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A Comparative Financial Analysis of Tata Power and Adami Green Energy: Exploring Growth, Profitability, and Sustainability in India's Energy Sector

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Abstract:

India's energy landscape is undergoing a significant transformation as the country shifts toward renewable energy to address the growing demand for sustainable and clean power. In this dynamic environment, Tata Power and Adani Green Energy have emerged as prominent leaders, capitalizing on government initiatives and aligning their strategies with India's ambitious goal of reaching 500 GW of renewable energy capacity by 2030. This paper presents a comparative analysis of the financial performance of these two industry giants over the past five years, focusing on key metrics such as Profit After Tax (PAT), Operating Profit Margin (OPM), Earnings Per Share (EPS), and Current Ratio to evaluate their financial health and growth trajectories. Tata Power, with over a century of experience, boasts a diversified energy portfolio that spans solar, wind, and hydroelectric power. In contrast, Adani Green Energy, a relatively newer player, has rapidly scaled its operations, particularly in solar and wind energy projects. Both companies face distinct challenges as they strive to maintain profitability and sustainability within India's ever-evolving energy market. While Tata Power has shown a remarkable recovery in profitability between FY2023 and FY2024, Adani Green Energy experienced a significant drop in its operating margin in 2024, following years of impressive growth. This study provides valuable insights into the financial stability of Tata Power and Adani Green Energy, highlighting their respective approaches to profitability, growth, and liquidity management. While Tata Power's recent recovery suggests strong market positioning, Adani Green Energy's liquidity challenges in recent years raise important concerns. Ultimately, the paper offers critical perspectives for investors, policymakers, and energy sector stakeholders, shedding light on the prospects of these two renewable energy leaders in India's rapidly transforming market.

Keywords: Renewable Energy, Financial Performance, Sustainability, Profitability, Growth.

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Introduction:

India's energy sector is currently experiencing a significant transformation, driven by a shift towards renewable energy sources to meet the growing demand for clean, sustainable, and reliable power. In this context, two major players, **Tata Power** and **Adani Green Energy**, have emerged as leaders in the renewable energy space. Both companies have capitalized on India's ambitious renewable energy goals, supported by government initiatives such as the National Action Plan on Climate Change (NAPCC) and the renewable energy expansion targets outlined by the Ministry of New and Renewable Energy (MNRE). With India aiming to increase its renewable energy capacity to 500 GW by 2030, these companies have strategically positioned themselves

to play a critical role in shaping the future of the nation's energy sector (Indian Ministry of Power, 2023). This paper aims to conduct a comparative financial analysis of Tata Power and Adani Green Energy, focusing on key aspects such as growth, profitability, and sustainability. Tata Power, with over a century of experience, has a diverse energy portfolio, including solar, wind, and hydroelectric power. On the other hand, Adani Green Energy, a relatively newer player, has quickly expanded its footprint in solar and wind energy projects. By comparing their financial performance, growth strategies, and sustainability initiatives, this study will highlight how these companies are navigating the challenges and opportunities of India's changing energy market. The growth of both companies is influenced not only by their financial strategies but also by their commitment to sustainability and alignment with global environmental standards. Both Tata Power and Adani Green Energy are heavily investing in clean technologies, setting ambitious goals for carbon neutrality, and contributing to India's national renewable energy targets. However, differences in their corporate strategies, financial stability, and environmental commitments warrant an in-depth examination of the long-term implications for both companies within the renewable energy sector. This paper will explore the financial performance of Tata Power and Adani Green Energy over the last decade, assess their growth trajectories, and evaluate their efforts toward achieving sustainability goals, offering valuable insights for investors, policymakers, and stakeholders in the energy sector.

Literature Review:

Abdul Rahman (2024), a comparative study on Tata Motors and Toyota Motor Corporation in terms of their working capital, sales, and profits, found that the Automobile industry is largest sector which contributes 45% manufacturing Gross Domestic Product and 7.1% GDP to the nation.

Jignasha v. Patel (2016), A comparative analysis of the financial performance of selected companies over 10 year in term of liquidity, leverage, efficiency and profitability. From the analysis he found that the performance of wipro is more satisfactory in terms of Gross Profit and Net Profit Ratio. If we consider the current ratio, it can be said based on analysis that Infosys has the most liquidity, followed by Wipro, HCL & Infosys.

