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Financial Performance Evaluation Using DEA (With Special Reference to Steel Authority of India Limited)

Abstract

Financial performance reflects the sustainable position of any company. Steel authority of India limited one of the Maharatana Company. For the investor eye and long term reputation it is very necessary to openly check the financial performance with the different model which directly shows the authentic result of the financial performance of any DMU (Decision making unit). This research paper is trying to understand the financial performance efficiency of SAIL with the latest perhaps first study of the history of India in selected company with DEA (Data Envelopment Analysis) model.

Keywords: SAIL Balance Sheet.

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Introduction

Steel authority of India limited is the cynosure of the steel industries in India and Asia, The expert say that SAIL gain the first position on ASIA till since 2021. SAIL is established on 24 January 1973, SAIL has 72,578 employees (as of 01-Mar-2019). The basic and performance and plant wise performance perfect. SAIL had achieved many prises for their best quality product SAIL also supply the raw material to the small and new established steel companies. SAIL has gain 4617.85 caror profit source from (money control).

"In April - December 2017, consumption of finished steel grew at a rate of 5.2% to reach 64.9 MT as against 54.5 MT during the same period in 2016. In order to reduce imports and boost domestic steel manufacturing industry, the Central Government had extended the minimum import price (MIP) on 19 products till 4 February 2017."

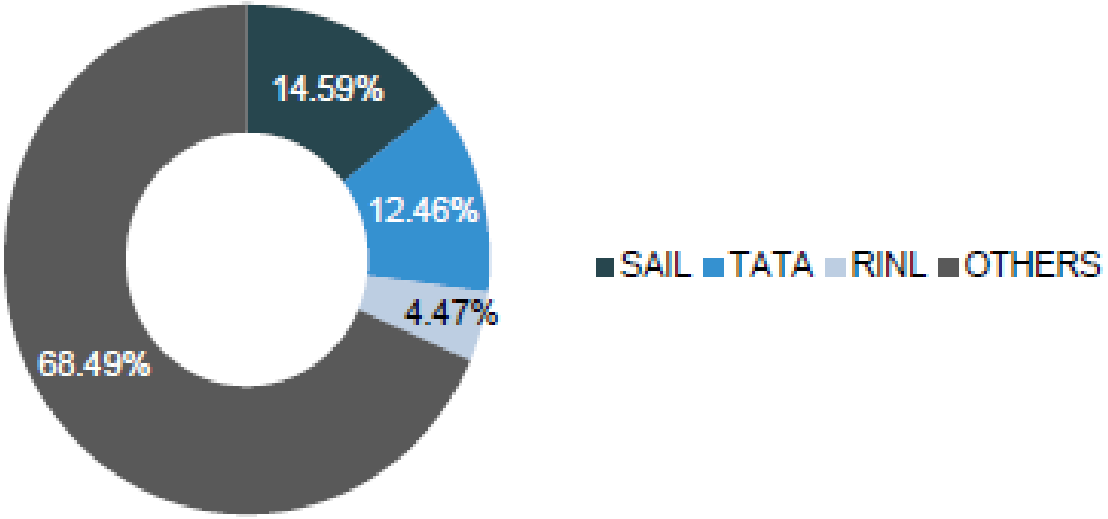
"In FY 2016-17, the country's steel exports increased by 102.1% year-on-year to 8.2 million tonnes (MT), as compared to 4.1 MT in 2015-16. Further, the country's steel imports fell by 36.6% year-on-year to 7.4 MT, as compared to 11.7 MT in 2015-16."

Since global steel industry is constantly influenced by large overcapacity especially in China, Japan, and South Korea, these countries occupy significant positions in world steel export market. Given the fact that the steel production declined in all regions except Oceania during the year, but this decline in production was much slower than the drop in demand. There has always been continuous pressure on supply and demand balance and steel prices owning to Exports which come from the steel surplus countries and flood the global markets.

"In order to reduce imports and boost domestic steel manufacturing industry, the Central Government extended the minimum import price (MIP) on 19 products till 4 February 2017. These products included semi-finished products of iron or non-alloyed steel, flat-rolled products of different widths, bars and rods. The minimum import price (MIP) for these products ranged between US$ 643-752 per tonne. Indian Government imposed Anti-Dumping Duty on 47 steel products for five years beginning from August 2016."

