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A Critical Examination and Scrutiny between Tata Steels and JSW Steels Limited in India

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Abstract: Over the past few years, the Indian steel sector has advanced quickly thanks to solid foundations. The industry is receiving all of the necessary components needed for rapid expansion. The industry is receiving billions of dollars in investments from the private sector and advantageous industrial changes from the government. Due to the robust domestic demand from the building, automotive, and infrastructure sectors, the industry was able to maintain its positive growth momentum even during the difficult economic downturn. With a stellar history, the nation is now well-known in the global steel sector. The remarkable performance of the industry has attracted global steel companies from all over the world. For instance, India's production of crude steel reached 56.6 million metric tonnes in 2009, a modest year-over-year increase of 2.7%. Conversely, a number of Asian nations, including South Korea and Japan, experienced a sharp drop in their production levels. This further demonstrates the Indian steel industry's robustness and resilience against outside risk factors. The impact of the steel industry on two significant businesses, Tata Steels and JSW Steels, is discussed in this essay. Additionally, the author has attempted to use ratio analysis in the study to highlight Tata Steels' and JSW Steels' financial performance.

Keywords: Steel Industry, Financial performance, Tata Steels, JSW Steels

I. INTRODUCTION

India's iron and steel sector has historically been a major source of international commerce. India now produces more crude steel than Japan, which is the second-largest producer. 90% of India's total output of sponge iron comes from the coal-based approach, making the country the world's largest producer of sponge iron. In the Financial Year 2023, India produced 121.29 MT of finished steel and 125.32 MT of crude steel, making it the second-largest producer of crude steel in the world. Over the last ten years, India's steel sector has grown significantly, with production rising by 75% since 2008. In India, 86.7 kg of steel were consumed per person in the Financial Year 2023. The availability of inexpensive labour and raw materials like iron ore has propelled the growth of the Indian steel sector. India plans to produce 255 million tonnes (MT) of finished steel, have a 300 million MT crude steel capacity, and a healthy 158 kg per capita consumption of finished steel by 2030–31, according to the National Steel policy, which was introduced in 2017. One of the materials that is utilised extensively worldwide is steel. The industry that produces the most profit is the iron and steel sector. The steel industry is essential to several important industries, including engineering, defence, automobiles, infrastructure, and construction. A significant portion of the Indian economy, accounting for 2% of GDP in the Financial Year 2021–2022, is the steel industry.

II. TATA STEELS AND JSW STEELS

India has the potential to produce 143.9 million tonnes of steel annually (MT), making it the second-largest producer of steel. With a per capita use of 72.3 kg, it ranks third among all consumers of steel. Steel is a strategically significant industry for India, employing about half a million people and adding nearly 2% to the nation's GDP. In order to stimulate this sector, the government plans to raise capacity to 300 MT and per capita consumption to 160 kg by 2030. The expansion of this industry will benefit two well-known private businesses in addition to the several steel corporations who stand to gain from this initiative. Tata Steel and JSW Steel are those companies. The Tata Steel Limited is the largest steel company in India followed by the JSW Steel Limited. The Tata Steel Limited has a total sale of Rs 1, 60,769 Cr and a capacity of 34 MNTPA. Tata Steel is the steel arm of the prestigious Tata Group. It's primarily involved in the business of mining, manufacturing steel, and selling finished steel as well as value-added products and solutions. Its product portfolio caters to the automotive, construction, industrial, and general engineering sectors. The company is also the world's most geographically diversified steel producer in over 50 countries. JSW Steel, on the other hand, is a part of the JSW Group and is involved in the business of manufacturing and selling iron and steel products. The company offers a wide range of products that are utilised in the project and construction, general engineering, and automotive industries.

Tata Steel's revenue has increased at a CAGR of 17.2% over the last five years compared to JSW Steel's 23.5%, despite the fact that Tata Steel's total revenue is almost twice that of JSW Steel. The increase in domestic economic activity, capacity addition, and steel prices drove JSW Steel's revenue growth. Tata Steel's revenue growth has been driven by a rise in sales volume, a greater share of value-added products, and rising realisations. For the grounds listed above, the researcher determined that the current study is pertinent and proceeded with the investigation.

