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Tata Power Business Analysis & Valuation

Tata Power Company Limited is an Indian multinational electric utility company providing power generation, transmission, and distribution services.

Qualitative Analysis :-

1. Industry Analysis (using Porter's Five Forces): The energy sector, particularly electric utilities, is a crucial component of India's infrastructure, with Tata Power Company Limited playing a significant role in power generation, transmission, and distribution services.

(a)Threat of New Entrants:

- The Power generation and distribution industry requires substantial capital investments and expertise, acting as a barrier to entry.
- Tata Power, being an established player with a significant market share, benefits from economies of scale and brand recognition.
- However, with advancements in renewable energy technology and government incentives, there is a growing potential for new entrants, especially in the renewable energy segment.

(b)Bargaining Power of Buyers:

- In the power sector, consumers, including industrial and residential users, have limited choices for their electricity provider, especially in regions where Tata Power operates as a dominant player.
- However, increasing awareness of renewable energy options and government policies promoting consumer choice could enhance buyer bargaining power over time.

(c)Bargaining Power of Suppliers:

- Tata Power relies on suppliers for various inputs, including equipment for power generation and transmission.
- While there are multiple suppliers available, some components may have limited alternatives, impacting bargaining power.
- Nonetheless, Tata Power's size and scale may enable it to negotiate favorable terms with suppliers.

(d)Threat of Substitutes:

- Electricity is a necessity, and there are limited direct substitutes for traditional power generation and distribution.
- However, with the increasing emphasis on renewable energy sources like solar and wind power, there is a growing threat of substitution, particularly in regions where renewable energy infrastructure is expanding rapidly.

(c)Competitive Rivalry:

- The power sector in India is characterised by intense competition, with several players, including both domestic and international companies, vying for market share.
- Tata Power faces competition from other major players like NTPC, Adani Power, and state-owned utilities.
- Competition is not only based on pricing but also on factors such as service quality, reliability, and innovation in energy solutions.

2. Competitive strategy Analysis :-

(a)**Differentiation Strategy:**

- Tata Power has established itself as a leader in the power generation and distribution industry through a focus on innovation and differentiation.
- The company has a diversified portfolio of energy solutions, including thermal, hydro, solar, and wind power, allowing it to cater to a wide range of customer needs and preferences.
- The company has also differentiated itself through strategic partnerships and initiatives in areas like electric vehicle charging infrastructure, energy efficiency solutions, and rural electrification projects, showcasing its commitment to social responsibility and community development. 'Tata Power has transitioned over 1000 EV charging points in Mumbai to be powered by green energy'

(b) **Cost Leadership Strategy**:

- Through continuous optimisation of its power generation processes, maintenance practices, and supply chain management, Tata Power reduces per unit production costs while ensuring reliability and quality of service.
- The company has embraced digitalisation and advanced analytics to streamline operations, enhance asset performance, and optimise resource allocation, thereby driving down operational costs and improving overall efficiency.
- Tata Power's focus on operational excellence is reflected in initiatives like the Tata Business Excellence Model (TBEM) and the Tata Power Operational Excellence Programme, which aim to instill a culture of continuous improvement and cost consciousness across the organisation.

3. Corporate strategy Analysis :

- **International Expansion into Emerging Markets**:
- The company has established a presence in several countries across Asia, Africa, and the Middle East, leveraging its expertise in power generation and distribution to capitalise on opportunities in rapidly developing economies.
- **Focus on Differentiated Products and Services**:
- The company offers a diverse portfolio of energy products and services, including conventional and renewable power generation, energy storage solutions, electric vehicle charging infrastructure, and energy efficiency services.
- **Targeting a Diverse Consumer Base**:
- Tata Power caters to a diverse consumer base spanning industrial, commercial, and residential sectors, as well as government entities and rural communities.
- **Innovative Practices and Industry Leadership**:
- The company has been at the forefront of technological advancements in the energy sector, embracing digitalisation, smart grid solutions, and renewable energy technologies.

Through strategic partnerships, research collaborations, and investments in R&D, Tata Power continues to drive innovation and shape the future of the energy industry.

BCG matrix for Tata power segments

Star: Solar ,Wind and hydro Power	Question Mark: Ev segment
Cash Cow: thermal power	Dog: non-core business ventures

Quantitative Analysis :-

1. ROE Calculation :

ROE helps in identifying a firm's profitability and how efficient it is in generating those profits. The higher the ROE, the better the firm is at converting its equity financing into profits.

- First, we will compute the Return on Equity (ROE) using the figures obtained from the consolidated annual report of TATA Power for FY23. Net Income and Shareholders' Equity was used in this calculation, where **ROE = Net Income/Shareholders' Equity**

General ROE	Amount(Cr)	Percentage
Net Income	3267.9	
Average shareholder's equity	12289	
ROE		26.59%

2. ROE Decomposition :

- Next, the traditional ROE decomposition method was used, to find out ROE using Return on Sales (ROS), Asset Turnover Ratio and Financial Leverage.