Ministry of Steel report says that "there are several medium and small steel units in the country including Mini Blast Furnace, Sponge Iron Units, Induction Furnace Units and Rolling Mills. The total number of such units is approximately 3647, as per the last survey conducted by Joint Plant Committee in 2009-10." However, in terms of Crude Steel Market Share by Production and Finished Steel Market Share by Production of SAIL in FY17 SAIL leads the Indian steel Industry.

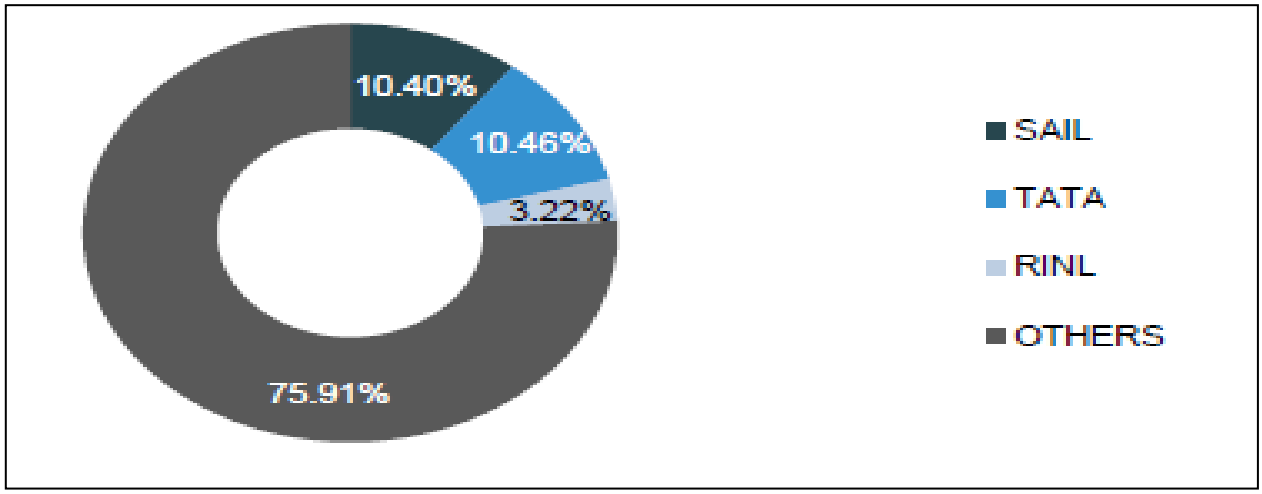
Crude Steel Market Share by Production of SAIL, FY17



Source: Ministry of Steel Annual Report 2016-17, Aranca Research

The market share of finished steel market share by production in FY17 of SAIL is 75.91%.

Finished Steel Market Share by Production of SAIL, FY17



Source: Ministry of Steel Annual Report 2016-17, Aranca Research

Review of Literature

Empirical Studies On Indian Steel Companies				
Sr.	Authors	Industry/Companies	Context	Technique
1	(Bhunia and Khan, 2011)	230 Indian private sector steel companies	liquidity management and profitability	Multiple Regression technique
2	(Venkatesan and Nagarajan, 2012)	Steel: Five Steel Companies	profitability ratios	ANOVA-Test analysis
3	(Pal, 2012)	Steel: Ten Steel Companies	A set of multiple input ratios on profitability	Multiple Regression technique
4	(Pal, 2013)	Steel: Two companies, i.e., Steel Authority of India Limited and Rastriya Ispat Nigam Limited	overall liquidity	Altman's Multiple Discriminate Analysis Model (Z-Score Analysis)
5	(Kumar, 2014)	Steel: single company, i.e., Steel Authority of India Limited (SAIL)	overall liquidity	Altman's Multiple Discriminate Analysis Model (Z-Score Analysis)

