

An Empirical Study of the Application of the Free Cash Flows to Firm (FCFF) Model of Valuation for Suzlon Energy Ltd.

*Dr. Akshay Damani¹, Rishi Jain², Parth Maheshwari³

¹Assistant Professor – Finance NMIMS University- School of Commerce

²Final year B.Sc. Finance (2015-18) NMIMS University- School of Commerce

³Final year B.Sc. Finance (2015-18) NMIMS University- School of Commerce

Corresponding Author: *Dr. Akshay Damani

Abstract: The objective of this research paper was to gain an in depth knowledge of the valuation process and understand the working of the Indian power industry. We chose Suzlon Energy Ltd. as it was one of the best players in the industry. While doing the valuation process, we came across a lot of difficulties, mainly in forecasting. After the entire valuation, we found that Suzlon Energy Ltd. was actually valued at a right price based on our valuation. However, we checked the graph of the company for last 6 months, and we found that the price had rallied from ₹12.35 to ₹19.30 in just 3 months. This was due to correction in the valuation and increase in order books. Looking at the current order book, restructuring process, research and development, government initiatives and foreign tie ups, we can say that the Indian Power Industry has a lot of potential ahead in terms of growth and wealth creation.

Keywords: Discounted Cash Flow, Forecasting, Intrinsic Valuation, Relative Valuation, Suzlon Energy

Date of Submission: 17-07-2017

Date of acceptance: 28-07-2017

I. INTRODUCTION

Suzlon Energy is a wind turbine supplier based in Pune, India, which started off as a pioneer in supply of Wind Energy production equipments. The company has achieved its target of setting up 10 GW of wind energy supply in India in 2015. It was the fifth largest wind turbine manufacturer by cumulative installed capacity worldwide till 2014. Suzlon is present across 19 countries in 6 continents with 20 GW of installations in 32 countries. Indian market accounts for 79.5% of the total sales of ₹9508.45 crores while Europe and USA were second and third with 10.7% and 5% sales respectively. As of March 31, 2016 the installed capacity of wind power in India was 26,769.05 MW. India's renewable energy sector has been ranked third in the Renewable Energy Country Attractiveness Index (RECAI) with China at second and the US on top.

Furthermore, Suzlon Energy has now ventured into solar space, where in the first year they have an order book totaling 515 MW, and moreover they have invested highly in research as they aim to venture into Solar and Wind Hybrid solutions. (Source: Annual Report and Director Speech)

II. INDIAN POWER SECTOR

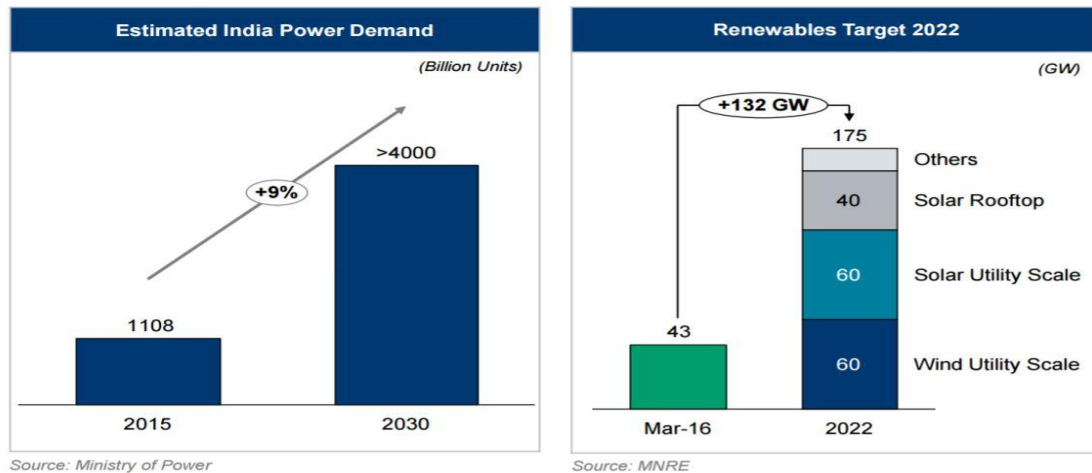
Power is the most important component of growth, development and diversification in a country and India has the most diversified power sector, whose power sources range from coal, gas, oil, wind, solar, hydro lignite and nuclear power. The demand for power in India is expected to grow at a rate of 9-10% per annum¹. The current demand of power is nearly 1100 GW out of which 45 GW is supplied through renewable energy sources.