ROE = ROS x Asset Turnover Ratio x Financial Leverage

ROE Decomposition	Amount(Cr)	Percentage
Net Income	3267.9	
Gross Sales	17727.78	
Average Total Assets	39402	
Average shareholder's equity	12289	
ROS		18.43%
Asset Turnover		44.9%
Financial Leverage		320.62%
ROE		26.59%

(a) **ROS = Net Income/Gross Sales = 18.43%.**

Return on Sales is a measure of how efficiently a company turns sales into profits. Having a positive Return on Sales for any company is very important with a ROS between 5% and 10% considered healthy. Tata Power is exceeding that with ROS = 18.43%.

- (b) **Asset Turnover Ratio = Gross Sales/Average Total Assets = 44.9%**
  Here, Average Total Assets = (Total Assets (2022) + Total Assets (2021)) / 2
  Asset Turnover Ratio indicates how efficient a company is in utilising its investments in assets. Tata power is not good in asset turnover ratio. Asset Turnover is a very important ratio for Renewable energy companies as the main principle behind this industry is that goods must move off shelves fast, and if this principle is violated via a low asset turnover ratio, then there is something wrong in the operations of the company. For every Rs 1 worth of asset, Tata Power is managing to generate sales worth Rs 0.44.

- (c) **Financial Leverage = Average Total Assets/ Average Shareholders' Equity = 320.62% Here, Average Shareholders' Equity = (Shareholders' Equity (2022) + Shareholders Equity (2021))/ 2**
  Financial Leverage, in simple terms, is the use of debt to buy more assets. The main motive of a company to use Financial Leverage is to increase the returns available to ordinary shareholders. Tata Power has a positive Financial Leverage, which means that its borrowing costs are lower than the overall return produced by its cash flow. This is a very good sign, especially in the context that Tata Power operates in the Renewable energy companies.

Peer Comparison of ROE

We will compare the ROE calculated for Tata Power with the ROE calculated for another Renewable energy company , like **Adani power.**

ROE Decomposition	Amount(cr)	Percentage
Net Income	10726.64	
Gross Sales	38773.3	
Average Total Assets	33522.89	
Average shareholder's Equity	10043.88	
ROS		27.66%
Asset Turnover		115.66%
Financial Leverage		333.76
ROE		106.80%

- Clearly, the ROE for Tata Power (**26.59%**) is less than the ROE for Adani (**106.80%**). Comparing each ratio part of the formula, we can see that even Adani has a greater Return on Sales (ROS).

- Comparing the Financial Leverage ratio in the Renewable energy companies is a must, and Tata Power is much closer and faster to achieve

DCF Valuation :- (All values found from Annual Report for FY22)

Choosing the right DCF Model : The Free Cash Flow to Equity (FCFE) Approach is chosen for the

valuation of Tata Power. The following are the reasons for the same :
(a) Tata Power has maintained a constant Debt to Equity Ratio over the past 5 years.
(b) The Capital Expenditure was close to the value of Depreciation.
(c) The beta of the stock was found to be below one.
(d) Tata Power has had some debt repayments which are not considered in the FCFF Approach.

1. Calculation of Risk Free Rate : The Risk Free Rate of India is calculated by subtracting the 10 year government bond yield of India by the country default spread.
Current 10 year government bond yield = 7.193%
Country Rating = Baa3, therefore **Country Default Spread = 2.39%**

Risk Free Rate, Rf = 7.193% - 2.39% = 4.803%

2. Calculation of Market Risk Premium : The Market Risk Premium is calculated by subtracting the Risk Free Rate from the Market Return. To calculate the Market Return, 10 year average returns of NIFTY50 were observed.
Market Return, Rm = (NIFTY50 value today/NIFTY50 value 10 years ago)^1/10 - 1

= 14.16%
Therefore, **Market Risk Premium = Rm - Rf = 14.16% - 4.803% = 9.357%**

3. Calculation of Beta : To find the levered beta of Tata Power, the average Unlevered beta of competitors was calculated. This was done using D/E, Levered Beta, and Tax Rate of the Competitors, where **Tax Rate = Current Tax Expense/PBT**

Company	D/E	Beta	PBT	Current Tax Expense	Tax Rate	Unlevered Beta
Adani Power	1.41	1.59	7674.7	-3051.9	-0.399	0.534887
Inox Wind Energy	2.18	1.33	-689.2	-18.5	0.026	0.425828
JSW Energy	1.35	0.93	5655	1516	0.268	0.467759
NHPC	0.86	1.53	5211	976.2	0.187	0.900434
NTPC	1.51	1.24	23476	6279.3	0.267	0.588561
AVERAGE-						0.583493

Using this, the Levered Beta of Tata Power is computed.