6	(Arab, Saadat Barati, 2015)	Steel: Five Steel Companies	Liquidity, Solvency, Activity and Profitability position	ANOVA-Test analysis
7	(Takeh and Navaprabha, 2015)	Steel: Thirteen Steel Companies	Capital Structure and Its Impact on Financial Performance	Multiple Regression technique and ANOVA-Test analysis
8	(Balakrishnan, 2016)	Steel: Ten Steel Companies	A set of multiple input ratios on profitability	Multiple Regression technique
9	(PADMA, 2016)	Steel: Five Steel Companies	current ratios were compared with past ratios	Trend analysis
10	(Rao, 2016)	Steel: Four Steel Companies	Analysis of Long-term Solvency Analysis of Profitability Analysis of Efficiency Analysis of Liquidity	ANOVA-Test analysis
11	(Marvadi, 2016)	Steel: 3 Steel Companies including SAIL	overall liquidity	Altman's Multiple Discriminate Analysis Model (Z-Score Analysis)
12	(Masoumi , 2016)	Steel Industry	All types of Ratio	ANOVA
13	(Pal, 2017)	3 Steel Companies	Pre and Post acquisition time in terms of liquidity, leverage, efficiency, profitability and cash flows.	T-test
14	(Brindha and Suseelamani, 2018)	IRON AND STEEL INDUSTRY	Profitability and debt ratios	Multiple Regression technique
16	(Meghanath, Rao, Sahyaja and Bhavani, 2018)	Steel: Five Steel Companies	Fundamental Analysis	ANOVA-Test analysis

Source: Author's Own

Objectives of the study

1. To measure the financial performance of the SAIL in terms of liquidity, activity, leverage, and growth with DEA.
2. To examine the efficiency of SAIL and the performance through DEA since 2013-14to 2017-2018
3. To give suggestions to expand the strength

Research Gap

A copious amount of studies have been conducted for evaluating the financial performance of companies belonging to various industries in many countries including India, wherein empirical researchers have used several traditional and modern analytical techniques to identify whether sampled companies employ their various inputs usually supplied in the form of financial ratios efficiently so that their financial performance is maximized. For widely used different measures of financial performance in empirical studies, as per review of literatures.

Broadly, such literature empirically tried to evaluate financial performance of firms in two respects:

1. To identify whether increasing financial leverage, sources of funds, in firm's balance sheet positively affects firm's financial performance. Or,
2. Which company in a particular industry is employing its inputs most efficiently relative to other companies in the same industry?

A third division may also be made for financial analysis used to forecast bankruptcy of firms. Apart from above categories, empirical studies also evaluate Pre and Post-merger performance evaluation, the effect of Intellectual Capital, Corporate Social Responsibility, and Change in the structure of Board of Governors on financial performance; see, table.

This study is being conducted in the second respect where a group of companies will be selected from a particular industry, and then it is found out that which one of them is most efficiently employing inputs.

This study answers to questions such as:

1. Is there any research gap to conduct such study in India?
2. Or, why should it be conducted in the second respect as mentioned above?
3. When justified. How will a particular industry and, consequently, a group of companies be selected?

In nutshell, all these questions can be answered when it is justified that a research gap for conducting this study exists in India, and such a claim is warranted with appropriate references from the related literature.