Aneri Ashok Bhai et. Al (2018) conducted a comparative analysis of financial performance evaluation of selected non-life insurance companies of India.

Zehra Nemati et.al. (2015) The study described explores the use of data mining techniques to predict fraud risk in companies listed on the Tehran Stock Exchange (TSE) during the 2014–2021 period. This research is vital, as fraud can significantly impact businesses by increasing risks and costs, reducing investor confidence, and raising concerns about the competence and credibility of financial reporting.

White, Sondhi, and Fried (2003), financial statement analysis helps evaluate the historical performance of a company and project its future financial health. The insights gained help stakeholders make informed decisions about investments, loans, and management strategies.

Penman (2013), FSA helps stakeholders make informed decisions regarding investments, creditworthiness, and corporate governance.

Hanna Praveen et.al, 2024, titled The Financial Statement Analysis of Samsung Electronics Co. Ltd and Apple.

Bodie, Kane, and Marcus (2014), ratio analysis enables users to make comparative assessments of a company's financial performance, which is essential for making investment or credit decisions.

Palepu and Healy (2008) emphasized that vertical and horizontal analysis are essential in understanding the structural composition of financial statements and assessing the changes in financial performance over time.

Objective of this study:

- ➤ To overview of the financial performance of Tata Motors and Adani Green Energy in terms of profitability by using the DuPont Model.
- ➤ To investigate the growth rate between the two companies over the last five years.
- ➤ To emphasize the ESG factor and major achievements over the last five years.

Research methodology:

In this research I will use secondary data and will be collected through various secondary sources like companies' websites, Research papers, and articles. Profitability analysis of Tata Motors and Adani Green Energy will be investigated through Earnings per Share (EPS), Operating profit margin (OPM). Return on Equity (ROE); Profit after Tax (PAT); Current Ratio as well as this study emphasizes on the major fact of ESG over five years.

PROFIT AFTER TAX:

Here's a comparative table for **Tata Motors** and **Adani Green Energy Limited (AGEL)** over the last five years based on their **Profit After Tax (PAT)** performance:

Company	FY2020	FY2021	FY2022	FY2023	FY2024
Tata Motors	₹-10,975.23 Cr	₹-13,016.14 Cr	₹-11,234.70 Cr	₹2,353.49 Cr	₹31,106.95
Tata Motors	(Loss)	(Loss)	(Loss)	(Profit)	Cr (Profit)
Adani Green	₹ (1 Cm (I aaa)	₹182 Cr	₹489 Cr	₹973 Cr	₹1,260 Cr
Energy (AGEL)	₹-61 Cr (Loss)	(Profit)	(Profit)	(Profit)	(Profit)

FY2020 to **FY2022**: Tata Motors experienced significant losses during this period. The automotive sector, particularly the luxury car market, faced major challenges due to the pandemic and a decline in vehicle sales. **FY2023** and **FY2024**: The company made a remarkable recovery! In FY2023, it recorded a profit of ₹2,353 crore, and in FY2024, this profit surged to ₹31,106 crore. This impressive growth was largely driven by the strong performance of Jaguar Land Rover (JLR) and the expansion of electric vehicle (EV) sales.

OPERATING PROFIT MARGIN: Tata Motors (2020-2024)



Period	mar-24	mar-23	mar-22	mar-21	mar-20
Operating margin	5.09	2.67	-3.39	0.258	-4.09
Change	90.81%	178.76%	-1414.14%	106.30%	-163.70%
Price	992.80	420.80	433.75	301.80	71.05
Price Change	135.93%	-2.99%	43.72%	324.77%	_

The data of last five year about states that Operating Margin Ratio with value of 5.09 was highest in Year Mar-24 in last Five Years. Operating Margin Ratio of TATAMOTORS rose handsomely by 90.81 % this year, Operating Margin Ratio with value of -4.09 was lowest in Year Mar-20 in last Five Years.