Company	D/E	Unlevered beta	PBT	Current Tax	Tax Rate	levered Beta
Tata Power	1.84	0.583493	4111.0	843.1	0.205	1.43

Therefore, the **Levered Beta of Tata Power = 1.43.**

4. Calculation of Cost of Equity : The Cost of Equity is found out using the values of Risk Free Rate, Market Risk Premium and Beta.
Cost of Equity = Rf + Beta*Market Risk Premium = 4.803% + 1.43*9.357% = 18.18%

5. Calculation of Non-Cash ROE :
Non-Cash ROE = (Net Income - After Tax Income from Cash and Marketable Securities) **/** (Book Value of Equity - Cash and Marketable Securities)

The numerator is nothing but the Non-Cash Net Income,
= Rs 3267.9 Cr - (-Rs 1468.51 Cr *(1-0.205)) where 0.205 is the tax rate calculated previously. = **Rs 4435.37 Cr**
The denominator value = Rs 319.56 Cr - Rs 360.09 Cr = -**Rs40.53 Cr**

Therefore, **Non-Cash ROE = Rs 4,435.37 Cr / -Rs 40.53 Cr = -109.43%**

Non cash ROE Calculation	Amount(cr)
Net Income	3267.9
Income From Cash & MS	-1468.51
After Tax Income From Cash & MS	-1167.47
Non Cash Net Income	4435.37
Book Value of Equity	319.56
Cash & MS	360.09
Non cash ROE	-109.43%

6. Calculation of Reinvestment Rate :
Reinvestment Rate = [(Net CapEx + Change in WC) - (New Debt Issues - Debt Repayments)] **/** Net Income
Net CapEx = Depreciation+Change in PPE = Rs 1154.18 Cr + Rs 1711Cr = **Rs 2865.18 Cr**
Change in WC = Working Capital in 2023 - Working Capital in 2022 - Cash in Hand

= Rs 5487.97 Cr
Net Debts Issued = New Debt Issues - Debt Repayments = **Rs 2842 Cr.**
Net Income = Rs 3267.9 Cr
Therefore**, Reinvestment Rate = 323.66%**

Reinvestment Rate Calculation	Amount(cr)
Depreciation	1154.18
CapEx	1711
Net change in WC	5487.97
New Debts Issued	32031
Debt Repayment	34254.93
Net Debt Issued	2842
Reinvestment Rate	323.66%

7. Calculation of Growth Rate : Growth Rate = Non-Cash ROE*Reinvestment Rate
Therefore, Growth Rate = -109.43% * 323.66% = -**354.18%**
The growth rate of the Indian Economy in 2022 was 7.3%, which is down to 7.1% in 2023.
Thus, clearly **Growth Rate of Tata Power < Growth Rate of Indian Economy**

This means that the **Single Stage Growth Model** will be used for valuation.

8. Single Stage FCFE Model Calculations :

(a) Calculation of Non-Cash Net Income for Year 1
The Non-Cash Net Income that was calculated earlier (Year 0) is projected for the next year (Year 1) using the growth rate. Therefore,
Non-Cash Net Income for Year 1 = Rs 4435.37Cr * (1- 354.18%) = -**Rs 11,273.82Cr**

(b) Calculation of Free Cash Flow to Equity (Year 1) :
The Free Cash Flow to Equity for Year 1 is calculated by multiplying the Non-Cash Net Income for Year 1 with (1-Reinvestment Rate) found earlier. Therefore,
FCFE (Year 1) = -Rs 11,273.82Cr * (1-323.66%) = **Rs 25,215.02 Cr**

(c) Calculation of Terminal Value:
The Terminal Value is found by dividing FCFE (Year 1) by the difference between Cost of Equity and Growth Rate.
Therefore, **Terminal Value** = Rs 25,215.02Cr / (18.18% + 354.18%) = **Rs 30,537.77Cr**

(d) Calculation of Share Value :
Final Value of Equity = Terminal Value + Cash and Marketable Securities
= Rs 30537.77 Cr + Rs 360.09 Cr = **Rs 30,897.86 Cr**
Number of Outstanding Shares of Tata Power = 3195339547
Therefore, **Value per Share of Tata Power** = Value of Equity / Number of Outstanding Shares
= Rs 30897.86 Cr / 3195339547 = **Rs 96.69**

9. Conclusion

The current market price of Tata Power is **Rs 432.75** whereas the price calculated using the Single Stage FCFE Approach is **Rs 96.69** This indicates that the stock is **highly overvalued** in the markets.

To support these claims, the Price to Earnings (P/E) Ratio of Tata Power was compared with the industry P/E ratio for theRenewable energy industry. The **Industry P/E Ratio is at 22.73** whereas the **P/E Ratio of Tata Power is 38.43.** This clearly indicates that the market price of Tata Power is more than its intrinsic value.

Additionally, the Price to Book (P/B) Ratio of Tata Power was also compared to the industry P/B Ratio for the Renewable energy Industry. The **Industry P/B Ratio is at 2.11** whereas the **P/B Ratio of Tata Power is 4.56 .**This also confirms the **overvalued nature of the stock.**

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