III. REVIEW OF LITERATURE

- 1) N. Thangaraj, M. Mekala (2020) attempted to assess and compare the financial performance of Tata Steel Ltd. and Welspun Corp. Ltd., both of which are associated with the private sector, in their academic paper "A Comparative Study on Financial Performance of Tata Steel Ltd. and Welspun Corp Ltd." The study spans seven years, from 2011–12 to 2017–18. Ratio analysis was used to evaluate these businesses' performance. The Gross Profit Ratio, Inventory Turnover Ratio, and Fixed Assets Turnover Ratio were the ratios employed in the study.
- 2) Pramod Kumar Patjoshi (2019) sought to identify the financial strengths and weaknesses of the Indian Steel and Mines industries in his research study, "A Study on Financial Performance Analysis of Tata Steel and Jindal Steel Works." The study was conducted between 2006–07 and 2015–16, a ten-year period. The study was concentrated on analysing the financial performance of Jindal Steel Works and Tata Steel using metrics such as market value ratio, leverage ratio, profitability, efficiency, and liquidity. The implication helped the company learn about its profitability and growth prospects, and it helped the investor make an investment choice.
- 3) Dr. R Suresh (2020) In his work "A Study On Financial Performance Analysis With Reference To Super Auto Forge Pvt Ltd," tried to compare the financial data of Auto Forge Limited throughout the previous three years (2017–2018, 2018–2019, and 2019–2020). Tools including Ratio Analysis, Common Size Statement, Comparative Statement, and Trend Analysis were employed for this study in order to have a meaningful analysis and interpretation of the varied data collected. Additionally, he said that a high turnover ratio indicates how well assets are managed and utilised. Furthermore, he said that a low working capital turnover ratio suggests that the business was not making enough money with the working capital at its disposal through sales.
- 4) Riya Sharma (2021) in her research paper on 'A Comparative study on financial performance of private and public sector of steel industry (with special reference to Tata Steel Limited and the Steel Authority of India Limited)', noted that Tata Steel Limited outperformed Steel Authority of India Limited in terms of profitability, general efficiency, and short-term solvency. Tata Steel Limited's long-term solvency situation was inferior to that of Steel Authority of India Limited. It was determined that Tata Steel Limited had a more favourable financial situation than the Steel Authority of India.
- 5) Jasmine Mehta (2021) noted that there was a substantial difference between the profitability ratios of the selected organisations in their article "Financial Performance analysis of selected Indian I.T. Companies: a comparative study." This led to the conclusion that there is a notable variation in the profitability of the chosen companies' performances. However, it was discovered that there was a small overlap in the liquidity and solvency ratios of the chosen businesses. This led to the conclusion that there was no discernible difference in the liquidity and solvency performance of the chosen companies. According to the report, Infosys and Wipro have the best performances among the chosen firms from 2008 to 2020. Wipro outperformed Infosys in terms of financial leverage ratio, return on invested capital, and return on equity, while Infosys excelled in terms of gross profit, net profit, and current ratio. The ratio analysis allowed for the deduction of this.
- 6) Varun Kesavan (2015) discovered that we can easily determine the strengths and weaknesses of the companies as well as their position in the market by using the ratio analysis tool to analyse the performance of both the Indian steel industries, Tata Steel Ltd. and JSW Steels Ltd. This study makes use of a variety of ratios, especially those that are connected to the financial statement. Specifically, the balance sheet of both industries' years 2009–2014 is used, and ratios are then computed based on this information to enable us to compare the performance of the companies and determine which is growing at a faster rate and in a better position than the other. It is evident by comparing the financial positions that Tata Steels is in a far better situation than Jindal Steels.

IV. STATEMENT OF THE PROBLEM

One of the most significant industries in India is the steel sector. India surpassed Japan to become the world's second-largest steel manufacturer in 2019. India is expected to consume much more finished steel in 2030–31.

Industrialization has been primarily propelled by the usage of metals. For a very long time, steel was the most valuable metal. Since steel is both a product and a raw material, its consumption and production are frequently used to gauge a country's economic prosperity.

Therefore, to claim that the steel industry is the foundation of any economy and has always been at the forefront of industrial growth would not be overstating the situation. Primary producers, secondary producers, and large producers make up India's steel sector.