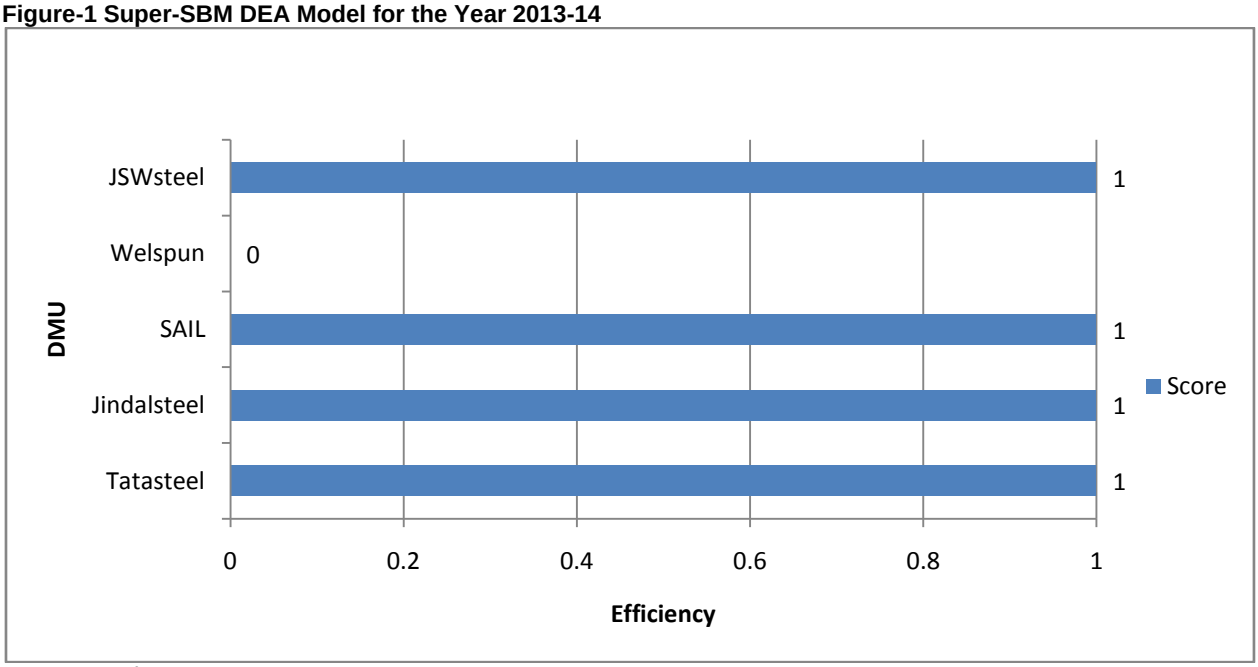
DEA Results

Table-1
Super-SBM DEA Model for the Year 2013-14

Rank	DMU	Score
1	JSWsteel	1
1	Tatasteel	1
1	Jindalsteel	1
1	SAIL	1
5	Welspun	0

Source: Author's own

Figure-1 Super-SBM DEA Model for the Year 2013-14



Source: Author's own

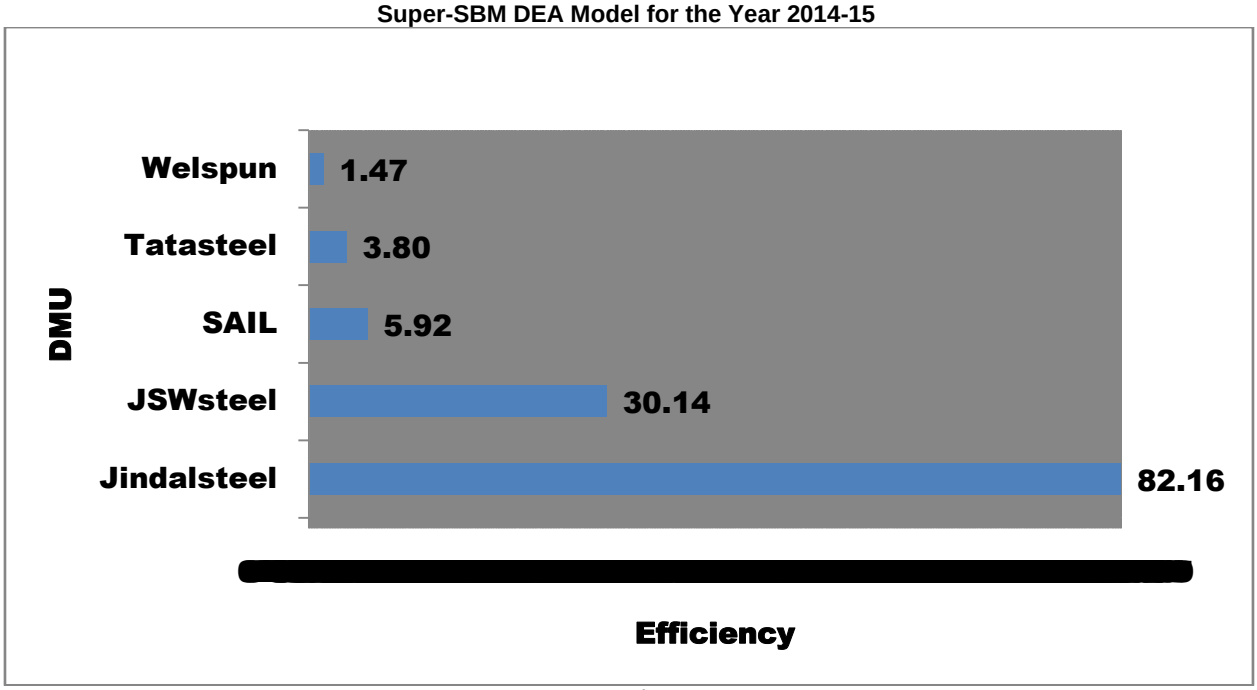
Surprisingly, Welspun Corp. has become an inefficient company and all other companies equally hold the same rank. This is the year when EVA values of all companies went negative for the reason of low consumption demand of steel and steel products in India.