Operating margin of Adani Green Energy (2020-2024):

Period	Mar 2024	March 2023	March 2022	March 2021	March 2020
Operating margine	4.21	51.28	0.857	-6.53	2.40

changes	-91.79%	5882.67%	113.13%	-372.39 %	107.50 %
Price	1835.15	881.15%	1914.70	1104.85	153.25
Price changes	108.27%	-53.98%	73.30%	620.95 %	312.52 %

After the study of Adani Green Energy, it has been found that the Operating Margin Ratio of ADANIGREEN drastically fell by -91.79 % this year, 2024. Operating Margin Ratio with the value of 51.28 was the highest in Year Mar-23 in the last Five Years. Operating Margin Ratio with the value of -6.53 was the lowest in Year Mar-21 in the last Five Years. The latest Operating Margin Ratio, with the value of 4.21, is lower than the Average Operating Margin of 10.44 in the last five years.

Earnings per share of Adani Green Energy and Tata Motors (2020-24)

Year	Tata Motors	changes	Adani Green Energy	changes
2020	-34.88	58.9115% increase	-0.740	107.283%
2020	-34.00	36.9113 % increase	-0.740	decrease
2021	-36.99	6.04931% decrease	0.680	191.892
2021	-30.99	6.04951% decrease	0.000	increase
2022	-29.88	19.2214% increase	2.41	254.412%
2022	-29.00	19.2214 /o IIICI ease	2.41	increase
2023	7.27	124.331% increase	5.41	124.481%
2023	7.27	124.551 /o IIICIease	5.41	increase
2024	81.95	1027.24% increase	6.21	14.7874%
2024	01.93	1027.24 /o Increase	0.21	increase

From 2020 to 2024, Tata Motors experienced a dramatic shift in its performance, beginning with a challenging period and concluding with remarkable growth. 2020–2021 **Downward Trend** Tata Motors faced major difficulties during this phase, as its value dropped by 34.88 in 2020, followed by a further decline of 36.99% in 2021. These two years were characterized by a sharp downward trend, with the company's performance decreasing by 58.91% in 2020 and 6.05% in 2021. This prolonged decline was likely influenced by a mix of market conditions, internal struggles, and the global impact of the COVID-19 pandemic. 2022 Recovery Phase After two years of losses, Tata Motors began showing signs of recovery in 2022, with its value rising by 19.88. This equated to a 19.22% increase from the previous year, indicating the company was stabilizing and moving away from its earlier setbacks. While the growth was modest, it signified that Tata Motors was making progress in overcoming its challenges. 2023 (Turnaround Phase) In 2023, Tata Motors experienced a dramatic shift, posting an impressive 124.33% increase in value compared to 2022. This sharp rise marked a turning point, showing that the company had fully recovered from its earlier declines and was now thriving. The boost could be attributed to strategic initiatives, improved market conditions, or effective decisionmaking. 2024 Exceptional Growth The growth trajectory continued to soar in 2024, with Tata Motors achieving a staggering 1027.24% increase in its value. This exceptional leap marked the company's most successful year, signaling extraordinary performance and likely driven by strong market positioning, innovation, and favorable external factors. It was a period of unparalleled success for Tata Motors, outpacing all prior expectations. In summary, Tata Motors went through a turbulent journey from 2020 to 2024, initially struggling with significant losses, followed by a phase of recovery, a sharp turnaround, and then outstanding growth. This period demonstrated the company's resilience and its ability to overcome challenges, ultimately seizing opportunities for remarkable success.

Analysis of Adani Green Energy (EPS)

2020 Initial Struggles Adami Green Energy began 2020 with a **small decrease of -0.74**, which was accompanied by a significant **107.28% negative percentage change**. This substantial drop marked a challenging year for the company, likely due to external

market conditions or internal setbacks that affected its overall performance. 2021–2022 Rapid Growth Phase The company experienced a period of exceptional growth during 2021 and 2022. In 2021, its value surged by 191.89%, followed by an even more impressive 254.41% increase in 2022. This dramatic rise indicated a phase of rapid expansion, where Adani Green Energy significantly improved its market position and likely benefited from favorable conditions in the renewable energy sector. 2023 (Sustained Growth) The company maintained positive momentum in 2023 with a 124.48% increase, though this was a slowdown compared to the explosive growth seen in 2021 and 2022. While still showing positive growth, the pace of expansion had moderated, suggesting that the company was entering a phase of more stable and sustainable progress. 2024 (Slower Growth) In 2024, Adani Green Energy's growth slowed further, with a 14.79% increase. Although this was a much smaller rise compared to the earlier years, it still represents positive growth and indicates that the company is maintaining a steady upward trajectory, albeit at a more measured pace. In summary, Adani Green Energy experienced a mixed performance between 2020 and 2024, beginning with struggles in 2020, followed by rapid and significant growth in 2021 and 2022. While the growth slowed in 2023 and 2024, the company still showed consistent positive performance, reflecting its continued development and positioning in the market.

