

MEASUREMENT OF FINANCIAL PERFORMANCE USING TOPSIS METHOD OF TOP 10 STEEL COMPANIES IN INDIA BETWEEN 2019-2021 YEARS

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ABSTRACT

One of the key industries for the growth of any community is the steel industry. In actuality, the steel sector serves as the foundation for a wide range of other businesses. Actually, this industry served as the foundation for the industrial revolution that began in Europe at the turn of the century. The three main methods for obtaining final steel products are direct reduction, secondary processing, and integrated steel production.

By considering the relative proximity to the positive ideal solution, we used the TOPSIS approach in this work to take into account both the distance to the positive ideal solution and the distance to the negative ideal solution. Alternate priority orders can be achieved via a comparison of the relative distance. The TOPSIS method is employed in this research work to interpret the top 10 steel businesses in India, and we used secondary data collection techniques. The information was gathered from numerous sources inside the government. The key financial ratios have been taken as criteria also known as indices to check the financial position of the company.

I. INTRODUCTION

The Indian steel industry is modern, with state-of-the-art steel mills. It has always strived for continuous modernisation of older plants and up-gradation to higher energy efficiency levels. The Indian steel industry is classified into three categories - major producers, main producers and secondary producers. Steel is a widely used material in many different industries, and it is all around you. Steel is utilised on a daily basis in everything from your home and vehicle to electrical appliances and soda cans. Construction & infrastructure, engineering, fabrication, automotive, and packaging are just a few of the industries that employ steel. India's fundamental industry, steel, has been a significant contributor to the nation's manufacturing output and has been crucial to the country's economic development. Therefore, there is no question that the steel industry is a vital part of the country's infrastructure.

The Indian steel industry has entered into a new development stage, post de-regulation, riding high on the resurgent economy and rising demand for steel. India went from being the third-largest producer of crude steel in 2017 to the second-largest producer over the past four years (2018–2021). According to rankings made public by the World Steel Association, the nation was also the largest producer of sponge iron or DRI in the world and the second largest user of completed steel in the world, behind China, in 2021 (provisional). The government's role is that of a facilitator in a deregulated, liberalised economic/market environment like India, setting the policy guidelines and establishing the institutional mechanism/structure to create a favourable environment for improving the efficiency and performance of the steel sector. The construction industry, the automobile and transportation industries, packaging, machinery, and the energy sector are just a few of the industries that heavily rely on the steel industry for their own significance. Construction, as the building and infrastructure sector consumes the most steel globally, at over 50% of total consumption. Steel is the material of choice for designers, engineers, builders, and architects because it is incredibly strong and adaptable. Buildings with steel frames have a long lifespan and can survive earthquakes and thunderstorms. Steel is the best material for both public and private construction projects because of its energy efficiency, durability, and light weight. Most of the heaving metal machinery used in building and infrastructure projects is made of steel, more specifically stainless steel. These may range from bulldozers, cranes, and drills to scaffolding and portable shelters. Steel plays a major role in making agriculture earlier and more efficient. Agricultural machinery such as shovels, forks, modern ploughs and even irrigation systems all are made of steel. All in all, the usage of TOPSIS method to make an analytical decision based on collected data and comparing a set of alternatives based on pre-specified criteria. In this report, there have been a selection of top ten steel companies of India and a mindful decision is made on the basis 10 criteria which are the ten ratios.

II. LITERATURE REVIEW

EBRAHIM, KARIMI SANGCHINI, MID, ASADI NALIVAN, NASSER, TAHMASEBPOUR (2017) in their study through six indices (Demographic Index, Literacy Index, Poverty Index, Nutrition Index and Food Security, Index Justice and Equality, Ownership Index) and 18 variables, the current study highlights social sustainability levels in three rural centres of the Zidasht basin. Prioritizing social sustainability was accomplished using TOPSIS, one of the multicriteria decision-making techniques. Twenty experts were utilised to assign weights to the corresponding criteria. The outcome revealed that Kalanak, with a value of 0.7456, has the highest priority, followed by Zidasht (0.6003) and Sangbon (0.2303).

Seyed Mojtaba Hosseini, Mohammadkarim Bahadori, Mehdi Raadabadi, and Ramin Ravangard (2019) examined the unavoidable occurrence of unexpected events and disasters both globally and in Iran, focusing on hospitals' readiness as the most crucial location to deliver healthcare services prior to disasters occurring and emphasising the importance of identifying hospitals with low preparedness. The current study used the TOPSIS technique to rate hospitals according to how well-prepared they are for emergencies and disasters. According to the findings, Hospital F (CL 14 0.784) and Hospital A (CL 14 0.224) respectively received the top and bottom rankings.