According to MNRE report, the total domestic energy production is estimated to reach nearly 670 Million Tonnes of Oil Equivalent (MTOE) by 2017. Over the next 3 years, the wind power capacity is expected to grow at a pace of nearly 17-18%.

Last year, in the Paris summit Shri. Narendra Modi announced that the Indian renewable energy capacity will be increased to 175 GW. The division are as follows:

- 100 GW from Solar Energy
- 70 GW from Wind Energy
- 15 GW from Biomass

¹ Chart 1



1. Government initiatives and various investments:

With India's economic potential being tapped at a rapid pace post economic reforms, power is one of the important factors to support the development of the Indian Economy. The Government is also focused on the renewable energy as well. According to the IBEF report, the recent developments undertaken by the Indian Government are:

- Ministry of New and Renewable Energy (MNRE) has budgeted ₹1 billion for Indian Renewable Energy Development Agency Ltd for provision for loans for renewable energy.
- Excise duty on carbon particles used in the manufacture of rotor blades and sub-parts of rotor blades for wind electricity generators has been cut to 5.9% from 12.6%.
- In the year 2014, accelerated depreciation was reinstated, wherein the project developer can claim up to 80% depreciation on the asset in the first year of installation. This would be valid till the 12th fifth year plan, i.e. 2017.
- Generation-based incentive (GBI) was reinstated for wind energy projects along with an allocation of ₹8.1 billion.
- Ten-year income tax holiday under 80 IA of Income Tax Act.
- Concessional customs import duty on specified parts and components.
- Excise duty relief.

2. INDUSTRY ANALYSIS

2.1. Porter's 5 Forces:

2.1.1. Bargaining Power of the Supplier:

Bargaining power of the suppliers in this industry is moderately low for various reasons. The wind turbine consists of various parts which are outsourced from different suppliers. The towers account for about 25% of the total cost, most of which are produced by the company. The wind/rotor blades constitute for about 23% of the total cost, depending on the size of the blade and the tower. The gearbox accounts for about 11% of the total cost, most of which is manufactured by Suzlon.

Furthermore, the number of players in this industry are relatively low and the size of orders is quite low. Moreover, the substitutes to the products supplied are very few.

2.1.2. Bargaining Power of the Consumer:

The bargaining power of the consumer is moderate, as there is a very low cost of shifting from a different product of a different company. It was noticed that in this sector, the number of buyers is comparatively and the supply volume is quite low because of existence of very few competitors. The order book of many wind companies has strengthened in the past 3-4 years, and Suzlon had an order book of 1200 MW from 6 parties in 2016. This implies that the company has various bulk orders from a small amount of buyers, which give the buyer a say in what price they want to purchase it at, as the company would not want to miss out on this huge opportunity.

2.1.3. Threat of New Entrants:

Threat of new entrants in this sector is quite low because of four main reasons - Brand preference, Capital intensive industry, Exit barriers and Access of various channels. Over the years, Suzlon has maintained a good

relationship with its customers who have been giving them orders for new equipment or service. Here, the brand preference for customers comes from quality and services provide.

Secondly, it is a capital intensive industry which makes it difficult for new entrants to enter the market as huge amount of capital is required. Moreover, it's not easy to compete with the existing competitors.

Thirdly, the exit barriers in this industry are low as these companies work on contract business. For example, most of the equipment manufacturers give free services and maintenance for 5-6 years, which makes it difficult for them to exit the industry once entered.

Lastly, access to distribution channels is not very significant here, however, the existing players have a very strong distribution network in terms of marketing, transportation and distribution.

