)	Year 5 (2005)	Terminal Value(Gordon Growth Model)
Free Cash flow	974.000	-1024.000	2192.000	-382.000	-316.000	-3647.5
Discounted value(DV)	861.871	-801.800	1518.763	-234.205	-171.436	-1978.841
	i=1	i=2	i=3	i=4	i=5	i=6

[For stage 2; Discount rate=13.01% (WACC)]

The enterprise value of Corus is given by,

$= \sum_{i=1}^{6} DVi$ (where, i= period)

= 861.871+ (-801.800) + 1518.763+ (-234.205) + (-171.436) + (-1978.841)
= -805.649 m£

Valuation as per the future performance (projection) of the company

Stage 1

Year	2006	2007	2008	2009	2010	2011
Growth in sales		1.84%	4.17%	4.00%	3.85%	3.70%
Annual Sales	9733	9911.733	10324.848	10737.962	11151.076	11564.19
Operating Cost	9276	9164.706	9429.717	9694.728	9959.739	10224.75
Operating Profit	457	747.027	895.131	1043.234	1191.337	1339.439
Taxes	119	190.491885	228.25841	266.02467	303.790935	341.5569
After tax Profit	338	556.535115	666.8726	777.20933	887.546065	997.8821
		3%	4.00%	5%	6%	7%
Net Investment (% or revenue)		297.352	412.994	536.898	669.065	809.4933
Working capital	2064	2101.98	2189.63	2277.22	2364.88	2452.39
Change in working capital		37.98	87.65	87.59	87.66	87.51
Free cash flow		221.203	166.229	152.721	130.822	100.879

Stage 2

Discount rate=16.80% (WACC of Corus Group Plc.)

Forecasted Period	Year 1	Year 2	Year 3	Year 4	Year 5	Terminal Value(Gordon Growth model)
Free Cash flow	221.203	166.229	152.721	130.822	100.879	1164.42

Discounted value	189.386	121.849	95.845	70.292	46.407	535.668
	i=1	i=2	i=3	i=4	i=5	i=6

The enterprise value of Corus,

$= \sum_{i=1}^{6} DVi$ (where, i= period)

= (189.386 + 121.849+ 95.845+ 70.292 + 46.407+ 535.668) m£
= 1059.447 m£
= 1.06 bn £
= $ 2.1 billion (Exchange rate, 1£= 1.9806 $ as on april 2, 2007)

Tata Steel Ltd. : Valuation as per the future performance (projection) of the company

Stage 1

Year	2006	2007	2008	2009	2010	2011
Sales growth		11.02%	10.65%	9.62%	8.78%	8.07%
Annual Sales	17398.98	19316.129	21373.255	23430.380	25487.506	27544.631
Operating Cost	11383.92	11945.019	12846.040	13747.061	14648.081	15549.102
Operating Profit	6015.06	7371.111	8527.215	9683.320	10839.424	11995.529
Taxes	1733.58	2285.044	2643.437	3001.829	3360.221	3718.614
After tax Profit	4281.48	5086.066	5883.778	6681.491	7479.203	8276.915
Net Investment (% of sales)	14%	16%	18%	20%	22%	24%
	2473.86	3090.581	3847.186	4686.076	5607.251	6610.711
Working Capital	1401.61	1556.050	1721.766	1887.482	2053.198	2218.913
Change in working capital		154.440	165.716	165.716	165.716	165.716
Free cash flow		1841.046	1870.877	1829.699	1706.236	1500.487

Stage 2

Discount rate=8.33% (WACC of Tata Steel Ltd.)