In the work by **Chung-Tsen Tsao (2013)**, a fuzzy TOPSIS approach is used to analyse the investment values of stocks. Stock ratings are made against qualitative criteria, and the weights of all attributes are calculated using fuzzy integers to represent linguistic values. To make sure the linguistic assessments of the qualitative attributes are compatible with the quantitative attributes, the quantitative attributes are translated into dimensionless indices. It is possible to give the membership function for the weighted rating of each stock against each attribute. All weighted ratings are defuzzified into crisp values in order to avoid laborious calculations of fuzzy numbers. The fuzzy TOPSIS model can therefore be readily completed by deriving the ideal and negative-ideal solutions, as well as the relative proximity. The evaluation value of a stock is its relative proximity. An increased assessment value suggests a better performance.

The goal of **Shrabanti Pal's study (2021)** is to use an independent sample t-test to track changes in profitability metrics for a sample of integrated steel producers in India over the course of 10 quarters, from December 2018 to March 21. The main goal of the study is to determine how COVID-19 has affected the ability of Indian steel businesses to turn a profit. For the sample companies, such as Tata Steel Ltd, Steel Authority of India, and JSW Steel, with the exception of Jindal Steel and Power Ltd., the study found that there was a marginally insignificant increase in Profit before depreciation, interest and tax, Profit before interest and tax, Profit before tax ratio, Net profit ratio, and Earning per share during the pandemic condition. All profitability indices for JSPL have, however, shown significant positive improvement throughout the course of the current study.

The topsis approach is discussed in detail in the study work by **R. M. Zulqarnain, M. Saeed, N. Ahmad, F. Dayan, and B. Ahmad** on The Application of Topsis Method on Decision Making. By adjusting the number of criteria, users, items, categories, and features that are offered, the TOPSIS is assessed. They provide comprehensive information on the TOPSIS method and built a graphical representation of the TOPSIS method. By using fictitious data using the TOPSIS approach to choose the greatest automotive vehicle, they used an example from the auto industry and determined that the Civic was the best vehicle based on the previously chosen criteria.

The steel industry is an energy-intensive industry and has to advance for sustainable growth, according to **Yuan Ronglian, Ai Mingye, Jia Qiaona, and Liu Yuxuan's "evaluation index system of steel industry sustainable development based on entropy method and topsis technique"**. The findings of the empirical research indicate a positive trend of steady progress in the sustainable growth of the steel sector during the time of the twelfth five-year plan. Additionally, this is strongly tied to the nation's environmental low-carbon strategy. The steel industry produces a lot of pollutants and uses a lot of energy. The trend of sustainable development has improved since the supply-side structure reform, although energy consumption continues to cause significant pollution. They have proposed the following ideas in light of the analysis of the steel industry: China should adopt its environmental protection programme as soon as possible in order to reduce pollution as soon as possible. However, finding a balance between the pursuit of maximum short-term gains and

environmental protection is a critical issue that government agencies should carefully evaluate. It ought to deepen and produce more industrial products with added value while also accelerating the fusion of high technology and the iron-steel sector. It is not necessary for the steel industry's supply side reform to manufacture less steel, and the surplus production capacity mostly pertains to low-end steel production capacity while high-end steel remains reliant on imports into the nation.

III. RESEARCH METHODOLOGY

The TOPSIS (Technique For Order Preference By Similarity To An Ideal Solution) method is used to solve problems and make multi-criteria decisions. The guiding principle of this strategy, created in 1981 by Hwang and Yoon, is to select the solution that is both closest and farthest from the set of negative ideal solutions. The TOPSIS approach starts by creating a decision matrix. The column where the decision-making assessment factors are positioned on the decision matrix's line of decisions must be indicated as superiority

Step 1. Construct the decision matrix and determine the weight of criteria.

Let $X = (X_{ij})$ be a decision matrix and $W = [w_1, w_2, \dots, w_n]$ a weight vector, where $x_{ij} \in \mathfrak{R}$, $w_j \in \mathfrak{R}$ and $w_1 + w_2 + \dots + w_n = 1$. Criteria of the functions can be: benefit functions (more is better) or cost functions (less is better).

Step 2. Calculate the normalized decision matrix.