Table 2
Super-SBM DEA Model for the Year 2014-15

Rank	DMU	Score
1	Jindalsteel	82.1606
2	JSWsteel	30.13534
3	SAIL	5.918656
4	Tatasteel	3.798386
5	Welspun	1.467132

Source: Author's own

Figure-2
Super-SBM DEA Model for the Year 2014-15



Source: Author's own

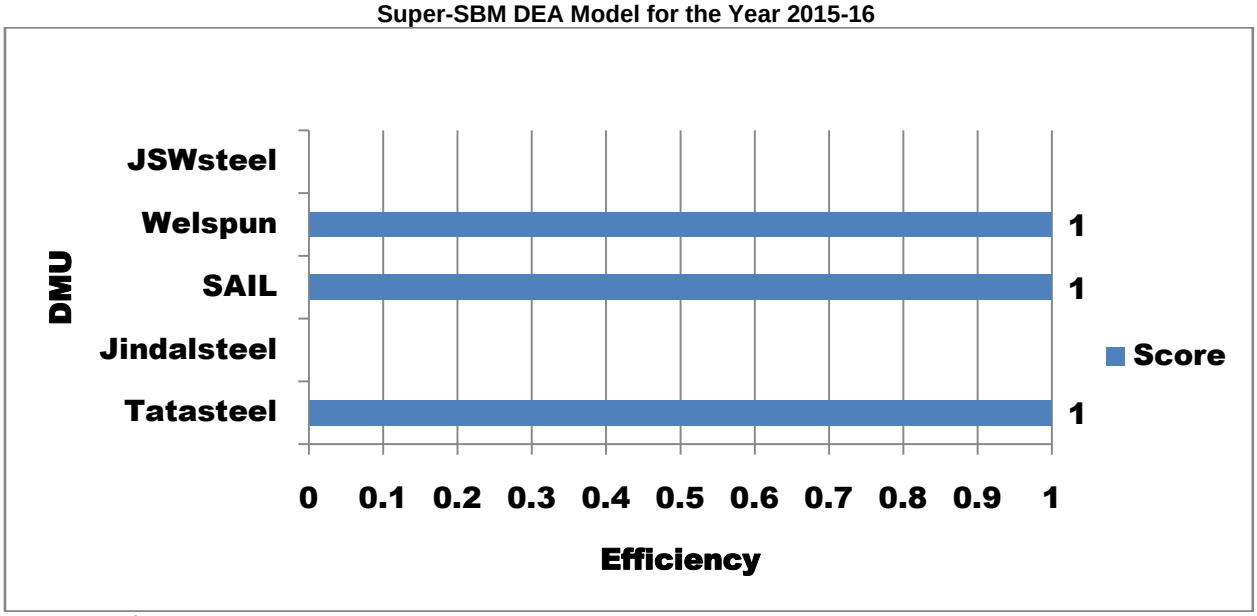
Jindal steel has again occupied its first ranking in terms super efficiency score, whereas SAIL holds the third rank. This time Welspun Corp. is the last one in the ranking.