2.1.4. Threat of Substitute Products:

The threat of substitutes falls between medium and high for this sector. However, they maybe not direct substitute, but provide the same service. For example, solar energy and wind energy require completely different infrastructure and factors, however, it provides energy. These kind of substitutes are called as imperfect substitutes. There are various ways in which electricity can be generated, and research is being done to find more ways of efficient energy production. Hence, this industry poses a threat of substitutes.

2.1.5. Competitive Rivalry:

Looking at the above factors, and considering the fact that the numbers of players in this industry are quite low, we can say that the competitive rivalry in this sector is low. However, if more organized foreign players start entering the market, the competition level will see a big increase in terms of quality, cost and efficiency.

2.2. SWOT Analysis:

2.2.1. Strength:

- Solar energy equipment business is an asset light business, allowing the company to outsource the equipment required, reducing the capital investment and fixed cost.
- Provides end to end solutions. That is planning of wind warm systems, development and technical design, and infrastructure. It also includes resource mapping, site development and installation, and maintenance.
- Strong in house storage and design capabilities. Moreover, it has a joint venture with RE power Systems, who is a significantly large player when it comes to wind turbine research and development.
- Suzlon is working on developing the hybrid and wind tower. The S97 120m wind turbine with hybrid tower achieved a plant load of 35% which is higher than the Indian average in similar conditions by nearly 9.8%. It is comparatively more stable, cheaper and provides higher return on investment.
- Offers lifetime support to customers. The operations, maintenance and services (OMS) division offers SURE services which is Suzlon's assurance of dependability at every stage of investment.

2.2.2. Weakness:

- High dependence on external supply or raw materials, however, over the years they have acquired a few firms who supply raw material directly to them.
- Weak financial status, and low credit rating of BBB because of default in repayment of its Foreign Currency Convertible Bonds (FCCB).
- High capital intensive industry, and requires huge amount of capital investment to produce one Kwh of energy. Therefore, the supply is directly dependent on interest rates.
- Suzlon is expanding to different countries where other companies already have an established market. Thus, facing competition from the market leaders of different countries.

2.2.3. Opportunity:

- The wind industry has undergone huge transformation over the past few years. It is still expected to grow at a rapid speed of nearly 20% annually. Furthermore, the 2022 plan of Shri. Narendra Modi will be an added advantage for the growth of this sector.
- This year's budget allocation towards Renewable energy has increased by ₹400 cr.
- The Prime minister declared to power 2000 railway station through solar energy in the 2017 Union budget, under the Indian Railways 1 GW solar mission which would increase the sales.
- The Prime Minister Shri Modi pledged at the Paris climate conference to raise the renewable energy capacity from 45GW currently to 175 GW in 2022.
- The Make in India initiative and the green commitments of the Indian government have given further impetus to Suzlon's target of 20 GW by 2021.

2.2.4. Threat:

- GST would impact solar tariffs minimally. However, if preferential tax benefits to renewable energy were not accounted, then GST could raise the solar tariffs by nearly 9%.
- India allows 100% FDI for renewable power generation and distribution, thus increasing the competition from foreign companies.
- Fluctuation in the currency against other currencies could have adverse effect on cost of its borrowings and repayment of indebtedness, the costs of our raw materials and revenues from exports.

3. Data Analysis:

The data for the analysis has been obtained from the annual reports. Key Financials are:

₹in Core

Particulars/Year	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Revenue	21,082	18,743	20,212	19,837	9,508
EBITDA	1821	(1296)	(141)	316	969
Net Profit	(479)	(4724)	(3,520)	(9,158)	483
Share Capital	355	355	498	742	1004
Debt	7,365	10,858	11,641	10,787	9,226
Enterprise Value	11,221	11,368	11,310	18,216	15,390
EBITDA Margin	8.64%	(6.91%)	(0.70%)	1.59%	10.19%
EPS	(2.7)	(26.6)	(15.7)	(30.5)	1.0
EV/EBITDA	6.16	(8.77)	(80.21)	57.65	15.88
P/E	(9.68)	(0.52)	(0.78)	(1.11)	14.80 ²

4. Literature Review:

We reviewed textbooks, brokerage reports and valuation reports to understand the entire process of research and valuation which would be used in preparing this paper. Our major sources of the valuation process, its theories and actual valuation include - Valuation by Aswath Damodaran, HDFC Securities Brokerage reports and Analysis and Use of Financial Statements by White & Sondhi.