In this stage, different attribute dimensions are converted into non-dimensional characteristics, enabling comparisons across criteria. Since different criteria are typically measured in different units, the evaluation matrix X 's scores must be translated into a standardized scale. One of the many well-known standardised formulas can be used to normalise values:

$$r_{ij} = \frac{a_{ij}}{\sqrt{\sum_{k=1}^m a_{kj}^2}}$$

Step 3. Calculate the weighted normalized decision matrix

$$V_{ij} = \begin{bmatrix} w_1 r_{11} & w_2 r_{12} & \dots & w_n r_{1n} \\ w_1 r_{21} & w_2 r_{22} & \dots & w_n r_{2n} \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ w_1 r_{m1} & w_2 r_{m2} & \dots & w_n r_{mn} \end{bmatrix}$$

Step 4. Determine the positive ideal and negative ideal solutions

In order to establish the ideal solution set weighted assessment factors in the V matrix, namely top of column values (assessment factors related minimization of the smallest way) selected. Finding the ideal set of solutions shown in the following formula.

$$A^* = \left\{ \left(\max_i v_{ij} \mid j \in J \right), \left(\min_i v_{ij} \mid j \in J' \right) \right\}$$

The negative ideal solution set is, The smallest of the column values of the weighted assessment factors in the V matrix (related assessment factor maximization way is the largest) is created by selecting. The presence of negative ideal solution set shown in the following formula.

$$A^- = \left\{ \left(\min_i v_{ij} \mid j \in J \right), \left(\max_i v_{ij} \mid j \in J' \right) \right\}$$

Step 5. Calculate the separation measures from the positive ideal solution and the negative ideal solution.

The deviation values related to decision points obtained here Ideally Discrimination (Si+) and negative ideal Discrimination (Si-) is called the measure.

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^-)^2}$$

$$S_i^* = \sqrt{\sum_{j=1}^n (v_{ij} - v_j^*)^2}$$

Step 6. Calculate the relative closeness to the positive ideal solution.

$$C_i^* = \frac{S_i^-}{S_i^- + S_i^*}$$

Step 7. Rank the preference order or select the alternative closest to 1

IV. APPLICATION

10 Steel companies in the study was evaluated by 10 criteria TOPSIS method based on the financial performance of the 2019-2021 year were measured. Received by the base and the distribution is as follows:

	Ratios	%
K1	Debt Equity Ratio	10%
K2	Long-Term Debt Equity Ratio	10%
K3	Current Ratio	10%
K4	Fixed Assets turnover Ratio	10%
K5	Inventory turnover Ratio	10%
K6	Debtors Turnover Ratio	10%
K7	Total Assets turnover Ratio	10%
K8	Interest Cover Ratio	10%
K9	PBITM(%)	10%
K10	ROCE(%)	10%

The data of the 10 Steel companies in the specified direction of 16 criteria was collected. (Table 1)

These data are converted into standardized decision matrix.

(Table 2)

Table 1: 2019 Data Of The 10 Steel Companies Established In India

	K1	K2	K3	K4	K5
HINDALCO	0.41	0.34	1.17	0.94	4.13
APL APOLLO	0.77	0.11	0.88	6.76	9.91
VEDANTA STEEL	0	0	0.18	0.46	5.71
RASHTRIYA ISPAT NIGAM	2.49	1.09	0.61	0.71	3.12
UTTAM GALVA	0	0	0.37	0.08	1.42
ESSAR	0	0	0.13	0.55	7.42
JINDAL STEEL AND POWER LTD.	0.79	0.53	0.63	0.56	7.74
TATA STEEL.LTD	0.42	0.38	0.64	0.82	6.34
JSW STEEL LTD.	1.27	0.91	0.77	1.26	7.39
SAIL LTD.	1.23	0.82	0.85	0.68	3.63

	K6	K7	K8	K9	K10
HINDALCO	23.69	0.65	1.8	6.62	4.32
APL APOLLO	15.43	3.38	2.73	4.72	15.94
VEDANTA STEEL	23.83	0.95	1.78	11.58	6.24
RASHTRIYA ISPAT NIGAM	19.27	0.77	0.58	3.63	2.78
UTTAM GALVA	18.15	0.08	-0.3	-51.2	0
ESSAR	24.38	1.2	0.04	1.04	0
JINDAL STEEL AND POWER LTD.	32.26	0.67	1.34	11.59	7.76
TATA STEEL.LTD	43.6	0.69	6.75	26.98	18.7
JSW STEEL LTD.	13.47	1.04	4.09	20.08	20.82
SAIL LTD.	16.01	0.76	2.2	10.34	7.89