Table-3
Super-SBM DEA Model for the Year 2015-16

Rank	DMU	Score
1	Welspun	1
1	Tatasteel	1
1	SAIL	1
4	JSWsteel	0
4	Jindalsteel	0

Source: Author's own

Figure-3
Super-SBM DEA Model for the Year 2015-16



Source: Author's own

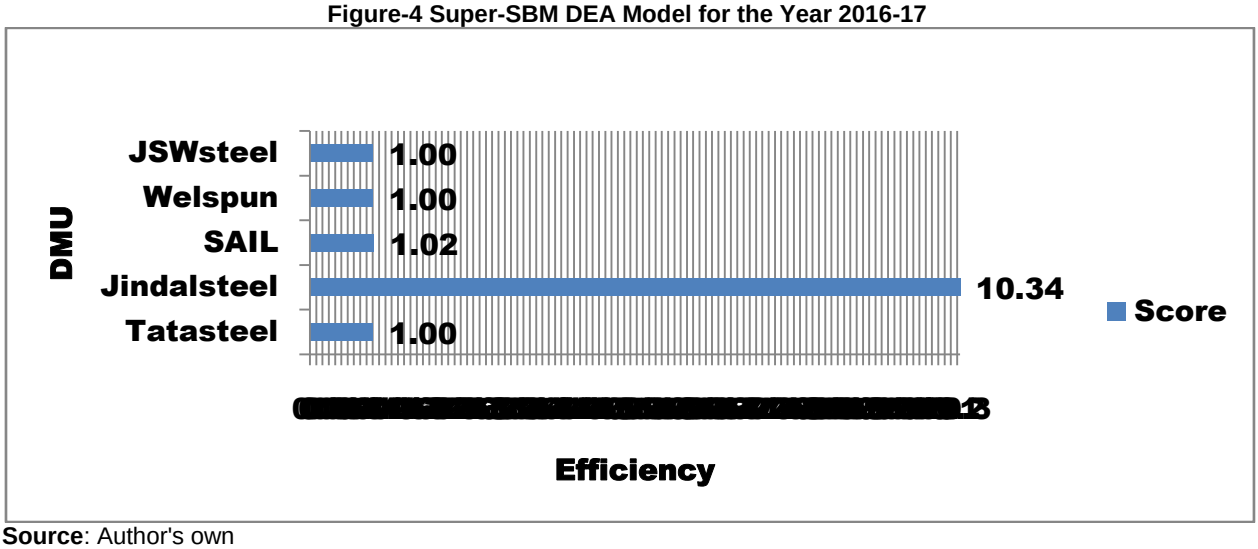
This year gives very different efficiency scores from what has been shown so far that Jindal steel first time became an inefficient company including JSW steel. However, SAIL and the rest two companies are equally efficient.

Table-4
Super-SBM DEA Model for the Year 2016-17

Rank	DMU	Score
1	Jindalsteel	10.34181
2	SAIL	1.017128
3	JSWsteel	1
3	Tatasteel	1
3	Welspun	1

Source: Author's own

Figure-4 Super-SBM DEA Model for the Year 2016-17



Source: Author's own

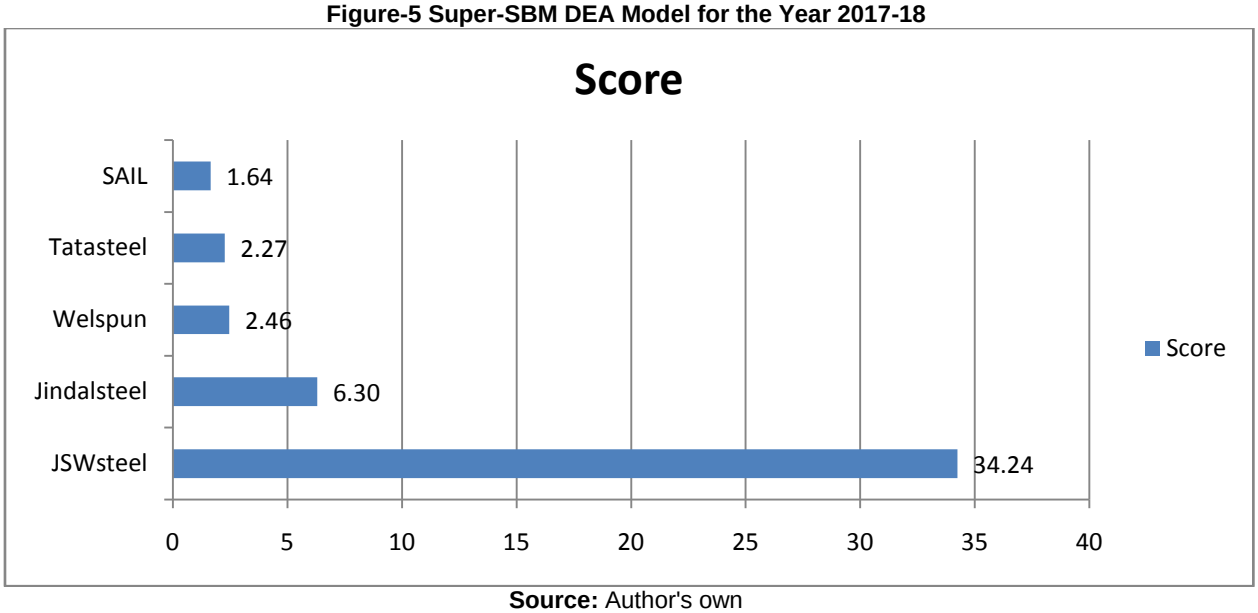
Jindal steel regained it first rank in 2016-17 and SAIL is holding the second rank, whereas all other three companies are equally efficient.