Forecasted Period	Year 1	Year 2	Year 3	Year 4	Year 5	Terminal Value(Gordon Growth model)
Free Cash flow	1841.046	1870.877	1829.699	1706.236	1500.487	36039.480
Discounted value	1699.479	1594.218	1439.240	1238.922	1005.747	24156.544
	i=1	i=2	i=3	i=4	i=5	i=6

The enterprise value of Tata Steel,

= $\sum_{i=1}^{6} DVi$ (where, i= period)

=1699.479+1594.218+1439.24+1238.922+1005.747+24156.544

= 31134.150 crore

= $ 7.78 billion (using exchange rate, 1 INR= 0.02491 $ as on April 2, 2007)

Synergy Valuation

Year	2006	2007	2008	2009	2010	2011
Annual Sales of Corus(figures in m£)	9733	9911.733	10324.848	10737.962	11151.076	11564.19
Annual Sales of Tata Steel(Figures in crores)	17398.98	19316.129	21373.255	23430.3802	25487.5055	27544.6309
Operating Cost of Corus(figures in m£)	9276	9164.706	9429.717	9694.728	9959.739	10224.751
Operating Cost of Tata Steel(figures in crores)	11383.92	11945.019	12846.04	13747.0605	14648.0814	15549.1023
Taxes paid by Corus(figures in m£)	119	3045.9798	3275.7401	3505.50043	3735.26076	3965.02109
Taxes paid by Tata Steel(figures in crore)	1733.58	944.25373	1015.4794	1086.70513	1157.93084	1229.15654
Net Investment of Corus (% of revenue)	1.41%	3%	4.00%	5%	6%	7%
	138	297.352	412.994	536.898	669.065	809.4933
Net Investment of Tata (% of sales)	14%	16%	18%	20%	22%	24%
	2473.86	3090.581	3847.186	4686.076	5607.251	6610.711
Working capital of Corus	2064	2101.98	2189.63	2277.22	2364.88	2452.39
Working Capital of Tata Steel	1401.610	1556.050	1721.766	1887.482	2053.198	2218.913

Corus tax rate= 25.5%; Tata Steel tax rate = 31%

Hence, Average tax rate =28.25%

(figures in million $)						
Year	2006	2007	2008	2009	2010	2011
Annual Sales of Corus	19067.92	19418.076	20227.41	21036.7414	21846.073	22655.4046
Annual Sales of Tata Steel	4006.9851	4448.5046	4922.2606	5396.01656	5869.77253	6343.5285
		23866.581	25149.67	26432.7579	27715.8455	28998.9331
Sales of combined entity	23074.905	3.43%	5.38%	5.10%	4.85%	4.63%
Due to synergic action		4.0%	6.38%	6.10%	5.85%	5.63%
Synergic Sales of combined entity	23074.905	23997.90	25528.97	27086.23	28670.78	30284.94
Operating Cost of Corus	18172.612	17954.576	18473.759	18992.942	19512.125	20031.310
Operating Cost of Tata Steel	2621.7168	2750.9378	2958.4429	3165.94804	3373.45315	3580.958
		20705.513	21432.201	22158.890	22885.578	23612.268
Operating Cost of the Combined entity	20794.328	-0.5%	-1.00%	-1.5%	-2.0%	-3.0%
Synergic Operating Cost of Combined entity	20794.328	20601.986	21217.879	21826.506	22427.866	22903.900
Synergic Operating Profit of the Combined entity	2280.577	3395.916	4311.088	5259.728	6242.913	7381.044
Taxes paid by the Combined Entity		959.34623	1217.8824	1485.87329	1763.62299	2077.76402
Net Investment of Corus (% or revenue)	1.41%	3%	4.00%	5%	6%	7%
	270.356	582.542	809.096	1051.837	1310.764	1585.878
		16%	18%	20%	22%	24%
Net Investment of Tata (% of sales)	569.730	711.761	886.007	1079.203	1291.350	1522.447
Net Investment of the Combined entity	840.086	1294.303	1695.103	2131.040	2602.114	3108.325
Working capital of Corus	4043.5824					
Working Capital of Tata Steel	322.791					
Working Capital of the Combined Entity	4366.373	4541.028	4830.746	5125.421	5425.258	5730.700
Change in Working Capital		174.655	289.718	294.675	299.837	305.442
Free Cash Flow		967.61	1108.38	1348.14	1577.34	1889.51

Working Capital of Corus = 2064*1.9591=4043.582;
Working Capital of Tata Steel = 1401.61*10*0.02303=322.791]