Table 2: Standard Decision Matrix Of Table 1 Data Of 2019

	K1	K2	K3	K4	K5
HINDALCO	0.133	0.211	0.574	0.133	0.003
APL APOLLO	0.249	0.068	0.432	0.956	0.007
VEDANTA STEEL	0.000	0.000	0.088	0.065	0.004
RASHTRIYA ISPAT NIGAM	0.805	0.676	0.299	0.100	0.002
UTTAM GALVA	0.000	0.000	0.182	0.011	0.001
ESSAR	0.000	0.000	0.064	0.078	0.005
JINDAL STEEL AND POWER LTD.	0.255	0.329	0.309	0.079	0.005
TATA STEEL.LTD	0.136	0.236	0.314	0.116	0.004
JSW STEEL LTD.	0.411	0.565	0.378	0.178	0.005
SAIL LTD.	0.398	0.509	0.417	0.096	0.003

	K6	K7	K8	K9	K10
HINDALCO	0.000	0.159	0.077	0.000	0.000
APL APOLLO	0.000	0.825	0.116	0.000	0.000
VEDANTA STEEL	0.000	0.232	0.076	0.000	0.000
RASHTRIYA ISPAT NIGAM	0.000	0.188	0.025	0.000	0.000
UTTAM GALVA	0.000	0.020	-0.013	0.000	0.000
ESSAR	0.000	0.293	0.002	0.000	0.000
JINDAL STEEL AND POWER LTD.	0.000	0.164	0.057	0.000	0.000
TATA STEEL.LTD	0.000	0.168	0.287	0.000	0.000
JSW STEEL LTD.	0.000	0.254	0.174	0.000	0.000
SAIL LTD.	0.000	0.186	0.094	0.000	0.000

Standardized decide the outcome of the matrix "negative ideal solution set" Conversion of what has been done. The multiplication process through the 10 Steel companies with the minimum weights of the criteria are made for. (Table 3)

TABLE 3: The Weight Value Specified Criteria Decisions

	K1	K2	K3	K4	K5
HINDALCO	1.326	2.109	5.744	1.330	0.029
APL APOLLO	2.490	0.682	4.320	9.564	0.070
VEDANTA STEEL	0.000	0.000	0.884	0.651	0.040
RASHTRIYA ISPAT NIGAM	8.052	6.763	2.995	1.004	0.022
UTTAM GALVA	0.000	0.000	1.816	0.113	0.010
ESSAR	0.000	0.000	0.638	0.778	0.052
JINDAL STEEL AND POWER LTD.	2.555	3.288	3.093	0.792	0.054
TATA STEEL.LTD	1.358	2.358	3.142	1.160	0.045
JSW STEEL LTD.	4.107	5.646	3.780	1.783	0.052
SAIL LTD.	3.978	5.088	4.173	0.962	0.026

	K6	K7	K8	K9	K10
HINDALCO	0.000	1.587	0.765	0.000	0.000
APL APOLLO	0.000	8.252	1.161	0.000	0.000
VEDANTA STEEL	0.000	2.319	0.757	0.000	0.000
RASHTRIYA ISPAT NIGAM	0.000	1.880	0.247	0.000	0.000
UTTAM GALVA	0.000	0.195	-0.128	0.000	0.000
ESSAR	0.000	2.930	0.017	0.000	0.000
JINDAL STEEL AND POWER LTD.	0.000	1.636	0.570	0.000	0.000
TATA STEEL.LTD	0.000	1.685	2.870	0.000	0.000
JSW STEEL LTD.	0.000	2.539	1.739	0.000	0.000
SAIL LTD.	0.000	1.856	0.935	0.000	0.000

Standardized decision matrix and the weight value specified criteria decisions are reached by multiplying matrix data. (Table 4)

Table 4: Ideal Solution Set

	K1	K2	K3	K4	K5
WEIGHT VALUE	10	10	10	10	10
MIN	0.000	0.000	0.064	0.011	0.001
NEGATIVE IDEAL SOLUTION	0.000	0.000	0.638	0.113	0.010
MAX	0.805	0.676	0.574	0.956	0.007
POSITIVE IDEAL SOLUTION	8.052	6.763	5.744	9.564	0.070