Table-5
Super-SBM DEA Model for the Year 2017-18

Rank	DMU	Score
1	JSWsteel	34.243
2	Jindalsteel	6.30143
3	Welspun	2.462386
4	Tatasteel	2.26629
5	SAIL	1.64369

Source: Author's own

Figure-5 Super-SBM DEA Model for the Year 2017-18



Source: Author's own

This is the first time in twelve years that SAIL goes to hold the last rank. That is, this thing never happened to SAIL until 2016-17. However, as far as other companies are concerned some of them even became inefficient or held different ranks. Still, it can be concluded that SAIL never became inefficient in the entire sample period, which is not true for other companies.

Research Methodology

Basically this is based on secondary data and the data is collected from various newspapers journals and financial statements of the company. The selection of the other company Tata steel, welspan, Jindal steel, JSW steel is just taken for the reference set for DEA results. To analyzed the efficiency of SAIL using DEA the ratio of objective is hidden or treated as rough for which is important for the research paper The time period of research for measuring performance is only 5 years form 2013-14 to 2017-18.

Findings

1. For the year2013-2014 DEA finds result 1 point efficiency of SAIL
2. For the year2014-2015 DEA finds result 5.918656 point efficiency of SAIL
3. For the year2015-2016 DEA finds result 1 point efficiency of SAIL
4. For the year2016-2017 DEA finds result 1.017128 point efficiency of SAIL
5. For the year2017-2018 DEA finds result 1.65369 point efficiency of SAIL

Another finding of result during the demonetization the profit earnings ratio and earning per ratio is shows down.

Recommendations

Although it can be inferred that the return on equity gradually declined owning to the negative effect of global financial crisis, yet it never became negative until 2015-16. However, the year 2015-16 is the year of demonetization in India that squeezed profit of every company whether big or small. Hence, it can be concluded that return on equity declined during and after the global financial crisis, yet it never became negative. This means SAIL managed it well.

SAIL also occupied the last rank in efficiency scores in 2017-18. This thing never happened to SAIL until 2016-17. However, as far as other companies are concerned some of them even became inefficient or held different ranks. Still, it can be concluded that SAIL never became inefficient in the entire sample period, which is not true for other companies. SAIL should manage to improve its position in efficiency scores.

Financial crisis could not affect it indigenous macro factors of the country affected it severely. Whether internal or external factors are influencing a firm's operational activities, the firm must know how to manage them. SAIL EPS is negative which sends negative single to the market. The company should work to make it positive.

This ratio measures how many times average inventory is “turned” or sold during a period. In other words, it measures how many times a

company sold its total average inventory during the year. A company with Rs. 1,000 of average inventory and sales of Rs. 10,000 effectively sold its 10 times over. This means when inventory turnover ratio decreases, it indicates that company's sales are decreasing relative to its inventory. During the global financial crisis, the inventory turnover ratio decreased and the decline sustained even in later years. The company is suggested to improve its average inventory turnover ratio.

The accounts receivable turnover ratio is an accounting measure used to quantify a company's effectiveness in collecting its receivables or money owed by clients. The ratio shows how well a company uses and manages the credit it extends to customers and how quickly that short-term debt is collected or is paid. The receivables turnover ratio is also called the accounts receivable turnover ratio. It can be seen that SAIL's receivable account ratio in increasing from right after the financial crisis, implying that the company has converted receivables to cash in a period for a greater number of times. This is good performance indicator of SAIL and the company should maintain it.

The funds and subsidies should be provided to the company for improve financial performance.

Conclusion

SAIL is one of the largest steel Company in India. Financial performance is show the sustainable position of company after analysed the financial efficiency using DEA SAIL position is not good. During the global financial crisis, the inventory turnover ratio decreased and the decline sustained even in later years. After the demonetization 2016 many ratio is shows down. So it is very important for SAIL financial health of company has to need to improve the financial condition with the help to government subsidies and funds.

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