Numerous industries in India have been impacted by the shifting economic landscape, both positively and negatively. Among them is the steel sector. India's manufacturing, construction, and service sectors were largely reliant on the Tata Steel sector. However, Tata Steel and other steel firms have also been indirectly harmed in terms of performance, turnover, and position due to the underperformance of the aforementioned industries. As a result, the study's challenge is to compare the profitability, liquidity, solvency, turnover, and earning potential of various time periods based on the operations of JSW Steels Limited and Tata Steel Limited in India. The purpose of the study is to test the ratio disparities on many financial elements, taking into account both organisations as representative examples of major and popular industries. Ratios are calculated using the analysis of financial data, allowing for a comparative study of such ratios over the course of three years (2019, 2020, and 2021). Beyond that, knowing the formulas used by the corporations to calculate the ratios in comparison to those determined for the study can also be helpful.

The study attempts to describe the financial forecast for the top three Indian steel firms based on their financial perspective during the last three years. Although other academics have undertaken a number of research studies on the subject, this study has choose to focus on it for the three years between 2019 and 2021. This time frame aids in understanding the pre-, during-, and post-COVID effects on the financial performance and overall profitability of JSW Steel and Tata Steel in the steel industry. Roughly speaking, the study would offer concepts and perceptions to investors purchasing securities and shares in the business throughout that time. Understanding the company's CSR initiatives, business culture, and accomplishments throughout that time will be aided by the study.

V. OBJECTIVES OF THE STUDY

- 1) To assess the solvency and turnover situations of JSW Steels Limited and Tata Steels Limited using ratio analysis.
- 2) To compare the profitability and liquidity positions of the two organisations.
- 3) To evaluate JSW Steels Limited and TATA Steel Limited's financial performance.

VI. RESEARCH DESIGN

The study is purely based on Secondary data. For the purpose of data collection official website of Tata Steels and JSW Steels were used. The study covers a period of 3 years starting from 2019 – 2020 to 2021 – 2022. Ratio analysis was performed to assess and contrast the companies' profitability, liquidity, solvency, and turnover status over the specified time period. Ratios, including profitability, liquidity, efficiency, solvency, and turnover, were employed to evaluate and compare the two businesses' financial results.

VII. ANALYSIS AND INFERENCES

1) Profitability Ratio

Table 1
Profitability Ratios of Tata Steels and JSW Steels from the year
2019 – 2020 to 2021 – 2022.

Company	Gross profit ratio			Net Profit ratio			Operating profit ratio		
	2019 - 2020	2020- 2021	2021- 2022	2019 - 2020	2020- 2021	2021- 2022	2019 - 2020	2020- 2021	2021- 2022
Tata Steels	14.14	23.57	34.72	11.47	21.35	25.85	11.24	27.92	34.53
JSW Steels	6.75	15.15	20.83	8.326	9.86	14.3	5.38	15.16	20.2

Source: www.tatasteel.com, www.jswsteels.com

The profitability ratios for the Tata Steel and JSW Steel firms from 2019–2020 to 2021–2022 are shown in Table 1. The gross profit, net profit, and operating profit ratios for both businesses are examples of profitability ratios. When it came to Gross Profit Ratio, Tata Steels shown a remarkable rise from 2019–2020 to 2021–2022, with percentages of 14.14%, 23.57%, and 34.72%. JSW Steels, on the other hand, also made good development, with percentages of 6.75%, 15.15%, and 20.83%.

In comparison, JSW Steel's gross profit ratios are lower than those of Tata Steel. Tata Steels' net profit ratio demonstrated a favourable outcome with values of 11.47%, 21.35%, and 25.85%, while JSW Steels also demonstrated a positive increase in net profit ratio with values of 8.326%, 9.86%, and 14.3%. Tata Steels is outperforming JSW Steels in this comparison. Tata Steels showed a greater degree of increase from 11.24% to 34.53% based on the Operating Profit Ratio, while JSW Steels recorded growth of 5.38%, 15.16%, and 20.25 over the course of three years. Profitability ratios are used to assess an organization's financial health. In this comparison, both firms are performing well economically, but Tata Steel's performance is greater to JSW Steel's.