	K6	K7	K8	K9	K10
WEIGHT VALUE	10	10	10	10	10
MIN	0.000	0.020	-0.013	0.000	0.000
NEGATIVE IDEAL SOLUTION	0.000	0.195	-0.128	0.000	0.000
MAX	0.000	0.825	0.287	0.000	0.000
POSITIVE IDEAL SOLUTION	0.000	8.252	2.870	0.000	0.000

Weighted decision matrix values, the ideal solution is removed from the set value. The squared of those values. (Table 5)

Table 5: (Weighted Decision Matrix Values - Ideal Solution Set)2

	K1	K2	K3	K4	K5
HINDALCO	45.246	21.653	0.000	67.798	0.002
APL APOLLO	30.939	36.970	2.027	0.000	0.000
VEDANTA STEEL	64.841	45.735	23.621	79.442	0.001
RASHTRIYA ISPAT NIGAM	0.000	0.000	7.558	73.262	0.002
UTTAM GALVA	64.841	45.735	15.424	89.314	0.004
ESSAR	64.841	45.735	26.067	77.188	0.000
JINDAL STEEL AND POWER LTD.	30.224	12.072	7.028	76.940	0.000
TATA STEEL.LTD	44.812	19.405	6.770	70.622	0.001
JSW STEEL LTD.	15.566	1.247	3.856	60.547	0.000
SAIL LTD.	16.603	2.806	2.468	73.990	0.002
	K6	K7	K8	K9	K10
HINDALCO	0.000	44.428	4.429	0.000	0.000
APL APOLLO	0.000	0.000	2.921	0.000	0.000
VEDANTA STEEL	0.000	35.200	4.465	0.000	0.000
RASHTRIYA ISPAT NIGAM	0.000	40.608	6.881	0.000	0.000
UTTAM GALVA	0.000	64.918	8.984	0.000	0.000
ESSAR	0.000	28.330	8.139	0.000	0.000
JINDAL STEEL AND POWER LTD.	0.000	43.780	5.291	0.000	0.000

TATA STEEL.LTD	0.000	43.136	0.000	0.000	0.000
JSW STEEL LTD.	0.000	32.641	1.279	0.000	0.000
SAIL LTD.	0.000	40.920	3.742	0.000	0.000

Collected on the basis of found and taken root of the square root value of the bank. Thus, the ideal would be to have the square root value.

(Table 6)

Table 6: Ideal Square Values

	Total Ideal	Total Square
HINDALCO	183.556	13.548
APL APOLLO	72.857	8.536
VEDANTA STEEL	253.305	15.916
RASHTRIYA ISPAT NIGAM	128.312	11.327
UTTAM GALVA	289.220	17.006
ESSAR	250.300	15.821
JINDAL STEEL AND POWER LTD.	175.334	13.241
TATA STEEL.LTD	184.745	13.592
JSW STEEL LTD.	115.137	10.730
SAIL LTD.	140.532	11.855

Weighted decision matrix values, the negative ideal solution is removed from the set value. The squared of those values.

(Table7)

Table 7: (Weighted Decision Matrix Values - negative ideal Solution Set)2

	K1	K2	K3	K4	K5
HINDALCO	1.758	4.450	26.067	1.480	0.000
APL APOLLO	6.201	0.466	13.556	89.314	0.004
VEDANTA STEEL	0.000	0.000	0.060	0.289	0.001
RASHTRIYA ISPAT NIGAM	64.841	45.735	5.553	0.794	0.000
UTTAM GALVA	0.000	0.000	1.388	0.000	0.000
ESSAR	0.000	0.000	0.000	0.442	0.002
JINDAL STEEL AND POWER LTD.	6.527	10.813	6.025	0.461	0.002
TATA STEEL.LTD	1.845	5.559	6.268	1.096	0.001
JSW STEEL LTD.	16.868	31.877	9.871	2.787	0.002
SAIL LTD.	15.822	25.883	12.493	0.721	0.000

	K6	K7	K8	K9	K10
HINDALCO	0.000	1.937	0.797	0.000	0.000
APL APOLLO	0.000	64.918	1.660	0.000	0.000
VEDANTA STEEL	0.000	4.512	0.782	0.000	0.000
RASHTRIYA ISPAT NIGAM	0.000	2.838	0.140	0.000	0.000

UTTAM GALVA	0.000	0.000	0.000	0.000	0.000
ESSAR	0.000	7.478	0.021	0.000	0.000
JINDAL STEEL AND POWER LTD.	0.000	2.075	0.486	0.000	0.000
TATA STEEL.LTD	0.000	2.218	8.984	0.000	0.000
JSW STEEL LTD.	0.000	5.494	3.484	0.000	0.000
SAIL LTD.	0.000	2.756	1.130	0.000	0.000