Current Ratio: (cr.)

Year	Tata Motors	Adani Green Energy
2020	.85	.85
2021	.93	.61
2022	.98	.48
2023	.98	.91
2024	.97	.50

Tata Motors vs. Adani Green Energy: Comparative Analysis: 2020: Initial Position Tata **Motors**: Current ratio = **0.85**, **which means**: Tata Motors had **85 cents** in assets for every \$1 of short-term liabilities. This means Tata Motors could not fully cover its short-term debts with its available assets. Not ideal, but not critical either it was a moderate liquidity risk. Adani Green Energy: Current ratio = 0.8. This indicates that Adani Green Energy had **85 cents** in assets for every **\$1** of short-term liabilities, **just like Tata Motors**. Both companies were in a similar position in 2020, with a moderate liquidity risk. They didn't have enough assets to cover their short-term obligations, but the situation was not dangerously low. 2021: Decline in Liquidity, Tata Motors: Current ratio = 0.93. This indicates that Tata Motors improved slightly to 93 cents in assets for every \$1 of liabilities. It still wasn't enough to fully cover short-term debts, but it was better than in 2020. This indicated that Tata Motors was getting a bit better able managing its short-term obligations. Adani Green Energy: Current ratio = 0.61This indicates that Adani Green Energy saw a big drop, with only 61 cents in assets for every \$1 of liabilities. This was a sharp decline of around 28% from the previous year. The company was in much worse shape, facing increased liquidity problems and struggling more than Tata Motors to cover its debts. 2022: Continued Struggles for Adani Green Energy, Tata Motors: Current ratio = 0.98. This indicates that Tata Motors made good progress, reaching 98 cents for every \$1 of liabilities. It's still just under 1, but very close. This shows Tata Motors was almost able to cover its short-term debts, indicating stronger liquidity than before. Adani Green Energy: Current ratio = 0.48. This indicates that Adani Green Energy's ratio dropped even more, with only 48 cents for every \$1 of short-term liabilities. This was a serious decline, putting the company at high risk of not being able to pay short-term debts without further financing or asset sales. 2023: Recovery for Both Companies, Tata Motors: Current ratio = 0.98. This indicates that Tata Motors' ratio remained at 0.98, showing stability. While still below 1, it was not worse than the previous year, and it demonstrated that the company's liquidity position had stabilized. Adani Green Energy: Current ratio = 0.91. This indicates that Adani Green Energy made a strong

recovery, increasing by about 90% from the previous year. The ratio of 0.91 meant the company was closer to financial stability, although it still didn't have enough assets to cover all short-term debts. It was a positive turn, but still had room for improvement. 2024: Diverging Paths Tata Motors: Current ratio = 0.97. This indicates that Tata Motors' current ratio dropped slightly to 0.97. While this was a small decline, the company was still in a relatively stable position overall. However, it had to be careful not to drop below 1, which would indicate increased liquidity risk. Adani Green Energy: Current ratio = 0.50 This indicates that: After improving in 2023, Adani Green Energy's ratio dropped sharply again in 2024 to 0.50. This was a major setback, with the company only having 50 cents in assets for every \$1 of liabilities. The company was now in a very difficult liquidity situation, meaning it might struggle to meet short-term obligations without external support.

