# Impact of IND-AS First Time Application on Financial Performance of Indian Metal Sector Companies

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**Abstract**

A notable and breakthrough change is made in India through transition from IGAAP to IND-AS in the financial reporting. Implementation of IND-AS introduced new concepts in accounting which lead to changes in the recognition, measurement, disclosure and presentation of the financial data. Thus, the present study is a small attempt to know the impact of implementation of IND-AS on the financial performance of the Indian companies. This study mainly aims to empirically evaluate the impact of IND-AS implementation on the financial performance of metal sector companies in India. This study has been conducted on top six companies of the metal sector of NSE-NIFTY for the financial year 2015-16 (whose financial reports are available as per both the accounting standards viz., IGAAP and IND-AS) for calculating the financial ratios. Afterwards, Kolmogorov-Smirnov and Shapiro-Wilk tests have been used for checking the normal distribution of data, on the basis of results of which Wilcoxon Signed Ranks test and Paired T-test have been employed for analyzing the data generated for the study. As per the results of Wilcoxon Signed Ranks test, three ratios of profitability viz. Return on Assets, Return on Equity and Return on Capital Employed of the selected companies have significant impact of IND-AS implementation. But the profitability of companies have no impact according to the results of Paired T-test. As per the results of both the tests, the liquidity, solvency and efficiency (except Inventory Turnover ratio) of selected companies have no significant impact of IND-AS implementation.

**Keywords:** IGAAP, IND-AS, Financial performance, financial ratios, Paired T-test, Wilcoxon Signed Ranks test.

## Introduction

Accounting standards are a set of rules and guidelines which are aimed at making the financial statements consistent, comparable and standardized. In India, accounting standards, known as IGAAP (Indian Generally Accepted Accounting Principles) are issued by Accounting Standards Board (ASB) established by Institute of Chartered Accountants of India (ICAI) in 1977.

In the global business environment, companies need to present their financial statements as per a common set of accounting standards which will be globally accepted, as presentation of financial statements according to different frameworks leads to a confusion for users in understanding the financial statements. In the last few years, adoption of International Financial Reporting Standards (IFRS) and national accounting standards convergence with IFRS gained the ground across the globe. In the light of this, India too decided to adopt IFRS and made a commitment regarding this at G20 Summit in 2009. The initial attempt to implement the IFRS converged accounting standards was made by Ministry of Corporate Affairs (MCA) in 2011.

A notable and breakthrough change was made in India on 16th February, 2015, when MCA notified the final roadmap for implementation of Indian Accounting Standards (IND-AS) i.e., transition from IGAAP to IND-AS in the financial reporting. IND-AS has been implemented in a phased manner, to be adopted on voluntary basis from the financial year beginning on or after 1st April, 2015 and from 1st April, 2016, on a mandatory basis for the companies listed or unlisted on Indian stock exchanges with net worth equal to or greater than 500 crore INR.

**Literature Review**

Literature revealed that various aspects of IFRS and IFRS converged accounting standards like effect of or impact of IFRS convergence, implementation and adoption on financial ratios, financial indicators and financial performance of companies of various countries have been widely studied by the researchers across the globe. Lantto and Shalström (2009), Ibiamke and Ateboh-Briggs (2014), Abdul-Baki et al. (2014), Donwa et al. (2015), Emoarehi et al. (2017) and Erin et al. (2018) in their studies investigate the impact of IFRS adoption on the financial ratios of different companies. The results of such studies vary from each other, Abdul-Baki et al. (2014), Donwa et al. (2015) and Erin et al. (2018) concluded no significant impact while Lantto and Shalström (2009), Ibiamke and Ateboh-Briggs (2014) and Emoarehi et al. (2017) concluded in their studies that IFRS adoption has significant impact on financial ratios.

