

## A RESEARCH STUDY ON FINANCIAL PERFORMANCE OF TATA POWER LTD, USING VALUATIONS AND FINANCIAL MODELLING

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### **Abstract:**

Financial performance, which includes fundamental analysis, including DCF valuation and financial modeling, enables a comprehensive understanding of a business at its core financial level. It aids in evaluating the accurate value of shares, guiding investors in making informed investment decisions. The primary objective is to determine whether shares are overpriced or underpriced. This analysis follows a structured framework, incorporating economic, financial, qualitative, quantitative, industry, and company analysis. In the power sector, with a growing focus on renewable energy sources, there are bright prospects for Indian energy businesses. For this research paper, Tata Power, a major leader in the sector and listed on the NSE, is selected. The company operates in various segments, such as power generation, transmission and distribution, renewable energy (solar and wind power), and project management. The analysis relies on secondary data from sources like the NSE website, annual reports, and other relevant sources. The company's fundamentals are assessed using the previous financials of the company P&L, Cash flow and Balance sheet.

**Key Words:** Financials, Tata Power Ltd, Valuations, Financial Modelling, DCF

### **Introduction**

#### **Industry over view**

Ensuring a reliable power supply is crucial for the economic growth and well-being of any nation. This holds true for India, where the existence and continuous development of adequate electrical infrastructure are vital for the country's expanding economy. The electricity industry in India is exceptionally diverse, encompassing various sources of power generation such as coal, natural gas, hydropower, nuclear power, as well as renewable sources like wind, solar, and agricultural and domestic waste. The demand for electricity in India has been steadily increasing and is expected to continue rising in the future. To meet this growing demand nationwide, a substantial increase in installed generating capacity is necessary.

India's power sector is currently undergoing a significant transformation, prompting a reassessment of the industry outlook. The country's economic growth has been a driving force behind the need for power, and the Government of India has prioritized achieving universal access to electricity. This has led to accelerated capacity expansion efforts throughout the

nation. Meanwhile, competition has intensified on both the market and supply side, affecting factors such as fuel, logistics, finances, and manpower.

As of May 2021, India holds the third-largest installed power capacity globally, totaling 383.37 gigawatts. It ranks as the second-largest consumer of energy and achieved a generation of 1,252.61 billion units in the fiscal year 2020. India also holds notable positions in wind power and solar power capacity, ranking fifth in both categories and fourth overall in renewable electricity. In terms of ease of doing business, India significantly improved its ranking in the World Bank's "Getting Electricity" category, jumping from 137 in 2014 to 22 in 2019.

Data from India's Ministry of Power indicates a gradual recovery in power consumption, with a 1.83% increase in September, amounting to 114.49 billion units. From April 2000 to June 2021, foreign direct investment (FDI) inflows into India reached US\$15.36 billion, constituting 3% of the country's total FDI.

### **Company overview:**

Tata Power Company Ltd, the largest integrated private power company in India, holds a significant global presence. The company operates across all segments of the power sector, including fuel and logistics generation (thermal, hydro, solar, and wind), transmission, distribution, and trading. As of September 2021, its installed generation capacity stands at 13,061 MW, with 3,948 MW sourced from clean and green sources such as hydro, waste heat recovery, wind, and solar within India.

Tata Power has established fruitful public-private partnerships in India's generation, transmission, and distribution sectors. These include collaborations like "Tata Power Delhi Distribution Limited" with the Delhi Government for distribution in North Delhi, "Powerlinks Transmission Ltd." with Power Grid Corporation of India Ltd. for power transfer from Bhutan's Tala hydro plant to Delhi, and "Maithon Power Ltd." with Damodar Valley Corporation for a 1050 MW Mega Power Project in Jharkhand. Notably, Tata Power has implemented the first 4000 MW Ultra Mega Power Project in Mundra, Gujarat, utilizing super-critical technology. The company holds a prominent position in the renewable energy sector in India.

To cater to power requirements in Ajmer over a 20-year period, Tata Power established a Special Purpose Vehicle (SPV) named "TP Ajmer Distribution Limited" (TPADL) and entered into a Distribution Franchisee Agreement (DFA) with Ajmer Vidyut Vitran Nigam Limited (AVVNL). Tata Power also maintains strategic investments worldwide, including a 30% stake in PT Kaltim Prima Coal (KPC), a leading coal company in Indonesia. Additionally, the company has a joint venture called "Cennergi" in South Africa to develop projects in South Africa, Botswana, and Namibia. Tata Power has invested in clean coal technologies in Australia and holds a 30% stake in Trust Energy Resources in Singapore, ensuring coal supply and shipping for its thermal power generation operations.

### **Financial Aspects**

#### **The Fundamentals of Financial Modeling:**

Financial modeling involves creating numerical representations of a company's historical, current, and projected future operations. These models serve as decision-making tools and can

be used by business owners to forecast the costs and revenues of potential new projects. Financial analysts utilize financial models to assess how various events, both internal (e.g., changes in strategy or business model) and external (e.g., economic policy changes or legal developments), may impact a company's stock.

Discounted cash flow (DCF) analysis, sensitivity analysis, and comprehensive evaluations are examples of financial models.