Stage 2

Discount rate = 11.97% (WACC of the combined firm)

Forecasted Period	Year 1	Year 2	Year 3	Year 4	Year 5	Terminal Value (Gordon Growth model)
Free Cash flow	967.612	1108.385	1348.139	1577.339	1889.513	28464.640
Discounted value	864.170	884.071	960.350	1003.502	1073.598	16173.250
	i=1	i=2	i=3	i=4	i=5	i=6

The enterprise value of Tata Steel (Post Merger),

= $\sum_{i=1}^{6} DVi$ (where, i= period)

= 864.17+884.071+960.35+1003.502+1073.598+16173.250
= $ 20958.942 million
= $ 20.96 billion

Analysis

The deals under consideration are the deal between Tata Steel Ltd. and Corus Group Plc.

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Data analysis and Interpretations

Corus Group Plc

Establishing the trend of projected Sales

It has been seen that the future sales of any company is dependent upon **past trend of sales**, **input cost** like electricity and other raw material cost and **the price of the product** it is dealing with (steel & aluminum).

The input cost factors for the manufacturing of Steel & Aluminum are as follows-

1. Thermal Coal
2. Cooking Coal
3. Iron ore

4. Natural Gas
5. Steel Scrap and
6. Electricity

Year wise (2000 to 2006) data of commodity price, past sales and input cost

Year	Total commodity Price	Sales	Input cost
2000	2393.6	9358	15073.3
2001	2183.4	7924	13014.2
2002	2187.9	7407	12499.2
2003	2198	8203	13320
2004	2244.5	8373	13821
2005	2286.4	9155	14980.7
2006	2273.6	9733	15614.3

Using this data and using the SPSS data analysis tool we establish the following trend:

Relation between Year and Input Cost Input Cost= -477962.236+ (245.636) Year

Relation between Year and Price Price= 9220.064+ (-3.479) Year

Relation between sales, Input cost and price Sales= -1122.053+ (0.714) Input Cost + (-0.140) Price

Year	Estimated Input Cost	Estimated Price(Steel &Aluminium)	Predicted Sales	Actual sales	Error	Projected Error	Error(%)	Real sales figure
2001	13555.4	2258.585	8240.301	7924	316.301	316.301	4%	7924
2002	13801.036	2255.106	8416.172	7407	1009.172	1009.172	14%	7407

2003	14046.672	2251.627	8592.043	8203	389.043	389.043	5%	8203
2004	14292.308	2248.148	8767.914	8373	394.914	394.914	5%	8373
2005	14537.944	2244.669	8943.785	9155	-211.215	-211.215	-2%	9155
2006	14783.58	2241.19	9119.657	9733	-613.343	-613.343	-6%	9733
2007	15029.216	2237.711	9295.528			-616.206	-7%	9911.733
2008	15274.852	2234.232	9471.399			-853.449	-10%	10324.848
2009	15520.488	2230.753	9647.270			-1090.692	-13%	10737.962
2010	15766.124	2227.274	9823.141			-1327.935	-15%	11151.076
2011	16011.76	2223.795	9999.012			-1565.178	-18%	11564.190
2012	16257.396	2220.316	10174.884			-1802.421	-21%	11977.305

Here Blue color indicates the projected value.

Establishing the trend of Operating Cost

The operating cost depends upon the past trend of operating cost and sales.

YEAR	TURNOVER	OPERATING COST
2006	9733	9276
2005	9155	8512
2004	8373	7756
2003	8203	8161
2002	7407	7634
2001	7924	8084

Source: Annual report, Corus Group Plc.
(http://www.corusgroup.com/en/company/financial_information/report_and_accounts)

Using the above stated data and using the multivariate analysis of SPSS Data mining tool, we get the following trend:

Relation between operating cost and turnover

Operating cost= (0.6414960661544495) Turnover + 2806.367886614121

And we get the following values for the operating cost

Year	Estimated Sales	Estimated Operating Cost
2007	9911.733333	9164.705829
2008	10324.84762	9429.717018
2009	10737.9619	9694.728207
2010	11151.07619	9959.739396
2011	11564.19048	10224.75059
2012	11977.30476	10489.76177
2013	12390.41905	10754.77296
2014	12803.53333	11019.78415
2015	13216.64762	11284.79534

Tax rate calculation

Year	Taxation	Profit before tax
2004	119	527
2005	116	548
2006	119	313
Average	118	462.6666667

Source: Annual Report, Corus Group Plc.