In the Indian context, Patil (2015) and Desai (2016) take review of the problems faced by Indian Corporates while implementing New Indian Accounting Standards. Jain (2011), Vinayagamoorthy (2014) and Parvathy (2017) throws the light on the opportunities and challenges faced by Indian companies while implementing IFRS. Thomas and Mathew (2019) investigate the impact of implementation of IND AS and concluded a significant difference in the ratios as per IGAAP and IND AS.

**Statement of the Problem**

Adoption and implementation of new accounting standards introduce new concepts in the accounting practice which further bring changes in the recognition, measurement, disclosure and presentation of the financial data. These changes in the financial data bring forth more transparency and understandability of data and increased transparency leads to more disclosure of relevant information for investors to better understand the financial information. Changes in the recognition, measurement, disclosure and presentation of the financial data also lead to changes in the valuation of assets and liabilities. Across the globe, several researchers have analyzed the effect of IFRS implementation and adoption on financial ratios, financial indicators and financial performance of companies of developing countries. In India also, several studies have been conducted on IFRS adoption for examining its various aspects, but very few studies have been conducted relating to IND-AS. Thus, the present study is a small attempt to know the impact of implementation of IND-AS on the financial performance of the Indian companies.

**Objectives of the Study**

**Following objectives have been taken into consideration to conduct the study:**

To analyze and compare the IND-AS implementation impact on profitability of selected Indian metal sector companies.

To analyze and compare the IND-AS implementation impact on efficiency of selected Indian metal sector companies.

To analyze and compare the IND-AS implementation impact on liquidity of selected Indian metal sector companies.

To analyze and compare the IND-AS implementation impact on solvency of selected Indian metal sector companies.

**Research Methodology**

IND-AS becomes mandatory for all the listed as well as unlisted companies in India, whose Net Worth is greater than or equal to INR 500 crore, from the accounting years beginning on or after 1st April, 2016 and the comparative financial statements are required to be rendered retroactively adjusted to IND-AS for the financial year 2015-16 or afterwards. This study is an initiate to check the IND-AS implementation impact on the financial performance of selected listed metal sector companies of India. So, to conduct the study, the ratios calculated from the standalone financial statements prepared as per IGAAP and IND-AS are compared for the financial year 2015-16 of top six Indian metal sector companies selected on the basis of market capitalization on 31st March, 2016 of NSE-

NIFTY Metal Index. The annual reports were utilized for the financial years 2015-16 and 2016-17 (for comparative financial statements of 2015-16).

Financial performance of selected metal sector companies, viz. TATA Steel Limited, Coal India Limited, JSW Steel Limited, Hindalco Industries Limited, NMDC Limited and Vedanta Limited have been checked through various financial ratios under the category of profitability, efficiency, liquidity and solvency. Net Profit Ratio (NPR), Return on Assets(ROA), Return on Equity(ROE) and Return on Capital Employed(ROCE) under profitability category; Inventory Turnover Ratio (ITR), Receivables Turnover Ratio (RTR), Total Assets Turnover Ratio (TATR) and Fixed Assets Turnover Ratio (FATR) under efficiency category; Current Ratio (CR) and Liquid Ratio (LR) under liquidity category; and Debt-Equity Ratio (D/ER) under solvency category. The ratios have been calculated on the basis of financial statements prepared in accordance with IGAAP and IND-AS.

For ascertaining whether the data is normally distributed or not, Kolmogorov-Smirnov and Shapiro-Wilk tests of normality have been employed. The preliminary analysis of the data revealed that some of the financial ratios do not follow normal distribution. Consequently, both parametric and non-parametric tests have been performed. On the financial ratios calculated, empirical analysis has been performed by using the statistical tools like Wilcoxon-Signed Ranks test and Paired T-test to examine and know whether there is any difference between the financial ratios calculated as per IGAAP and IND-AS.

**Hypotheses**

Following hypotheses have been formulated for examining the impact of IND-AS implementation on financial performance of selected Indian metal sector companies.