### **Understanding Discounted Cash Flow (DCF):**

Discounted cash flow (DCF) is a valuation technique that analyzes projected future cash flows to estimate the value of an investment. The objective of a DCF analysis is to determine the current value of an investment based on predictions of its future cash flow.

### **The rationale behind Discounting Future Cash Flow (DCF):**

This principle applies to decision-making related to capital budgeting, operating expenses, and investments made by business owners, managers, and investors. It is applicable when evaluating the purchase of a business or stock.

The purpose of a DCF analysis is to calculate the amount of money an investor would receive from a specific investment while considering the time value of money. This is because the concept of the time value of money recognizes that a dollar received today holds more value than a dollar received in the future. A DCF analysis is, therefore, relevant in situations where an individual spends money in anticipation of earning more money later.

### **Review of Literature:**

- (Prasad, et al.,2020) In the study titled "Fundamental Analysis of Tata Power," the researchers aimed to assess the investment potential of Tata Power by thoroughly evaluating the company. The analysis considered the current economic conditions, industry characteristics, and firm performance to forecast the company's future trajectory. Financial information, including the profit and loss statement, balance sheet, and cash flow statement, as well as the company's annual report and management discussion and analysis, were used for the analysis. The study provided insights into determining the intrinsic value of the firm, analyzing financial accounts, and gaining valuable knowledge.
- (Sanjay D. et al., 2019) The study focused on Tata Power and discussed the company's 18-year transformation experience, particularly the challenges faced due to its public-private partnership ownership structure. It highlighted the power situation in Delhi and the steps taken by Tata Power to resolve the associated issues and improve the company's financial performance.
- (Balpreet, et al., 2015) The research examined the power sector in India, with a specific focus on Tata Power. It addressed the increasing energy demand and the challenges faced by power sector companies. The study aimed to determine the intrinsic value of power sector stocks by assessing industry problems and future prospects using financial modeling.
- (Amallesh P. et al.,2015) The comparative study compared the capital structures of Tata Power and Adani Power. It emphasized the importance of balancing debt and equity to

achieve financial stability and success in different economic conditions. The study analyzed the capital structures of the power sector companies based on their annual reports from 2011 to 2015.

- (B. Surekha et al.,2015) The study analyzed the financial performance of Tata Motors, focusing on profitability ratios as key indicators. The study aimed to assess the company's operational performance and provide insights for management decision-making.
- (G. V-Ortega et al.,2020) The study focused on the Weighted Average Cost of Capital (WACC) and Free Cash Flow (FCF) estimations in the Discounted Cash Flow (DCF) method, specifically for private equity valuation. The study presented a comprehensive approach for corporate valuation using stock market evidence.
- (S. Gupta, 2009) This study evaluated the Tata Corus merger proposal, analyzing the pre- and post-merger circumstances of the two companies. The discounted cash flow method was employed to value the merger, and data mining software like SPSS was used for analysis.
- (M. Seigel et al., 2001) The study discussed two strategies for valuing power plants: option approaches and discounted cash flow (DCF) studies. The valuation process was influenced by various factors, including fuel costs, environmental compliance expenses, changes in the power sector, electricity deregulation, and national energy policies.
- (S. Mishra, 2013) The study explored the Indian electricity sector, analyzing its value chain and future prospects. It emphasized the need for effective management across the value chain to meet the increasing energy demand and support economic growth.
- (N. P. Totare et al., 2010) The study focused on power sector reforms in Maharashtra, India. It discussed the reform initiatives undertaken by the Maharashtra State Electricity Board (MSEB) and evaluated the post-reform status of the distribution company. The impact of tariff structure and the electricity supply model was analyzed, along with other initiatives to improve consumer services.
- (K. Choudhary et al., 2016) The study analyzed the financial management and profitability of Power Grid Corporation of India Limited (PGCIL), a major electric utility in India. Financial ratio analysis, including profitability ratios and Du Pont analysis, was employed to evaluate the company's performance.

## Research Methodology

### Research Objective:

- To examine financial modeling approaches utilized by electricity companies.
- To determine the valuation of Tata Power.
- To conduct an investigation into the financial modeling and discounted cash flow (DCF) valuation method employed by Tata Power.

### Stages of Valuation:

#### Stage 1 - Industry Analysis:

Examining the industry landscape allows entrepreneurs and businesses to gain insights into

their position relative to other players. It provides a comprehensive understanding of the present and future state of the sector, enabling the identification of opportunities and risks that may impact the company.

### Stage 2 - Company Analysis:

Through company analysis, one evaluates a firm's profitability, profile, products, and services. Conducting a thorough investigation is essential for investors to obtain an accurate depiction of the business they are interested in.

### Stage 3 - Product Positioning:

Product positioning involves determining and communicating how a product should be perceived and valued by the target market. It requires effectively conveying how the product addresses customer needs and differentiates itself as a superior solution compared to competitors.

### Stage 4 - Gathering Financial Information:

Financial statements are essential documents that outline a company's financial performance and operations. They are often audited by government organizations and accounting firms to ensure accuracy and for tax, financing, or investment purposes.

### Stage 5 - Financial Modeling:

Financial modeling entails creating a comprehensive representation of a company's expenses and earnings in the form of a spreadsheet. This model is used to assess the potential impact of future events or decisions on the company's financials.