Sustainability Report of Adani Green Energy and Tata Motors

100% workforce participation in health and safety programs, assess all critical suppliers on ESG criteria, and achieve a 146.3% return on human capital investment. All operations are Single-Use Plastic Free and Zero Waste to Landfill certified. 2020-21 36.7 million tonnes of CO ₂ avoided by FY 2022-23, with 3.9 million carbon credits earned through ongoing decarbonization efforts. 99.8% lower emissions intensity (0.0017 tCO ₂ /MWh) compared to the Indian grid average (0.71 tCO ₂ /MWh). 99.5% reduction in freshwater usage (0.02 kl/MWh) versus the thermal power limit of 3.5 kl/MWh. 100% workforce engagement in health and safety awareness programs. 100% critical suppliers assessed on ESG parameters. 146.3% return on human capital investment, showcasing strong growth. Single-Use Plastic Free and Zero Waste to Landfill certified across 100% of our operations under CII Plastic Protocol and Intertek. 2021-2022 Capacity Expansion: Grew operational capacity to 5 GW, strengthening market leadership. ESG Recognition: Ranked among the top 10 globally in the renewable energy sector by Sustainalytics with a low-risk rating of 13.9.	year	ESG major fact
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ESG Recognition: Ranked among the top 10 globally in the renewable energy sector by Sustainalytics with a low-risk rating of 13.9.	2021-2022	
by Sustainalytics with a low-risk rating of 13.9.		•
Water Stewardship: Achieved water positivity across all sites.		- · · · · · · · · · · · · · · · · · · ·
Governance Excellence: Maintained high standards in governance and ethical operations.		
2022-23 AGEL has successfully avoided 36.7 million tonnes of CO ₂ emissions by FY 2022-23,	2022-23	
with our decarbonization initiatives generating 3.9 million carbon credits.	2022-23	
Our emission intensity is 99.8% lower per unit of generation (0.0017 tCO ₂ /MWh)		
compared to the Indian grid average of 0.71 tCO ₂ /MWh.		
We've reduced freshwater consumption by 99.5% per unit of generation (0.02		
kl/MWh) against the statutory thermal power limit of 3.5 kl/MWh.		
Key achievements include:		, ,
100% workforce participation in health and safety awareness programs.		
100% of critical suppliers evaluated on ESG standards.		
146.3% return on human capital investment.		

	Single-Use Plastic Free operations certified under the CII Plastic Protocol.
	Zero Waste to Landfill certification for all operating capacities by Intertek.
2023-24	AGEL had successfully avoided 36.7 million tonnes of CO ₂ emissions, with ongoing
	decarbonization efforts yielding 3.9 million carbon credits.
	Our emission intensity is 99.8% lower per unit of generation (0.0017 tCO ₂ /MWh)
	compared to the Indian grid average of 0.71 tCO ₂ /MWh.
	We've reduced freshwater consumption by 99.5% per unit of generation (0.02
	kl/MWh) compared to the statutory thermal power limit of 3.5 kl/MWh.
	Our key achievements include
	Full workforce involvement in health and safety awareness programs
	Complete ESG assessment of all critical suppliers
	An impressive 146.3% return on human capital investment.

Source: https://www.adanigreenenergy.com/sustainability

Fiscal			
Year In	itiative	Details	Source
2020–21 COVI	D-19 Relief	Assisted ~140,000 individuals,	https://www.tatamotors.com/press-
1	Efforts	including migrants and daily wage	releases/tata-motors-releases-7th-annual-
		earners; provided 340,000+ meals,	csr-report-for-fy-2021/
		100+ tons of dry rations, and medical	
		equipment to hospitals.	
	althcare	Benefited over 380,000 people; 60% of	https://www.tatamotors.com/press-
('A	arogya')	undernourished children treated	releases/tata-motors-releases-its-annual-
		achieved a healthy status.	csr-report-fy-2019- 20/?utm_source=chatgpt.com
			20/: utili source-chatgpt.com
Ed	ucation	Provided quality education access to	https://www.tatamotors.com/press-
('Vic	lyadhara')	nearly 120,000 students; 81% of	releases/tata-motors-releases-its-annual-
		coached students qualified for JEE	csr-report-fy-2019-
		Mains, 59% for JEE Advanced.	20/?utm_source=chatgpt.com
Emp	loyability	Trained ~18,000 youth and farmers;	https://www.tatamotors.com/press-
('Ka	ushalya')	69% secured employment, each	releases/tata-motors-releases-its-annual-
		adding ~₹100,000 to their annual	csr-report-fy-2019-
		household income.	20/?utm_source=chatgpt.com
Env	ironment	Planted 110,000 indigenous saplings	https://www.tatamotors.com/press-
('Vas	sundhara')	with an 87% survival rate;	releases/tata-motors-releases-its-annual-
		transformed areas into micro-habitats	csr-report-fy-2019-
		for diverse species.	20/?utm_source=chatgpt.com
CSR F	xpenditure	Despite financial losses, allocated	
		₹23.99 crore to CSR initiatives,	
		focusing on skill development,	
		education, healthcare, and	
2021 22	OVID-19	environmental sustainability.	Tata Motors Press Polesco
	cination	Deployed 11 mobile vaccination vans, administering vaccines to over 80,000	<u>Tata Motors Press Release</u>
	Drive	individuals across nearly 250 villages	
		and 6 districts; 45% of beneficiaries	
		were women from marginalized	
		sections.	