Regarding measuring the impact of IND-AS on profitability, hypotheses are:

H01 :There is no significant impact of IND-AS on net profit ratio of selected Indian metalsector companies.

H02 :There is no significant impact of IND-AS on return on assets of selected Indian metal sector companies.

H03 :There is no significant impact of IND-AS on return on equity of selected Indian metal sector companies.

H04 :There is no significant impact of IND-AS on return on capital employed of selected Indian metal sector companies.

Regarding measuring the impact of IND-AS on efficiency, hypotheses are :

H05 :There is no significant impact of IND-AS on inventory turnover ratio of selected Indian metal sector companies.

H06 :There is no significant impact of IND-AS on receivables turnover ratio of selected Indian metal sector companies.

H07 :There is no significant impact of IND-AS on total assets turnover ratio of selected Indian metal sector companies.

H08 :There is no significant impact of IND-AS on fixed assets turnover ratio of selected Indian metal sector companies.

Regarding measuring the impact of IND-AS on liquidity, hypotheses are :

H09 :There is no significant impact of IND-AS on current ratio of selected Indian metal sector companies.

H010 :There is no significant impact of IND-AS on liquid ratio of selected Indian metal sector companies.

Regarding measuring the impact of IND-AS on solvency, hypotheses are:

H011 :There is no significant impact of IND-AS on debt-equity ratio of selected Indian metal sector companies.

**Data Analysis and Interpretation**

**Table 1: Financial Ratios for 2015-16 of Indian Metal Sector Companies**

| Ratios | TATA Steel Ltd. | | Coal India Ltd. | | JSW Steel Ltd. | | Hindalco Industries Ltd. | | NMDC Ltd. | | Vedanta Ltd. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | IGAAP | IND-AS | IGAAP | IND-AS | IGAAP | IND-AS | IGAAP | IND-AS | IGAAP | IND-AS | IGAAP | IND-AS |
| NPR (in %) | 12.83 | 2.24 | 10017.49 | 9500.17 | -9.53 | -8.64 | 1.77 | 1.50 | 46.91 | 42.00 | 18.36 | -33.05 |
| ROA (in %) | 4.10 | 0.91 | 76.00 | 75.75 | -4.77 | -4.71 | 0.80 | 0.68 | 8.93 | 8.12 | 6.27 | -6.38 |
| ROE (in %) | 504.52 | 98.38 | 258.75 | 262.70 | -327.80 | -1173.04 | 294.04 | 269.36 | 763.82 | 684.09 | 1845.49 | -3202.75 |
| ROCE(in %) | 6.00 | 1.83 | 87.45 | 86.45 | -10.13 | -10.13 | 1.15 | 0.96 | 14.87 | 13.89 | 8.01 | -15.58 |
| ITR (in times) | 5.05 | 5.63 | 1.55 | 1.66 | 4.78 | 5.34 | 3.98 | 4.27 | 9.72 | 9.90 | 5.70 | 6.66 |
| RTR (in times) | 67.97 | 38.99 | 32.18 | 34.45 | 16.18 | 18.01 | 17.82 | 19.10 | 3.54 | 7.41 | 5.76 | 16.54 |
| TATR(in times) | 0.31 | 0.41 | 0.01 | 0.01 | 0.51 | 0.56 | 0.45 | 0.46 | 0.19 | 0.20 | 0.31 | 0.20 |
| FATR(in times) | 0.73 | 0.55 | 0.49 | 0.51 | 0.76 | 0.77 | 0.96 | 1.04 | 0.56 | 0.56 | 0.67 | 0.66 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CR(in ratio) | 0.68 | 0.72 | 3.22 | 3.23 | 0.63 | 0.62 | 1.96 | 1.97 | 6.34 | 5.86 | 0.60 | 0.52 |
| LR(in ratio) | 0.35 | 0.38 | 3.15 | 3.15 | 0.32 | 0.31 | 1.27 | 1.29 | 6.13 | 5.67 | 0.42 | 0.44 |
| D/ER(in ratio) | 0.33 | 0.51 | 0.00 | 0.00 | 1.19 | 1.48 | 0.65 | 0.57 | 0.00 | 0.00 | 0.53 | 0.29 |