### Analysis and Interpretation

| P&L ASSUMPTIONS                 |                        |                        |                        |                        |                        |                        |                        |                        |                        |                        |
|---------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| PARTICULARS                     | Year Ending 31.03.2018 | Year Ending 31.03.2019 | Year Ending 31.03.2020 | Year Ending 31.03.2021 | Year Ending 31.03.2022 | Year Ending 31.03.2023 | Year Ending 31.03.2024 | Year Ending 31.03.2025 | Year Ending 31.03.2026 | Year Ending 31.03.2027 |
| Revenue from sales and services | 8,465.93               | 8,771.60               | 8,309.01               | 7,429.55               | 14,095.04              | 16,914.05              | 18,729.49              | 22,475.38              | 26,970.46              | 32,364.55              |
| YOY %                           |                        | 4%                     | -5%                    | -11%                   | 90%                    | 20%                    | 20%                    | 20%                    | 20%                    | 20%                    |
| COGS                            | 3,056.28               | 3,416.50               | 2,979.61               | 2,444.56               | 6,827.84               | 8193.41                | 9832.09                | 11798.51               | 14158.21               | 16989.85               |
| % of revenues                   | 36%                    | 39%                    | 36%                    | 33%                    | 48%                    | 20%                    | 20%                    | 20%                    | 20%                    | 20%                    |
| Other Income                    | 0                      | 0                      | 0                      | 0                      | 0                      |                        |                        |                        |                        |                        |
| % of                            | 0%                     | 0%                     | 0%                     | 0%                     | 0%                     |                        |                        |                        |                        |                        |

|                    |          |        |          |        |          |          |          |          |          |          |
|--------------------|----------|--------|----------|--------|----------|----------|----------|----------|----------|----------|
| revenues           |          |        |          |        |          |          |          |          |          |          |
| Operating Expenses | 2,906    | 2,940  | 2,878    | 2,934  | 4,123.99 | 4,536.39 | 4,990.03 | 5,489.03 | 6,037.93 | 6,641.73 |
| YOY%               | 34%      | 34%    | 35%      | 39%    | 29%      | 10%      | 10%      | 10%      | 10%      | 10%      |
| D&A                | 663.21   | 632.70 | 685.75   | 668.89 | 1,134.23 | 3574.24  | 4248.50  | 4922.76  | 5731.88  | 6663.98  |
| YOY%               | 8%       | 8%     | 9%       | 8%     | 5%       | 12%      | 12%      | 12%      | 12%      | 12%      |
| Interest expense   | 0        | 0      | 0        | 0      | 0        |          |          |          |          |          |
| YOY%               | 0%       | 0%     | 0%       | 0%     | 0%       |          |          |          |          |          |
| Taxes              | (492.96) | 100.97 | (207.82) | 452.46 | (165.82) | 158.60   | -88.69   | 68.92    | 271.04   | 537.94   |
| % of EBT           | -18%     | 9%     | -59%     | 19%    | 5%       | 26%      | 26%      | 26%      | 26%      | 26%      |

Table 1.1: P&L Assumptions from year 2018 to 2022

The aforementioned are the assumptions made for the Profit and Loss (P/L) Statement. The revenue assumption is based on the year-to-year growth determined using historical data and the Compound Annual Growth Rate (CAGR) formula. While the CAGR of revenue is calculated to be 10.73, it is important to note that TATA Power, like many other companies, experienced a decline in revenue due to the impact of COVID-19. However, in 2022, there was a significant increase in operational revenue, nearly doubling the previous amount, leading us to assume a growth rate of 20% going forward.

To forecast the company's upcoming five years, it is necessary to calculate the percentages of various items such as Cost of Goods Sold (COGS), other income, operational expenses, depreciation, interest costs, and taxes based on the revenue. By applying these percentages to the revenue, we can estimate the values for each item in the P/L Statement and project the company's financial performance for the next five years.

| <b>P&amp;L STATEMENT</b>        |                           |                           |                           |                           |                           |                             |                             |                             |                             |                             |
|---------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| <b>Particular</b>               | <b>31M ar20 18 Actual</b> | <b>31M ar20 19 Actual</b> | <b>31M ar20 20 Actual</b> | <b>31M ar20 21 Actual</b> | <b>31M ar20 22 Actual</b> | <b>31M ar20 23 Forecast</b> | <b>31M ar20 24 Forecast</b> | <b>31M ar20 25 Forecast</b> | <b>31M ar20 26 Forecast</b> | <b>31M ar20 27 Forecast</b> |
| Revenue from sales and services | 8,465.93                  | 8,771.60                  | 8,309.01                  | 7,429.55                  | 14,095.04                 | 16,914.05                   | 18,729.49                   | 22,475.38                   | 26,970.46                   | 32,364.55                   |
| COGS                            | 3,056.28                  | 3,416.50                  | 2,979.61                  | 2,444.56                  | 6,827.84                  | 8,193.41                    | 9,832.09                    | 11,798.51                   | 14,158.21                   | 16,989.85                   |
| <b>Gross Profit</b>             | <b>5,409.65</b>           | <b>5,355.10</b>           | <b>5,329.40</b>           | <b>4,984.99</b>           | <b>7,267.20</b>           | <b>8,720.64</b>             | <b>8,897.40</b>             | <b>10,676.88</b>            | <b>12,812.25</b>            | <b>15,374.70</b>            |
| Other Income                    | 0                         | 0                         | 0                         | 0                         | 0                         | 0                           | 0                           | 0                           | 0                           | 0                           |