Tax reformation by the Government was done in the year 2003 end and it was affected from year 2004, so the past data are not taken into consideration.

So the average tax rate = 118/462.667

= 0.255043

So the tax rate = 25.5%. The tax rate is assumed to be constant throughout the period of operation of the company.

Net Investment calculation

Year	Total Asset	Sales	Net Investment	Profit before tax	Return on Investment	Investment/turnover
2000	8398	9358				
2001	7118	7924	-1280			

2002	6431	7407	-687			
2003	6379	8203	-52			
2004	7291	8373	912	527	0.072280894	0.108921534
2005	7942	9155	651	548	0.069000252	0.071108684
2006	8080	9733	138	313	0.038737624	0.014178568

The present Investment/turnover is merely 1.42% and that is the reason for which the profit before tax is diminishing from 527 m£ in the year 2004 to 313 m£ in the year 2006.

So the Investment/turnover is likely to go up from the present level 1.42% to some higher value so that the company can stand in this world of rising inflation or setup cost and also enjoy the benefit of profit before tax which can also be invested for the further growth of the company.

So the assumption is taken as follows,

Year	2007	2008	2009	2010	2011
Net Investment (% or revenue)	3%	4.00%	5%	6%	7%

Working Capital calculation

Working capital = current asset- current liabilities

For the year 2006, working capital = (4412-2348) m£

= 2064 m£

The growth of working capital is directly proportional to the growth of sales.

So, the projection of growth of working capital will be in line with the projection of sales.

WACC Calculation

Cost of Debt (Kd) calculation

With reference to "2006, Annual report, Corus" the following data are obtained-

LTB= 1236 m£

STB= 159 m£

Interest paid= 101 m£

Repayment of borrowings= 177 m£

Hence, **Kd** = $\frac{101}{(1236+159)-177}$

=0.0829 (8.29%)

Cost of Equity (Ke) calculation

From CAPM model, Ke= Rf +(Rm-Rf)β

Rf = 4.8% (US T-bill, year 2006)

[source: http://www.federalreserve.gov/releases/h15/data/Annual/H15_TCMNOM_Y10.txt]

Beta value = 1.49

Rm= 15.4%

Ke= 4.8%+(15.4% - 4.8%)×1.49

= 20.59%

Weighted average cost of capital

$$\text{WACC} = \text{Ke} \times \frac{E}{D+E} + \text{Kd} \times (1 - corporate\ tax\ rate)\ \frac{D}{D+E}$$

Where, E= % of equity in the capital structure
D= % of equity in the capital structure
Equity capital = 3934 m£
Total debt = (1236+159) m£ = 1359 m£
Corporate tax rate = 29.6%
(Source: Annual report 2006)

Hence, $\frac{E}{D+E} = \frac{3934}{3934+1359} = 74.32\%$

$\frac{D}{D+E} = \frac{1359}{3934+1359} = 25.68\%$

Hence, WACC= 20.59% ×0.7432 + 8.29% × (1-0.296) × 0.2568
= 16.80%

The cost of capital & cost of debt and thus in turn WACC is assumed to constant throughout the period of operation of the company.

Terminal Value Calculation

Pre Valuation

Cash flow after 5th year till perpetuity is assumed to be 4%.
Projected cash flow on 5th year = -316 m£
Discount rate = 16.8 %

Hence, Terminal value = $\frac{-316(1+0.04)}{(13.01\%-4\%)}$
= -3647.5 m£

Post Valuation

Gordon Growth Model

Terminal Value = Final Projected Year Cash Flow X (1+Long-Term Cash Flow Growth Rate)
(Discount Rate – Long-Term Cash Flow Growth Rate)

Cash flow after 5th year till perpetuity is assumed to be 4%.
Projected cash flow on 5th year = 100.879 m£
Discount rate = 16.8%

Hence, Terminal value = $\frac{100.879(1+0.04)}{(13.01\%-4\%)}$ = 1164.42 m£

Tata Steel Ltd.