Damodaran on Valuation (2016) was referred to for the process of forecasting of each line item. In this book, various different methods were mentioned for different types of industries and the kind of sector they are into. Furthermore, it also helped us understand the important aspects of intrinsic valuation by different methods.

To understand how actual valuation is done by the brokerage firms, we picked three years old research reports on Suzlon Energy Ltd., which gave us an insight into the requirements for preparing this paper and essentials which have to be mentioned in the paper.

Analysis and Use of Financial Statements (2001) helped us effectively use the ratios for forecasting, and also gave us the basic theory required for going in detail of each line item. This was majorly used for valuation of inventory and finding out the capital expenditure and the depreciation calculation.

5. Research Design:

Objective: Calculation of intrinsic value of Suzlon Energy Ltd. using various valuation methods like Discounted Cash Flow (DCF) method and Relative Valuation.

Sample: Our sample was the data collected for Suzlon and the industry. The data collected and used included - financial statements, stock returns, investor speeches and government data for this industry.

6. Research Methodology:

Step 1: The intricate details of each aspect of company was studied, i.e. background of the company, order book, products and services, office and factory locations, management teams and main clients.

Step 2: For valuation purposes, 5 year old annual reports were used as a primary source for all the fundamental data.

Step 3: The next step was to list down all the close competitors of Suzlon Energy who were into same or similar business. The market capitalization and their 5 year sales growth was calculated to arrive at an industry growth rate.

Step 4: This was used as a starting point in forecasting the financial statements for the next 5 years.

Step 5: The important factors like Cost of Equity (Ke), Cost of Debt (Kd), Risk Free Rate (Rf), and Market Return (Rm) were calculated. (Refer Annexure 1)

Step 6: Using the forecasted data and the above mentioned factors, the Free Cash Flows to Firm (FCFF) and Weighted Average Cost of Capital (WACC) was calculated. (Refer Annexure 2)

² Annual Report

Step 7: Using all of the above, the share price of Suzlon Energy was estimated.

7. Discounted Cash Flow Valuation:

7.1 Assumptions for forecasting line items:

1. Sales and other revenue was grown at the industry average calculated above.
2. Raw material, employee benefit and other expenses was estimated by averaging out past 5 year's ratio with sales.
3. Valuation of inventory was done using the concept of velocity with which it is being consumed.
4. Assets are expected to increase as the sales increase and a pessimistic situation has been taken where the operating capacity has been maintained at 55%.
5. Company is expected to pay off its existing Foreign Currency Convertible Bond (FCCB) debt, which it had defaulted, in the next 3 years.
6. The working capital funding required would increase each year based on the sales growth.
7. Interest income has been kept constant, tax rate is maintained at 34.61% and it was assumed that no dividend was declared during the forecasted period.
8. Current investments, due to customers, other current assets and short term loans and advances was kept constant for the forecasted period.
9. Trade receivables and trade payables was maintained at the average ratio with sales and purchases respectively.
10. The growth rate was taken as half of the estimated GDP growth rate.
11. BSE Mid Cap Index was used as the base for calculation of beta for the stock.
12. The company has very low correlation with market, hence a low R² multiple was required.
13. The 10 year g-bond yield is taken as risk free rate and BSE Mid cap index as market return.

7.2. Estimating the Q4 numbers for 2017: (Rs. In crore)

Particulars	Q1	Q2	Q3	Q4 E
Revenue from operations	1649.58	2746.18	3307.48	3716.80
Other operating income	5.51	5.94	3.90	4.38
Total Income	1655.09	2752.12	3311.38	3721.18
Expenses:				
Raw Materials	1253.80	1794.57	2085.71	2526.77
(Inc)/Dec in inventories	-339.58	-283.98	-244.58	-244.58
Employee Benefit	259.30	258.75	255.51	258.75
Other expenses	358.77	408.94	498.42	588.14
EBITDA	122.80	573.84	716.32	592.11
Depreciation	83.61	94.76	109.42	109.42
EBIT	39.19	479.08	606.90	482.69
Interest Expense	304.10	298.14	339.10	248.08
Interest Income	13.85	17.34	25.44	25.44
EBT before EI	-251.06	198.28	293.24	260.05
Exceptional items	0.00	0.00	0.00	0.00
EBT	-251.06	198.28	293.24	260.05