|                      |                 |                 |                 |                 |                 |                 |                 |                  |                  |                  |
|----------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| <b>Total Revenue</b> | <b>5,409.65</b> | <b>5,355.10</b> | <b>5,329.40</b> | <b>4,984.99</b> | <b>7,267.20</b> | <b>8,720.64</b> | <b>8,897.40</b> | <b>10,676.88</b> | <b>12,812.25</b> | <b>15,374.70</b> |
| Operating expenses   | 2,905.59        | 2,939.79        | 2,877.78        | 2,933.52        | 4,123.99        | 4,536.39        | 4,990.03        | 5,489.03         | 6,037.93         | 6,641.73         |
| <b>EBITDA</b>        | <b>2,504.06</b> | <b>2,415.31</b> | <b>2,451.62</b> | <b>2,051.47</b> | <b>3,143.21</b> | <b>4,184.25</b> | <b>3,907.37</b> | <b>5,187.85</b>  | <b>6,774.32</b>  | <b>8,732.98</b>  |
| D&A                  | 663.21          | 632.70          | 685.75          | 668.89          | 1,134.23        | 3,574.24        | 4,248.50        | 4,922.76         | 5,731.88         | 6,663.98         |
| <b>EBIT</b>          | <b>1,840.85</b> | <b>1,782.61</b> | <b>1,765.87</b> | <b>1,382.58</b> | <b>2,008.98</b> | <b>610.01</b>   | <b>341.13</b>   | <b>265.08</b>    | <b>1,042.44</b>  | <b>2,069.00</b>  |
| Interest expense     | 0               | 0               | 0               | 0               | 0               | 0               | 0               | 0                | 0                | 0                |
| <b>EBT</b>           | <b>1,840.85</b> | <b>1,782.61</b> | <b>1,765.87</b> | <b>1,382.58</b> | <b>2,008.98</b> | <b>610.01</b>   | <b>341.13</b>   | <b>265.08</b>    | <b>1,042.44</b>  | <b>2,069.00</b>  |
| Tax rate             | -18%            | 9%              | -59%            | 19%             | 5%              | 26%             | 26%             | 26%              | 26%              | 26%              |
| Taxes                | -493            | 101             | -208            | 452             | -166            | 158.60          | -88.69          | 68.92            | 271.04           | 537.94           |
| <b>Net income</b>    | <b>2,334</b>    | <b>1,682</b>    | <b>1,974</b>    | <b>930</b>      | <b>2,175</b>    | <b>451</b>      | <b>-252</b>     | <b>196</b>       | <b>771</b>       | <b>1,531</b>     |

Table 1.2: P&amp;L Actual financials from year 2018 to 2022

With the help of Input data (Assumption), we have made the final profit & loss account statement with the forecasted value/Assumption which take for forecast of the TATA Power for upcoming five years.

| <b>Balance Sheet</b>     |                             |                             |                             |                             |                             |                               |                               |                               |                               |                               |
|--------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <b>Particular</b>        | <b>31Mar2018<br/>Actual</b> | <b>31Mar2019<br/>Actual</b> | <b>31Mar2020<br/>Actual</b> | <b>31Mar2021<br/>Actual</b> | <b>31Mar2022<br/>Actual</b> | <b>31Mar2023<br/>Forecast</b> | <b>31Mar2024<br/>Forecast</b> | <b>31Mar2025<br/>Forecast</b> | <b>31Mar2026<br/>Forecast</b> | <b>31Mar2027<br/>Forecast</b> |
| Fixed assets             | 8,385.51                    | 7,998                       | 8,439                       | 8,542                       | 24,711                      | 24,711                        | 24,711                        | 24,711                        | 24,711                        | 24,711                        |
| Other Non Current Assets | 2,043.03                    | 1,789                       | 1,920                       | 2,464                       | 2,606                       | 2,606                         | 2,606                         | 2,606                         | 2,606                         | 2,606                         |