2) Solvency Ratio

Table 2
Solvency Ratios of Tata Steels and JSW Steels from the year
2019 – 2020 to 2021 – 2022

Company	Debt- equity ratio			Interest coverage ratio		
	2019 – 2020	2020- 2021	2021- 2022	2019 – 2020	2020- 2021	2021- 2022
Tata Steels	0.96	0.81	1.44	2.74	4.43	15.88
JSW Steels	2.62	2.27	1.87	0.97	3.06	6.14

Source: www.tatasteel.com, www.jswsteels.com

The Solvency Ratios of the Tata Steel and JSW Steel firms from 2019–2020 to 2021–2022 were the primary focus of Table 2. The solvency ratios for the two companies' debt-to-equity and interest-coverage ratios are shown in the above table. With a percentage of 1.87 in 2021–2022, JSW Company's debt equity ratio shows a greater progress than Tata Steels, where the latter's debt equity proportion is 1.44%. Since the debt-to-equity ratios of both businesses are positive, it may be assumed that their debt loads are higher and that their default risks are correspondingly higher. Tata Steel's performance is best in the comparison when it comes to interest coverage ratio, scoring 2.74%, 4.43%, and 15.88% between 2019 and 2020 and 2021 and 2022. JSW's performance, on the other hand, is marginally lower, at 0.97%, 3.06%, and 6.14%. The interest coverage ratio calculates the company's margin of safety and evaluates the interest paid on its loan over the course of the fiscal year. When it comes to margin of safety, the bigger the ratio, the better. Overall, both businesses have a favourable impact on the solvency ratio; however, Tata Steel has outperformed JSW.

3) Liquidity Ratio

Table 3
Liquidity Ratios of Tata Steels and JSW Steels from the year
2019 – 2020 to 2021 – 2022

Company	Current Ratio			Quick ratio		
	2019 – 2020	2020- 2021	2021- 2022	2019 – 2020	2020- 2021	2021- 2022
Tata Steels	0.93	0.84	1.21	0.41	0.38	0.48
JSW Steels	0.84	0.83	1.16	0.52	0.499	0.55

Source: www.tatasteel.com, www.jswsteels.com

The liquidity positions of Tata Steels and JSW Steels for the three years spanning 2019–2020 to 2021–2022 are shown in Table 3 above. The ratio used to calculate the company's short-term financial obligations is known as the liquidity ratio. The liquidity position of both companies was determined to be both financially feasible and effective based on the preceding table.

The company's liquidity ratio, which was set at 1, served as a measure for assessing its financial soundness. Tata Steels Company's current ratio is 1.21, while JSW's is 1.16. In comparison to the benchmark, the liquidity positions of both companies are excellent. While JSW's Quick ratio is 0.55 and Tata Steels' is 0.48, both indicated a favourable effect on the company's liquidity position. In general, JSW's Quick ratio outperforms Tata Company's, whereas the Tata Company's Current ratio is inferior.

4) Turnover Ratio

Table 4
Turnover Ratios of Tata Steels and JSW Steels from the year
2019 – 2020 to 2021 – 2022

Company	Fixed assets turnover ratio			Inventory turnover ratio		
	2019 - 2020	2020- 2021	2021- 2022	2019 – 2020	2020- 2021	2021- 2022
Tata Steels	0.76	0.83	1.29	5.353	6.715	7.785
JSW Steels	0.83	0.77	1.21	5.16	5.68	6.09

Source: www.tatasteel.com, www.jswsteels.com

The turnover ratios for the Tata Steel and JSW Steel firms from 2019–2020 to 2021–2022 are shown in Tab 4. The fixed asset turnover ratio and inventory turnover ratio for both businesses are shown in the above table. Turnover ratios are a kind of efficiency measurement for businesses. In comparison, the Fixed Assets Turnover ratio of JSW Company is higher than that of Tata Steels in the years 2019–2020, with a percentage of 0.83, while the Fixed Assets Turnover ratio of Tata Steel Company is higher in the years 2020–2021, with a percentage of 0.83%. Both corporations made stronger progress in 2021–2022, with 1.29% and 1.21% respectively. When it comes to inventory turnover ratio, Tata Steels and JSW are in direct competition with one another to offer more efficiency to the market. The company's performance is both good and has increased gradually between 2019 and 2020 and between 2021 and 2022, going from 5.35% to 7.78% and 5.16% to 6.09%. Overall, the turnover ratios of the two firms are favourable, but Tata Steel has outperformed JSW, indicating that it has been able to better utilise its assets to produce a sufficient amount of money from its activities.