Establishing the trend of projected Sales

It has been seen that the future sales of any company is dependent upon **past trend of sales**, **input cost** like electricity and other raw material cost and **the price of the product** it is dealing with (steel & aluminum).

The input cost factor and prices are taken same as taken for Corus Group Plc. as both the companies are producing steel.

Year wise (2000 to 2006) data of commodity price, past sales and input cost

Year	Group TURNOVER	Steel Price	Input cost
2001	7801.05	541	13014.2
2002	7682.7	530.5	12499.2
2003	9843.66	526	13320
2004	12069.62	718.5	13821
2005	16053.48	971.5	14980.7
2006	17398.98	1066.5	15614.3

Using this data and using the SPSS data analysis tool we establish the following trend:

Relation between year and Input Cost

Input Cost= -1.185E6 + (598.457)Year

Relation between Steel price and Year

PRICE= (-236431.490) + 118.371 Year

Relation between Sales, Input Cost and Steel Price

Turnover = (-24892.136) + (2.360) Input Cost +(5.447) Price

Using the above stated equations we get the predicted values as given below-

Year	Predicted Input Cost	Predicted Price	Sales
2007	16103.199	1669720.279	19316.13

2008	16701.656	1740560.232	21373.25
2009	17300.113	1811400.186	23430.38
2010	17898.57	1882240.139	25487.51
2011	18497.027	1953080.093	27544.63

Establishing the trend of Operating Cost

The operating cost depends upon the past trend of operating cost and sales.

Year	Group TURNOVER	OPERATING COST
2001	7801.05	6715.36
2002	7682.7	6906.95
2003	9843.66	8025.68
2004	12069.62	8778.55
2005	16053.48	10137.42
2006	17398.98	11383.92

Source: Annual Report Tata Steel Ltd.(www.tatasteel.com)

Putting the above values of sales and operating cost and using the SPSS, the following trend is being established-

Relation between Operating Cost and Sales
Operating cost = 3484.554 + (0.438) Sales

Using the above equation we get the following projected data for the operating cost.

Year	Sales	Operating Cost
2007	19316.12947	11945.01871
2008	21373.25483	12846.03961

Year	Total Asset	Net Investment	Sales	Profit Before Tax	Return on Investment	Investment/sales
2001	10443.78		7801.05	602.44	0.057684095	
2002	10533.63	89.85	7682.7	251	0.023828443	0.011695107
2009		23430.38018		13747.06052		
2010		25487.50554		14648.08143		
2011		27544.6309		15549.10233		

Tax rate Calculation

Year	Taxation	Profit Before Tax	Tax Rate
2001	49	602.44	0.081335901
2002	46.1	251	0.183665339
2003	250.19	1262.5	0.198170297
2004	919.74	2665.96	0.344993923
2005	1823.12	5297.28	0.344161532
2006	1733.58	5239.96	0.330838403
	803.6216667	2553.19	0.314752003

So the tax rate = 803.621667/2553.19
= 0.31475
Hence, tax rate = 31.5%
The tax rate is assumed to be constant throughout the period of operation of the company.

Net Investment calculation

2003	9695.87	-837.76	9843.66	1262.5	0.130210079	-0.085106556
2004	10292.16	596.29	12069.62	2665.96	0.259028231	0.049404207
2005	12143.3	1851.14	16053.48	5297.28	0.436230679	0.115310824
2006	14617.16	2473.86	17398.98	5239.96	0.358480033	0.142184197

So the Investment/turnover is likely to go up from the present level 14.2% to some higher value so that the company can stand in this world of rising inflation or setup cost and also enjoy the benefit of profit before tax which can also be invested for the further growth of the company.