|                                   |                    |               |                    |                    |                    |                    |                    |                    |               |               |
|-----------------------------------|--------------------|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------|---------------|
| Long Term Loans<br>And Advances   | 22.09              | 51            | 42                 | 490                | 453                | 453                | 453                | 453                | 453           | 453           |
| Non-Current<br>Investments        | #####<br>###       | 21,271        | 21,327             | 26,128             | 10,711             | 10,711             | 10,711             | 10,711             | 10,711        | 10,711        |
| Current<br>Investments            | 10.00              | 42            | 20                 | 240                | 68                 | 68                 | 68                 | 68                 | 68            | 68            |
| Inventory                         | 474.2<br>2         | 580           | 635                | 633                | 2,292              | 1,010              | 1,212              | 1,455              | 1,746         | 2,095         |
| Trade receivables                 | 972.0<br>5         | 1,256         | 1,109              | 911                | 1,086              | 2,549              | 2,822              | 3,387              | 4,064         | 5,320         |
| Other Current<br>Asset            | 5,752.<br>05       | 4,932.90      | 3,394.<br>86       | 1,794.<br>45       | 3,569<br>.61       | 5,074.<br>21       | 5,244.<br>26       | 5,618.<br>85       | 6,742.62      | 8,091.<br>14  |
| Short Term Loans<br>& Advances    | 402.2<br>5         | 119           | 550                | 1,524              | 1,328              | 1,328              | 1,328              | 1,328              | 1,328         | 1,328         |
| Cash and<br>equivalents           | 58.42              | 95.79         | 178.9<br>4         | 142.6<br>7         | 78.55              | 6,342.<br>16       | 8,648.<br>02       | 10,45<br>3.26      | 12,983.7<br>9 | 15,573<br>.67 |
| Deferred Tax<br>Assets [Net]      | -                  | -             | -                  | -                  | 250                | 250                | 250                | 250                | 250           | 250           |
| <b>Total Assets</b>               | <b>36,50<br/>2</b> | <b>38,135</b> | <b>37,61<br/>6</b> | <b>42,86<br/>9</b> | <b>47,15<br/>3</b> | <b>55,10<br/>2</b> | <b>58,05<br/>4</b> | <b>61,04<br/>1</b> | <b>65,663</b> | <b>71,207</b> |
| Long- Term<br>Borrowings          | 8,124              | 8,750         | 9,825              | 13,16<br>9         | 18,08<br>8         | 18,08<br>8         | 18,08<br>8         | 18,08<br>8         | 18,088        | 18,088        |
| Deffered Tax<br>Liabilities       | 236                | 583           | 307                | 135                | -                  |                    |                    |                    |               |               |
| Other Long<br>Current Liabilities | 312                | 249           | 413                | 378                | 3,325              | 3,325              | 3,325              | 3,325              | 3,325         | 3,325         |
| Long Term<br>Provisions           | 182                | 196           | 222                | 261                | 274                | 274                | 274                | 274                | 274           | 274           |
| Short-term                        |                    |               |                    |                    |                    |                    |                    |                    |               |               |



|   |               |               |               |               |               |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Borrowings                                | 4,326         | 6,732         | 6,212         | 5,596         | 6,620         | 6,620         | 6,620         | 6,620         | 6,620         | 6,620         |
| Trade payable                             | 1,106         | 1,102         | 1,002         | 1,137         | 4,080         | 1,010         | 1,212         | 1,455         | 1,746         | 2,095         |
| Other Current liabilities                 | 7,712         | 4,818         | 4,310         | 3,790         | 3,841         | 12,686        | 14,984        | 17,980        | 22,116        | 26,539        |
| Short-term Provision                      | 15            | 15            | 62            | 25            | 45            | 45            | 45            | 45            | 45            | 45            |
| Equity Share Capital                      | 271           | 271           | 271           | 320           | 320           | 320           | 320           | 320           | 320           | 320           |
| Reserves & Surplus                        | 12,718        | 13,919        | 13,491        | 16,559        | 10,560        | 12,735        | 13,186        | 12,934        | 13,130        | 13,902        |
| Share Application Money pending allotment | 1,500         | 1,500         | 1,500         | 1,500         | -             | -             | -             | -             | -             | -             |
| <b>Total Liabilities &amp; Equities</b>   | <b>36,502</b> | <b>38,135</b> | <b>37,616</b> | <b>42,869</b> | <b>47,153</b> | <b>55,103</b> | <b>58,054</b> | <b>61,041</b> | <b>65,663</b> | <b>71,207</b> |

Table 1.3: Balance sheet Actual financials from year 2018 to 2022

With the help of Input data (Assumption), we have made the final balance sheet statement with the forecasted value/Assumption, which take for forecast of the TATA Power for upcoming five years.

Here, we see some are taken as “FLAT” because sometimes can’t be forecasted on assumption bases if we want than we connect with the company management and get to know about the future upgradation or assumption for ex:- (how much fixed assets company will invest or current investment etc. in assets and in liabilities like other long current liabilities, short term provision equity share capital etc.)

| DCF VALUATION |             |             |             |               |               |               |               |               |  |
|---------------|-------------|-------------|-------------|---------------|---------------|---------------|---------------|---------------|--|
| WACC          | 13.3%       |             |             |               |               |               |               |               |  |
| g             | 10.0%       |             |             |               |               |               |               |               |  |
|               |             |             |             | 1.0           | 2.0           | 3.0           | 4.0           | 5.0           |  |
| in crore      | FY20 Actual | FY21 Actual | FY22 Actual | FY23 Forecast | FY24 Forecast | FY25 Forecast | FY26 Forecast | FY27 Forecast |  |
| Net Inc/dec   | 179         | 143         | 79          | 6,342         | 8,648         | 10,453        | 12,984        | 15,574        |  |

|                               |  |  |  |              |              |              |              |              |
|-------------------------------|--|--|--|--------------|--------------|--------------|--------------|--------------|
| <b>Discount factor</b>        |  |  |  | 0.88         | 0.78         | 0.69         | 0.61         | 0.54         |
| Present value of net Inc/ dec |  |  |  | <b>5,600</b> | <b>6,742</b> | <b>7,195</b> | <b>7,890</b> | <b>8,356</b> |