5) Earnings Ratio

Table 5
Earnings Ratios of Tata Steels and JSW Steels from the year
2019 – 2020 to 2021 – 2022

Company name	Earnings per equity share			Price Earnings ratio			Return on net worth		
	2019 - 2020	2020- 2021	2021- 2022	2019 - 2020	2020- 2021	2021- 2022	2019 - 2020	2020- 2021	2021- 2022
Tata Steels	11.86	63.78	27.01	22.74	12.73	4.3	1.59	10.66	1.081
JSW Steels	16.78	32.91	85.96	23.08	12.23	8.49	0.82	10.37	9.78

Source: www.tatasteel.com, www.jswsteels.com

The earnings ratio for the years 2019–2020 and 2021–2022 was displayed in Table 5. Return on Net Worth, Price Earnings Ratio, and Earnings per Equity Share are all included. Generally, earnings ratios show if a company's stock is pricey or inexpensive. In the table above, JSW Steels' earnings per share value from 2019–2020 to 2021–2022 is larger than Tata Steels', at 16.78%, 32.91%, and 85.96%, respectively. As opposed to this, Tata Steels' earnings per share fluctuated, rising by 63.78% in 2020–2021 and falling precipitously by 27.01% in 2021–2022, respectively. Tata Steel's performance in the Price Earnings Ratio was extremely erratic, falling from 22.74% to 4.3%. JSW Steel's performance was equally erratic, with a decrease in ratio from 23.08% to 8.49%. Both firms have positive returns on net worth, with Tata Steel's starting from 1.59% to 1.081% and JSW Steel's starting from 0.82% to 9.78% from 2019 to 2020 to 2021–2022. On the whole both the company's performance are highly volatile in Earnings Ratio.

VIII. SUGGESTIONS

- 1) India is the world's second-largest producer of steel and has a significant environmental impact. It is among the main causes of CO₂ emissions. Therefore, in order for steel firms to be sustainable, they must adopt greater responsibility and take steps to minimise their resource usage and carbon impact.
- 2) Tata Steel is reducing waste production and lowering CO₂ emissions by using technology to optimise manufacturing routes. In order to regulate the intensity of dust emissions, it is also modernising its air pollution control machinery. The business is using more renewable resources now. It is using all of its solid waste and has been expanding the capacity of its steel recycling company.
- 3) Conversely, JSW Steel aims to become a steel company that is environmentally conscious by focusing on 17 sustainable areas. By adhering to the guidelines, it set for itself, the corporation is consistently reducing its use of resources, carbon emissions, and waste footprint with the goal of halting climate change.

IX. FUTURE PROSPECTS

- 1) The fiscal stimulus packages offered by different governments to support infrastructure are the primary reason why the domestic and international steel industries are currently experiencing growth.
- 2) Government programmes like Product Linked Incentive Scheme and Atmanirbhar Bharat are anticipated to stimulate the steel industry indirectly by bolstering the industries that utilise steel as a raw material.
- 3) India's steel consumption increased from 100 MT prior to the epidemic to 106 MT in the fiscal year that ended in 2022. In the medium run, steel demand is anticipated to remain high notwithstanding the export penalties placed on the commodity in May 2022.
- 4) To take advantage of this demand, Tata Steel and JSW Steel are in a strong position.
- 5) Tata Steel is spending around Rs 8 billion in capital expenditures to expand its capacity for producing steel. Additionally, it is investing in expanding its reach into related industries such as new materials, services, and solutions.
- 6) The business is anticipated to provide solid cashflows that will aid in debt repayment notwithstanding the significant capital expenditure. This will increase net profitability and strengthen its balance sheet.
- 7) JSW Steel, on the other hand, has already made a capital expenditure investment of Rs 490 billion to raise its capacity from the current 28 MT levels to 45 MT by 2030. The company's earnings indicate that there isn't much potential for future growth. But as soon as the additional capacity is operational, sales ought to increase.
- 8) JSW and Tata Steel are both at the same profitability levels this year. Nevertheless, compared to Tata Steel, JSW Steel has slower volume growth and lower dividend payments. Furthermore, JSW Steel's shares are more expensive than Tata Steel's shares.
- 9) Both businesses generate a large portion of their revenue from value-added products and have sufficient backward integration.
- 10) In order to meet the rising demand for steel, both businesses are also growing their present capacity. To assist you make an informed choice, it's crucial to review a company's fundamentals and valuations before deciding to invest in it.