Negative ideal set value measurements made in the article is removed from the weighted decision matrix and the squared value of the transaction. In other words, the "f" ideal square root values in the matter, where the ideal set of measurements made with negative values. (Table 8)

Table 8: Negative Ideal Square Values

	Total Negative Ideal	Total Negative Square
HINDALCO	36.489	6.041
APL APOLLO	176.118	13.271
VEDANTA STEEL	5.644	2.376
RASHTRIYA ISPAT NIGAM	119.902	10.950
UTTAM GALVA	1.388	1.178
ESSAR	7.943	2.818
JINDAL STEEL AND POWER LTD.	26.389	5.137
TATA STEEL.LTD	25.972	5.096
JSW STEEL LTD.	70.383	8.389
SAIL LTD.	58.806	7.669

Ideal found negative square root values, divided by the square root of the sum of the negative ideal value by the square root of the ideal value. As a result, the bank's performance score is reached.

(Table 9)

Table 9: Performance Point

Negative Ideal Square	Ideal Square	Name of the Company	Performance Point
6.04063496	13.548	HINDALCO	0.3083703
13.27093108	8.536	APL APOLLO	0.608575
2.375766982	15.916	VEDANTA STEEL	0.129885
10.94995845	11.327	RASHTRIYA ISPAT NIGAM	0.4915268
1.178204501	17.006	UTTAM GALVA	0.0647911
2.818253858	15.821	ESSAR	0.1512009
5.137055862	13.241	JINDAL STEEL AND POWER LTD.	0.2795157
5.09622681	13.592	TATA STEEL.LTD	0.2726957
8.38942949	10.730	JSW STEEL LTD.	0.4387868
7.668510902	11.855	SAIL LTD.	0.3927911

Performance with minor rank greater than the value of the banks with the highest score measured performance ranking is done according to the TOPSIS method by showing the best performance.

(Table 10)

Table 10: Ranking by Performance Point of 2019 Year

Name of the Company	Performance Point	Rank
HINDALCO	0.308370284	5
APL APOLLO	0.608575009	1
VEDANTA STEEL	0.129884963	9
RASHTRIYA ISPAT NIGAM	0.491526843	2
UTTAM GALVA	0.064791073	10
ESSAR	0.151200931	8
JINDAL STEEL AND POWER LTD.	0.279515699	6
TATA STEEL.LTD	0.272695697	7
JSW STEEL LTD.	0.438786759	3
SAIL LTD.	0.39279106	4

Table 11: Comparison of Rank (2019 to 2021)

Name of the Company	Rank(2019)	Rank (2020)	Rank(2021)
HINDALCO	5	7	7
APL APOLLO	1	1	2
VEDANTA STEEL	9	8	4
RASHTRIYA ISPAT NIGAM	2	6	3
UTTAM GALVA	10	10	10
ESSAR	8	9	1
JINDAL STEEL AND POWER LTD.	6	2	5
TATA STEEL.LTD	7	4	9
JSW STEEL LTD.	3	3	6
SAIL LTD.	4	5	8

Comparing the ranks of steel companies in india in pre-covid, covid and pos-covid years (Table 11)

V. CONCLUSION

One of the most significant industries in India is the iron and steel sector. In January 2019, India overtook Japan to become the second-largest steel manufacturer. The study has been conducted by taking the top 10 steel companies of India. It should be noted that this study was conducted with 10 major and most commonly used financial ratios. Some of the world's largest companies compete for market share in this industry including TATA Steels , JSW, APL APOLLO etc. This study aims, between the years 2019-2021 is to analyse the overall financial performance rankings of Steel Industry in India Equally effective to reduce the subjective nature of the points used in the analysis of financial ratios included in the study were given.

In this study, the financial performance was measured using the Topsis method for doing a versatile measurements. Between the years 2019 - 2021 based on the measured results with 10 financial ratios financial performance; Apollo's financial performance in 2019 was the highest in the steel sector in India. However there was no impact of covid on the company as it was still the industry leader in the subsequent year. Companies like uttam galva had rather no effect of Covid as their performance was not up to the mark before the covid as well and it is still at the bottom of the table. Essar has shown the maximum growth in all the companies as it was ranked 8th and 9th in the previous years but is ranked no. 1 in the year 2021. This must have happened because the company has improved its operational efficiency.

VI. REFERENCES

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