Table 1.4: DCF Valuation deriving Present Value of Net Income

| <b>DCF Valuation</b>          |                            |  |     |
|-------------------------------|----------------------------|--|-----|
| <b>PV of Cash flows</b>       | 35,782.3                   | Sum of pv of cash flow                       | 11% |
| <b>Continuing value</b>       | 525,439.8                  |  |     |
| <b>PV of Continuing value</b> | 281,925.3                  | Continuing Value * Last year Discount Factor | 89% |
| Enterprise value              | <b>317,707.6</b>           |  |     |
| <b>Cash</b>                   | 78.6                       |  |     |
| Equity value                  | <b>317,786.1</b>           | <b>(in crores)</b>                           |     |
| Net Equity Value              | <b>3,177,861,140,121.3</b> |  |     |
| No. of Equity Share           | 3195339547                 |  |     |
| Share Price                   | <b>994.5</b>               | <b>(in Rs)</b>                               |     |
| Market Share                  | <b>235.0</b>               |  |     |

Table 1.5: DCF Valuation deriving different financial values

| <b>WACC</b> |        |        |        |        |
|-------------|--------|--------|--------|--------|
| 317,708     | 13%    | 14%    | 15%    | 16%    |
| <b>2%</b>   | 41,041 | 37,944 | 35,817 | 33,088 |
| <b>3%</b>   | 43,552 | 39,963 | 37,534 | 34,455 |
| <b>4%</b>   | 46,620 | 42,387 | 39,568 | 36,049 |
| <b>5%</b>   | 50,456 | 45,349 | 42,017 | 37,933 |

Table 1.6: Calculation showing WACC

| <b>CAPM MODEL</b>  |                                      |
|--|--------------------------------------|
| <b>or = Ke</b>   | <b>Rf + b(Rm - Rf)</b>               |
| <b>Where;</b>  |                                      |
| <b>Risk Free Rate (TATA Power Site) =</b>                                  | 7.53%                                |
| <b>Beta (TATA Power ) =</b>  | 1.34                                 |
| <b>Risk Premium (Risk of Market - Risk Free Rate) = (Damodaran's Site)</b> | 6.00%                                |
| <b>Ke =</b>  | 15.57%                               |
| <b>Cost of Debt (Kd) =</b>   | Finance Cost / Long-term Liabilities |
| <b>Where,</b>  |                                      |

|                                |                          |                      |
|--------------------------------|--------------------------|----------------------|
| <b>Finance Cost =</b>          | 2,188.94                 |                      |
| <b>Long-term Liabilities =</b> | 18,087.97                |                      |
| <b>Kd =</b>                    | 12.10%                   |                      |
| <b>Capital Structure</b>       | Market Cap. / Book Value | Market Value Weights |
| <b>Debt</b>                    | 21,687.30                | 66.59%               |
| <b>Equity</b>                  | 10,879.80                | 33.41%               |
| <b>Total</b>                   | 32,567.10                | 100.00%              |
| <b>Cost of Firm (Ko) =</b>     | Weights * Cost           |                      |
| <b>Where,</b>                  |                          |                      |
| <b>Debt</b>                    | 0.665927                 | 12.10%               |
| <b>Equity</b>                  | 0.334073                 | 15.57%               |
| <b>Ko =</b>                    |                          | 13.26%               |

Table 1.7: Calculation showing CAPM model for WACC

### Findings

| <b>TATA Power</b>            |                         |                         |                           |                           |                           |                           |                           |
|------------------------------|-------------------------|-------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| <b>Revenues &amp; EBITDA</b> |                         |                         |                           |                           |                           |                           |                           |
| <b>Particular</b>            | <b>31Mar2021 Actual</b> | <b>31Mar2022 Actual</b> | <b>31Mar2023 Forecast</b> | <b>31Mar2024 Forecast</b> | <b>31Mar2025 Forecast</b> | <b>31Mar2026 Forecast</b> | <b>31Mar2027 Forecast</b> |
| Revenues                     | 7,429.55                | 14,095.04               | 16,914.05                 | 18,729.49                 | 22,475.38                 | 26,970.46                 | 32,364.55                 |
| EBITDA                       | 2,051.47                | 3,143.21                | 4,184.25                  | 3,907.37                  | 5,187.85                  | 6,774.32                  | 8,732.98                  |
| EBITDA%                      | 27.61%                  | 22.30%                  | 24.74%                    | 20.86%                    | 23.08%                    | 25.12%                    | 26.98%                    |
| Net Income                   | 930.12                  | 2,174.80                | 451.41                    | (252.44)                  | 196.16                    | 771.41                    | 1,531.06                  |
| Net Profit%                  | 12.52%                  | 15.43%                  | 2.67%                     | -1.35%                    | 0.87%                     | 2.86%                     | 4.73%                     |