So the assumption is taken as follows,

Year	2007	2008	2009	2010	2011
Net Investment (% of sales)	16%	18%	20%	22%	24%

Working Capital calculation

Working capital = current asset- current liabilities

For the year 2006, working capital = (4237.6-2835.99) crorers

= 1401.61 crores

The growth of working capital is directly proportional to the growth of sales.

So, the projection of growth of working capital will be in line with the projection of sales.

WACC Calculation

Cost of Debt (Kd) calculation

$$\textbf{Kd} = \frac{Interest\ Paid}{(Total\ Net\ Loans) - Repayments\ of\ Borrowings}$$

With reference to "2006-07, Annual report, Tata Steel" the following data are obtained-

Total Loans = 9645.33 crore

Loans for acquisitions of corus = 7225 crore

Total Net Loans = 2420.33 crore

Interest paid= 173.9 crore

Repayment of borrowings= 916.31 crore

Hence, $\textbf{Kd} = \frac{173.9}{2420.33 - 916.31}$

=0.1156 (11.56%)

Cost of Equity (Ke) calculation

From CAPM model, Ke= Rf +(Rm-Rf)β

Rf = 4.8% (US T-bill, year 2006)

[source: http://www.federalreserve.gov/releases/h15/data/Annual/H15_TCMNOM_Y10.txt]

Beta value = 0.351

Rm= 25.11%

Ke= 4.8%+(25.11% - 4.8%)×0.351

= 11.93

Weighted average cost of capital

$$\text{WACC= Ke} \times \frac{E}{D+E} + \text{Kd} \times (1 - corporate\ tax\ rate)\ \frac{D}{D+E}$$

Where, E= % of equity in the capital structure

D= % of equity in the capital structure

Equity capital = 580.67 crore (excluding warrant of 147.06 crore)
Total debt (Total Liability) = 2420.33 crore
Corporate tax rate = 30%
(Source: Annual report 2006)

Hence, $\frac{E}{D+E} = \frac{580.67}{2420.33+580.67} = 19.35\%$

$\frac{D}{D+E} = \frac{2420.33}{2420.33+580.67} = 80.65\%$

Hence, WACC= 11.93% ×0.1935 + 11.56% × (1-0.30) × 0.8065
= 8.83%

The cost of capital & cost of debt and thus in turn WACC is assumed to constant throughout the period of operation of the company.

Terminal Value Calculation

Using Gordon Growth Model, we have

Terminal Value = Final Projected Year Cash Flow X (1+Long-Term Cash Flow Growth Rate)
(Discount Rate – Long-Term Cash Flow Growth Rate)

Cash flow after 5th year till perpetuity is assumed to be 4%.
Projected cash flow on 5th year = 1500.49 crore
Discount rate = 8.33%

Hence, Terminal value = $\frac{1500.49(1+0.04)}{(8.33\%-4\%)}$ = 36039.48 crore

Beta calculation

Beta of Tata Steel = $\frac{\text{Varinace of the market}}{\text{Covarinace between market and security}}$
= 0.000312034/ 0.000109501
= 0.351

Synergic assumptions and calculation

Sales are of the combined entity is sure to rise as compared to the combined growth, mainly due to the high market share of the entity and new brand image. This growth is certainly going to be hampered in case of severe economic condition and due course of other internal factors.

The operating cost is certainly will go down after the merger of the two entity, because Tata Steel has the cap of "Lowest cost steel producer in the world". So the Tata Steel is going to inculcate their non imitable technology or technique for the production of steel in all the plants of Corus Group Plc. as much as possible.

Based on the above assumptions the projected synergic value added due to this merger is given below

Due to synergy	2007	2008	2009	2010	2011
Sales growth	0.6%	1.0%	1.0%	1.0%	1.0%
Operating Cost	-0.5%	-1.00%	-1.5%	-2.0%	-3.0%

Terminal Value calculation of the combined firm

Using Gordon Growth Model, we have

Terminal Value = Final Projected Year Cash Flow X (1+Long-Term Cash Flow Growth Rate)

(Discount Rate – Long-Term Cash Flow Growth Rate)

Cash flow after 5th year till perpetuity is assumed to be 5%.