7.3 Intrinsic Value Calculation:

₹ in Crore

Particulars	2017E	2018E	2019E	2020E	2021E
Sales	11420.04	12833.32	14421.50	16206.23	18211.83
Less: Op. Expenses	10111.28	11728.72	13305.80	15104.81	17165.06
Operating Profit	1308.76	1104.60	1115.70	1101.42	1046.76
Less: Tax	855.80	722.30	729.56	720.22	684.48
NOPAT	452.96	382.30	386.14	381.20	362.28
Less: Capex	548.03	630.14	714.69	789.49	855.43
Less: Chances in WC	-297.44	1241.27	1166.36	1345.89	1616.18
FCFF	-392.51	993.43	837.81	937.60	1123.03
DCF	-361.53	842.78	654.66	674.80	744.45
Terminal Value	24707.00				
PV	16378.10				
Intrinsic value	9706.97				
Share Value	19.33				

The FCFF's for the estimated years, i.e. 2017-2021 are ₹ (392.51) cr, ₹993.43 cr, ₹837.81 cr, ₹937.60 cr and ₹1123.03 cr respectively. Based on this calculation, each year's FCFF was discounted using the WACC to arrive at the Discounted Cash Flows (DCF)³.

The present value of the terminal value calculated turned out to be ₹16378 cr. From this the intrinsic value was calculated by subtracting the current long term borrowings and this figure was divided by the number of outstanding shares to reach the share price, which was ₹19.33

8. Relative Valuation:

P/E		EV/EBITDA	
Techno Electricals	22.45	Techno Electricals	12.89
Cummins India	33.30	Cummins India	27.11
Voltas	24.77	Voltas	21.53
Thermax	34.51	Thermax	15.19
Cabrorundrum	28.38	Cabrorundrum	9.74
Reliance Infra Ltd	7.29	Reliance Infra Ltd	7.24
Kalpataru Power	17.56	Kalpataru Power	7.55
V-Guard	42.95	V-Guard	14.23
Crompton Greaves	-3.98	Crompton Greaves	7.36
Inox Wind	10.08	Inox Wind	8.92
Industry Average	22.01	Industry Average	15.75
Suzlon EPS	1.01	Suzlon EBITDA	968.58
Price	22.23	Price	13.84

Source: BSE India

The value of per share of Suzlon by P/E valuation was ₹22.23, and ₹13.84 by EV/EBITDA. Looking at the above three prices, the price band for Suzlon Energy ltd. can be estimated to be within ₹13.84 and ₹22.23. However, we have two prices which are above ₹13.84, with which we can conclude that there are high chances of the share being valued between ₹19.33 and ₹22.23.

The current market price of Suzlon Energy ltd. is ₹19.20. Looking at the above facts and details, we can conclude that the company is neither undervalued nor overvalued and corrections in the price have taken place.

³ Annexure 2

III. FINDINGS AND CONCLUSIONS:

1. It was found that the company is neither undervalued nor overvalued at the current market price.
2. For years, this industry hasn't seen much growth, and by the Prime Minister Shri Modi's new plans which are supposed to be executed by the end of 2022, this sector can see a robust growth and be one of the outperforming industries.
3. Being the largest and the best provider of wind mill technology, it has an edge over its competitors in terms of products, services and customer loyalty.
4. The company is diversifying into Solar Energy panels and researching on technology for a hybrid of solar and wind energy, which will give the company an upper hand and give a boost to its sales and growth.
5. This sector requires huge capital investment for heavy machinery due to which funds required are pretty high. However, Suzlon already has huge debts which it needs to payback and for future additional funding would be required.
6. The company has huge amount of negative reserves due to huge accumulated losses it has been posting each year and due to the sale of their German unit, Senvion. Last year they finally posted a profit and the management is confident that they will maintain and grow their profits each year. The return to the shareholders will be high from the year 2019, in the form of dividend and capital appreciation.
7. Under the mission 41k by Suresh Prabhu (Railway minister), there is a plan to change the carrier's energy mix by using more green energy through 1,000 megawatt (MW) solar and 200 MW wind plants, installation of LED lights and bulbs across all railway stations, trains and offices.