Table 1.8: Financials showing Revenues and EBITDA

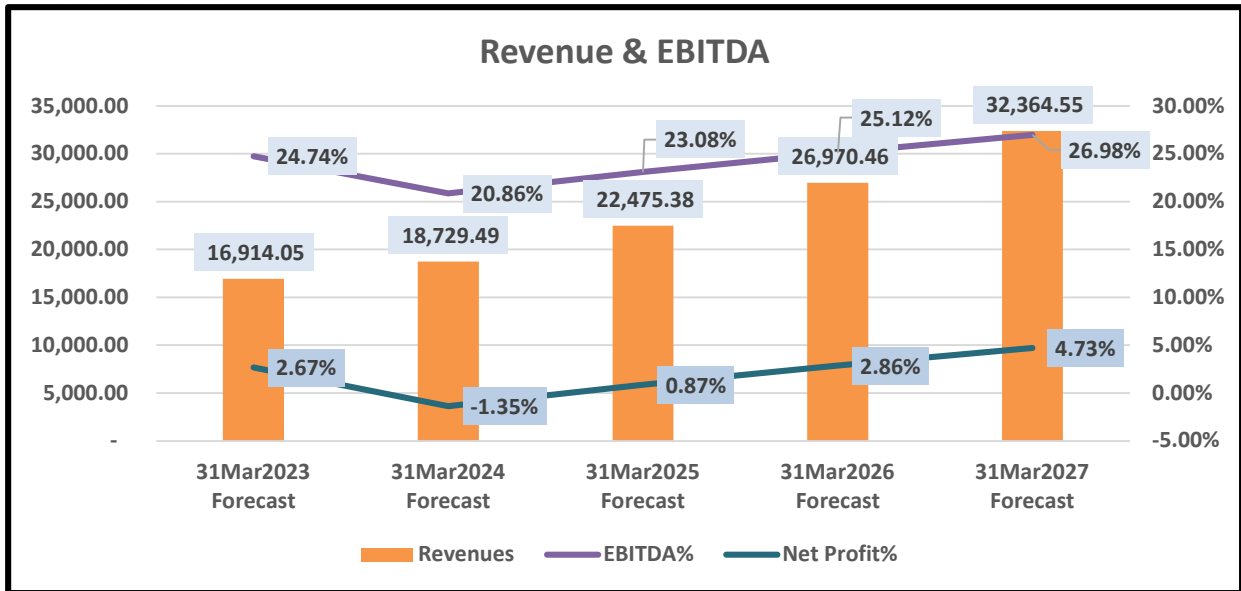


Figure 1.1: Chart showing Revenue and EBITA Forecast over the years

| TATA Power      |                    |                    |                    |                    |                    |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Cash flows      |                    |                    |                    |                    |                    |
| Particular      | 31Mar2023 Forecast | 31Mar2024 Forecast | 31Mar2025 Forecast | 31Mar2026 Forecast | 31Mar2027 Forecast |
| Gross Cash Flow | 6,263.61           | 2,305.86           | 1,805.24           | 2,530.52           | 2,589.88           |
| Net Cash Flow   | 6,342.16           | 8,648.02           | 10,453.26          | 12,983.79          | 15,573.67          |

Table 1.8: Financials showing Cash flow forecast over the years

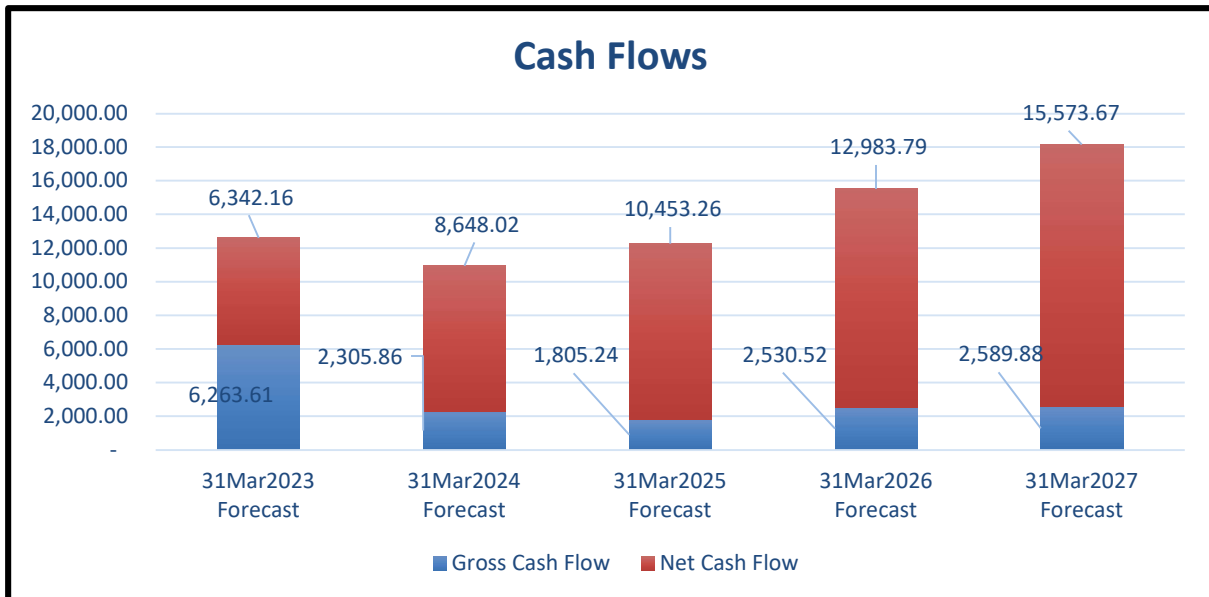
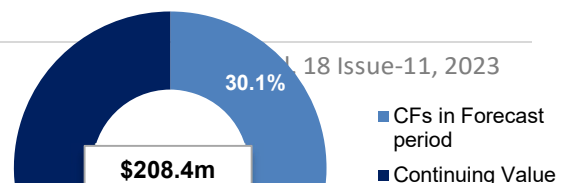