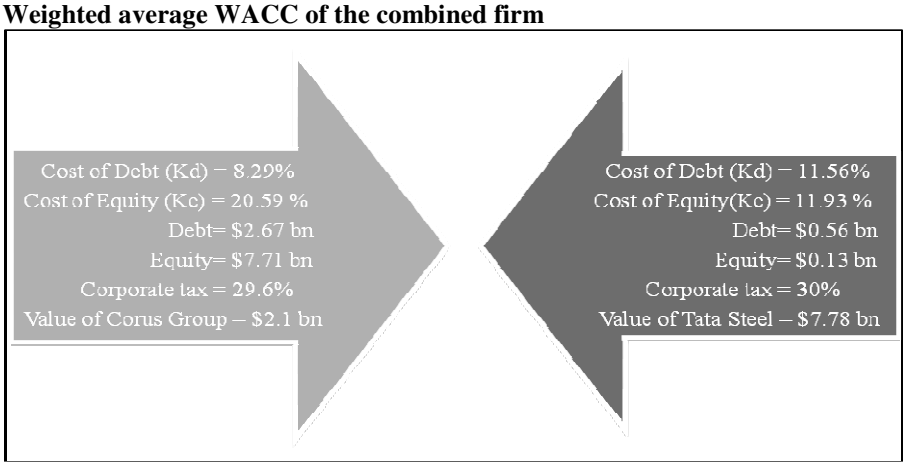
Projected cash flow on 5th year = 1889.51 crore

Discount rate = 11.97%

Hence, Terminal value = $\frac{1889.51(1+0.05)}{(11.97\%-5\%)}$

= 28464.64 m$

Weighted average WACC of the combined firm



Hence,

The valuation of the combined entity = $(2.1+7.78) bn

= $9.88 bn

Corporate tax for the combined entity = 30% (assumed)
Hence,
Cost of equity of the combined entity =20.59% × (2.1/9.88)+11.93× (7.78/9.88)
= 13.77%
Cost of debt of the combined entity =8.29% × (2.1/9.88)+11.56× (7.78/9.88)
= 13.77%
Total Debt of the combined entity = $(2.67+0.56) bn
= $3.23 bn
Total Equity of the combined entity = $(7.71+0.13) bn
= $ 7.84 bn
WACC of the combined entity = 13.77% × ($\frac{7.84}{7.84+3.23}$) +10.86% × ($\frac{7.84}{7.84+3.23}$) × (1-0.3)

[WACC= Ke $\times \frac{E}{D+E}$ + Kd $\times$ $(1 - corporate\ tax\ rate)$ $\frac{D}{D+E}$]

= 11.97 %

Justification of the deal

From the valuation of deal

Value of Corus = $2.1 bn
Value of Tata Steel = $ 7.78 bn
Value of the combined entity after synergic calculation = $ 20.96 bn
Hence,The value generated due to synergy = $[20.96 – (2.1 + 7.78)] bn
= $ 11.08 bn
So, Justified value for the acquisition of corus = $(2.1+11.08)bn
= $13.18 bn
i.e Tata Steel Ltd. can pay at max $ 13.18 bn to acquire Corus Group Plc.
Tata Steel paid $12 bn to acquire Corus.
Hence, The extra benefit that is kept with Tata Steel = $(13.18-12)bn = $1.12bn

Conclusions: Mergers are economic ornamental trade practices. Tata have entered into the Fortune 500 company list, as the Corus turnover was four times than that of Tata Steel, it is the second largest producer of steel in UK and among the top five steel producers in the world. The acquisition of Corus has helped Tata Steel to make a global presence in more than 30 countries and enjoying a huge market share. DCF model is only as good as its input assumptions. DCF works best when there is a high degree of confidence about future cash flows. For better valuation a proper model should be used which take into consideration about operating data from the performance of the company and also the share price. This case clarifies that the deal of the Tata Corus is justified because the Tata is having the extra benefit of $1.12 bn.

Before going for the mergers and acquisitions, it is imperative to analyze the Pre and Post merger valuation of the companies so that justified deal can be undertaken.

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