American Journ	nui of Economics una busines	ss Management 2025 , 8(5), 1351-1359.	1971
	Healthcare	Positively impacted over 550,000	https://www.tatamotors.com/press-
	('Aarogya')	individuals; provided 360,000 people	releases/tata-motors-releases-7th-annual-
		with supplementary diets and	csr-report-for-fy-2021/
		curative healthcare services; improved	
		health of 67% of 2,900 malnourished	
		children treated.	
	Education	Provided access to quality education	https://www.tatamotors.com/press-
	('Vidyadhanam')	for over 100,000 students; 96% of	releases/tata-motors-releases-7th-annual-
	(Vidyadilalialii)		csr-report-for-fy-2021/
		22,000 supported government school	<u>CS1-1CPO1t-101-1y-2021/</u>
		children cleared Class X Board exams,	
		with 64% securing first division and	
		above; 42% of partnered JNV students	
		qualified for JEE Mains.	
	Employability	Trained over 45,000 youth and	
	('Kaushalya')	farmers; 78% secured employment	https://www.tatamotors.com/press-
		with an average salary of ₹8,500;	releases/tata-motors-releases-7th-annual-
		expanded LEAP program to 60	csr-report-for-fy-2021/
		institutes across 21 states, skilling	
		32,300 youths.	
	Environment	Planted over 190,000 indigenous	https://www.tatamotors.com/press-
	('Vasundhara')	saplings with an 87% survival rate;	releases/tata-motors-releases-7th-annual-
	(Vasananara)	created microhabitats for varied	csr-report-for-fy-2021/
			<u>csi-report-ioi-ry-2021/</u>
		species of flora and fauna;	
		implemented Wadi Model in Jawahar,	
		Maharashtra, planting over 270,000	
		trees with 2,000 farmers.	
2023–24	Integrated	Reduced migration from 45% to 25%	https://businessnewsweek.in/business/tata-
	Village	in five-gram panchayats in Jawahar;	motors-csr-initiatives-transform-1-million-
	Development	increased average household income	lives-in-fy24-releases-its-10th-annual-csr-
		by 60%; ensured year-round water	report/
		availability; transformed Navapara in	
		Ahmedabad, reducing migration by	
		40% and school dropouts by 10%.	
	Environmental	Planted 1.7 million saplings across	
	Sustainability	Palghar district, benefiting 13,000	https://businessnewsweek.in/business/tata-
		farmers and converting 13,000 acres of	motors-csr-initiatives-transform-1-million-
		unutilized farmland; Urban Forestry	lives-in-fy24-releases-its-10th-annual-csr-
		initiative planted 125,000 trees over	report/
		•	=======================================
		200 hectares in Pune, absorbing	
		300,000 kg of carbon annually.	
	Education	Supported over 550 Jawahar	https://businessnewsweek.in/business/tata-
	Support	Navodaya Vidyalayas with coaching	motors-csr-initiatives-transform-1-million-
	(ENABLE	for JEE and NEET exams; in 2023–24,	lives-in-fy24-releases-its-10th-annual-csr-
	Program)	27% of ENABLE students qualified for	report/
		IIT JEE, 79% for NEET.	
	Employability	Trained around 1,500 youth annually	
	(LEAP Program)	in auto trade skills; ~80% placement	
		rate, with many being first-generation	
		learners.	
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