Figure 1.2: Chart showing Cash flow forecast forecast over the years

**Scenario 1 Interpretation:**

**Enterprise Value: Scenario 1**



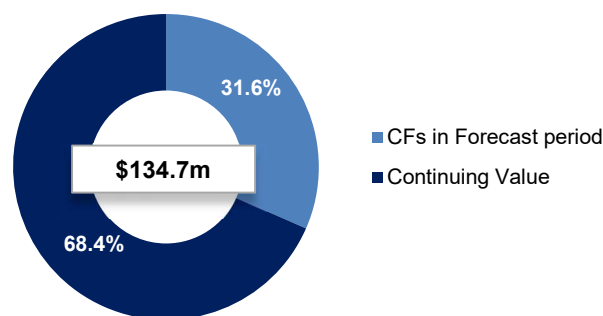
| DCF results            |         |
|------------------------|---------|
| SCENARIO 1             |         |
| Enterprise Value       | 208,374 |
| CFs in Forecast period | 30.1%   |
| Continuing Value       | 69.9%   |

According to the optimistic scenario, the Enterprise Value of TATA Power Limited is estimated to be Rs 3,17,708 Crores, indicating a high potential for the company to outperform in the market. However, the Share Price is undervalued compared to its actual value, with a forecasted value of Rs 994.5 and an actual value of Rs 235.0. This suggests that the company is a good investment opportunity.

### Scenario 2 Interpretation:

#### Enterprise Value: Scenario 2

| DCF results            |          |
|------------------------|----------|
| SCENARIO 2             |          |
| Enterprise Value       | 1,35,603 |
| CFs in Forecast period | 31.6%    |
| Continuing Value       | 68.4%    |

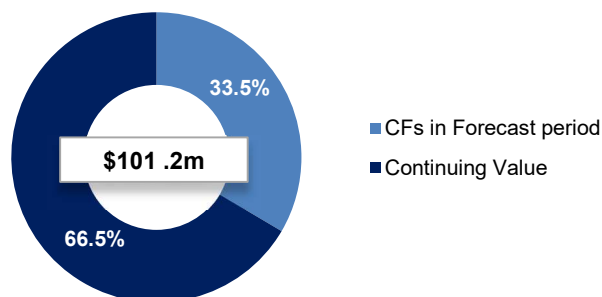


In the expected scenario, the Enterprise Value of TATA Power Limited is estimated to be Rs 1,24,244 Crores, indicating a potential for the company to outperform in the market. Similar to the previous scenario, the Share Price is undervalued compared to its actual value, with a forecasted value of Rs 389.1 and an actual value of Rs 235.0. This implies that investing in the company is favorable.

### Scenario 3 Interpretation:

#### Enterprise Value: Scenario 3

| DCF results            |          |
|------------------------|----------|
| SCENARIO 3             |          |
| Enterprise Value       | 1,01,217 |
| CFs in Forecast period | 33.5%    |
| Continuing Value       | 66.5%    |



Under the worst-case scenario, the Enterprise Value of TATA Power Limited is estimated to be Rs 86,880 Crores, still indicating potential for the company to outperform in the market. However, the Share Price is highly undervalued compared to its actual value, with a forecasted value of Rs 272.1 and an actual value of Rs 235.0. While the investment is still considered good, it is riskier compared to the previous scenarios.

Overall, these interpretations suggest that TATA Power Limited has potential for market out performance, and despite some undervaluation or higher risk in certain scenarios, it is deemed as a favorable investment opportunity.

## Conclusion

The adoption of DCF analysis has grown as analysts increasingly view corporate cash flow as a crucial indicator of a company's ability to enhance its share value. Unlike other equity valuation techniques that rely on relative values based on industry comparisons or overall market performance, DCF analysis provides an intrinsic value that serves as a benchmark for assessing current company prices. Market observers acknowledge that maintaining cash flow can be challenging.

While most investors agree that a stock's value is connected to the present value of its future cash flow, the practical application of the DCF approach can be complex. Its potential weaknesses lie in the various options analysts have for determining free cash flow values and capital discount rates. Even slight variations in input parameters can lead to significantly different value outcomes.

Therefore, it is more appropriate to consider DCF analysis as a range of values derived from different analysts using different inputs. Additionally, DCF analysis is primarily focused on long-term growth and may not adequately assess short-term profit potential.

It is advisable to avoid relying excessively on a single valuation approach when determining the value of stocks. To gain a comprehensive understanding of a stock's value, it is recommended to incorporate multiple methodologies, including other target price-based approaches, alongside the DCF methodology.

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