REFERENCES

Journal Papers:

- [1]. **Burton, M.** (2016). *India's Suzlon Seeks Partner for \$3 Billion of Australian Wind Farm Investments*. Reuters. Online Available From: <http://in.reuters.com/article/us-australia-windpower-idINKCN11S0QE?type=companyNews>. [Accessed Date: 22 February 2017].
- [2]. **Khullar, S.** (2013). *Report on India's Renewable Electricity Roadmap 2030*. NITI Aayog. Online Available From: http://niti.gov.in/writereaddata/files/document_publication/Report_on_India%27s_RE_Roadmap_2030-full_report-web.pdf [Accessed Date: 2 March 2017].
- [3]. **Mahapatra, S.** (2016). *Renewables Grew 34%, Coal 9% in India in 2016*. CleanTechnica. Online Available From: <https://cleantechnica.com/2017/02/22/renewables-grew-34-coal-9-india-2016>. [Accessed Date: 22 February 2017].
- [4]. **Ministry of Renewable Energy.** (2011). *Strategic Plan for New and Renewable Energy Sector for the Period 2011-2017*. Government of India. Online Available From: http://mnre.gov.in/file-manager/UserFiles/strategic_plan_mnre_2011_17.pdf [Accessed Date: 24 February 2017].
- [5]. **Parekh, P.** (2016). *Suzlon Research*. HDFC Securities. Online Available From: http://www.hdfcsec.com/Research/ResearchDetails.aspx?report_id=3018495. [Accessed Date: 1 March 2017].
- [6]. **Ross, K.** (2016). *India Chart a Roadmap to Achieve Ambitious Solar Targets*. World Resources Institute. Online Available From: <https://www.wri.org/blog/2016/05/india-charts-roadmap-achieve-ambitious-solar-targets>. [Accessed Date: 22 March 2017].
- [7]. **Union of Civil Performance.** (2015). *Renewable Energy Report*. Government of India. Report 34 (Ch. 1). Online Available From: http://www.cag.gov.in/sites/default/files/audit_report_files/Union_Civil_Performance_Renewable_Energy_Report_34_2015_chap_1.pdf [Accessed Date: 24 February 2017].

Annexures:

(all Rs. In Crore)

1. Beta Calculation

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.51868779					
R Square	0.26903702					
Adjusted R Square	0.26755434					
Standard Error	0.02538692					
Observations	495					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	1	0.11694554	0.11694554	181.452762	1.94E-35	
Residual	493	0.31773642	0.0006445			
Total	494	0.43468196				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-9.61E-04	0.00114143	-0.8416413	0.40039682	-0.0032033	0.00128199
BSE MID CAP	1.41376994	0.10495351	13.4704403	1.94E-35	1.20755861	1.61998127

2. Cost of Debt/Equity/WACC

	2015-16	Cost pre tax	Cost post tax
Debt			
Loan from banks	3,232.37	11.00%	7.19%
Covered Bonds	4,286.99	8.00%	5.23%
FCCB	1,648.66	5.00%	3.27%
Foreign Currency	58.26	4.25%	2.78%
WC (From banks	1,909.67	14.00%	9.15%
WC (Others)	0.00		0.00%
Total debt	11,135.95		3.48%
Total Equity	8,610.16		5.09%
Total Capital	19,746.11		
WACC	8.57%		

International Journal of Business and Management Invention (IJBMI) is UGC approved Journal with Sl. No. 4485, Journal no. 46889.

Dr. Akshay Damani. "An Empirical Study of the Application of the Free Cash Flows to Firm (FCFF) Model of Valuation for Suzlon Energy ltd." International Journal of Business and Management Invention(IJBMI) 6.7 (2017): 49-56.