X. CONCLUSION

Considering the information mentioned above, it can be inferred that, as compared to JSW Steel Company, Tata Steel Limited is doing remarkably well in terms of profitability, solvency, and earnings to shareholders capacity. Throughout the time, the liquidity positions of the two corporations were the same. For both companies, the post-pandemic performance has been positive. The reason may be that numerous people, businesses, industries, and government initiatives—like building metro trains, flyovers, and other monuments and buying machinery—were observed following the pandemic and helped the steel companies increase both their sales and profits. It manages to stay India's leading steel manufacturing concern thanks to its social responsibility programmes, ethical and encouraging corporate culture, and high-quality products.

REFERENCES

- [1] Chandra Prasanna (6th ED.), "Financial Management", Tata Mc Graw-Hill Publishing Company Ltd., New Delhi. ISBN-0-07-058548-2.
- [2] Pandey I.M. (8th ED.), "Financial Management", Vikas Publishing House Pvt. Ltd., ISBN-81-259- 0638-X.
- [3] Dr. Vivek Sinha "A Comparative Study Of Financial Performance Of TATA Steel & SAIL Ltd." "International Journal Of Reviews Surveys And Research (IJRSR)". ISSN-23194618 – V2/ 1M11 – 012013
- [4] N. Thangaraj , M. Mekala, "A Comparative Study On Financial Performance Of Tata Steel Ltd And Welspun Corp Ltd", IJIRT Volume 7 Issue 6 ISSN: 2349-6002, November 2020



- [5] Pramod Kumar Patjoshi, A Study On Financial Performance Analysis Of Tata Steel And Jindal Steel Works: Business & Management Book Chapter, IGI Global, May 2019
- [6] Dr.R.Suresh, A Study On Financial Performance Analysis Withreference To Super Auto Forge Pvt Ltd, Ilkogretim Online - Elementary Education Online, 2020; Vol 19 (Issue 3): Pp. 4715-4721.
- [7] Varun Kesavan, A Comparative Study On Financial Performance Of Tata Steel Ltd And JSW Steels Ltd, IJLTEMAS, Volume IV, Issue V, May 2015.
- [8] Jasmine Mehta, R. R. (2021). Financial Performance Analysis Of Selected Indian I.T Companies: A Comparative Study . International Journal Of Multidisciplinary Educational Research , 9.
- [9] Jayswal, P. J. (2021, AUGUST 17). How The IT Industry Is Shaping The Future Of India Retrieved From <https://Timesofindia.Indiatimes.Com/Readersblog/Youth2020/How-The-It-Industry-Is-Shaping-The-Future-Of-India-36519/>
- [10] Manjunatha, T. &. (2018). Performance Analysis Of Indian Information Technology Companies Using Dupont Model. IUP Journal Of Management Research; Hyderabad Vol. 17(4),7-14.
- [11] Mr. Nilay N. Prajapati, D. S. (2020). Analysis Of Working Capital Management Of Selected Indian It Companies. Gap Bodhi Taru A Global Journal Of Humanities .
- [12] Paoletta, M. S. (2018). Linear Models And Time-Series Analysis: Regression, Anova, Arma And Garch Wiley.
- [13] <https://www.slideshare.net/kshah19995/a-study-of-jsw-an-indian-steel-manufacturing-company>
- [14] <https://www.livemint.com/opinion/online-views/tata-steel-riding-indias-infra-wave-facing-global-commodity-downturn-11706679453968.html>
- [15] https://indusedu.org/pdfs/IJREISS/IJREISS_1796_15504.pdf
- [16] www.tatasteel.com
- [17] www.jswsteels.com



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