*Source: Author's Computation.*

**Table 2: Summary of Results of Normality Tests**

| **Ratios** | **Kolmogorov-SmirnovTest** | | | | **Shapiro-WilkTest** | | | |
|---|---|---|---|---|---|---|---|---|
| | **IGAAP** | | **IND-AS** | | **IGAAP** | | **IND-AS** | |
| | **Statistic** | **Sig.** | **Statistic** | **Sig.** | **Statistic** | **Sig.** | **Statistic** | **Sig.** |
| NPR | .489 | **.000** | .488 | **.000** | .500 | **.000** | .502 | **.000** |
| ROA | .416 | **.002** | .387 | **.005** | .651 | **.002** | .644 | **.001** |
| ROE | .221 | .200 | .328 | **.043** | .917 | .483 | .797 | .055 |
| ROCE | .368 | **.011** | .323 | .050 | .725 | **.011** | .747 | **.019** |
| ITR | .249 | .200 | .179 | .200 | .930 | .582 | .972 | .905 |
| RTR | .267 | .200 | .276 | .170 | .842 | .135 | .911 | .444 |
| TATR | .196 | .200 | .199 | .200 | .955 | .781 | .948 | .720 |
| FATR | .180 | .200 | .229 | .200 | .968 | .881 | .853 | .168 |
| CR | .255 | .200 | .253 | .200 | .803 | .062 | .831 | .110 |
| LR | .280 | .153 | .274 | .181 | .785 | **.042** | .800 | .058 |
| D/ER | .175 | .200 | .265 | .200 | .919 | .501 | .850 | .156 |

*Source: Author's Computation using SPSS version 2016.*

On the financial ratios calculated (as shown in Table 1), normality tests have been applied. After observing the results of both the normality tests, that is Kolmogorov-Smirnov test and Shapiro-Wilk test presented in Table 2, it has been found that most of the financial ratios calculated from the financial statements prepared as per IGAAP and IND-AS were normally distributed while some were not normally distributed (as sig.< 0.05). In this instance, it can't be said that which test should be the best option for analyzing the data, parametric or non-parametric. Therefore, both parametric and non-parametric tests have been used to identify whether the differences between the financial ratios as per two regimes are statistically significant or not.

**Table 3 : Summary of Results of Wilcoxon Signed Ranks Test**

| Ratios | | Z-statistic | Sig. (2-tailed) |
|---|---|---|---|
| Profitability | NPR | -1.782 | .075 |
| | ROA | -1.992 | **.046** |
| | ROE | -1.992 | **.046** |
| | ROCE | -2.023 | **.043** |
| Efficiency | ITR | -2.201 | **.028** |
| | RTR | -.943 | .345 |
| | TATR | -.677 | .498 |
| | FATR | -.271 | .786 |
| Liquidity | CR | -.530 | .596 |
| | LR | -.406 | .684 |
| Solvency | D/ER | -.365 | .715 |

*Source: Author's Computation using SPSS version 2016.*

Wilcoxon Signed Ranks test has been conducted on the financial ratios calculated (as shown in Table 1), whose results are presented in the Table 3. In majority of the financial ratios, p-value or the significance value is greater than 0.05 (p>0.05), which indicates that there is no significant difference between the financial ratios computed under IGAAP and IND-AS of the selected Indian metal sector companies. The results of the study infers that null hypotheses H02, H03, H04 and H05have been rejected as the p-value is less than 0.05, showing that IND-AS implementation has significant impact on Return on Assets, Return on Equity, Return on Capital Employed and Inventory Turnover Ratio.

Profitability position of the selected Indian metal sector companies have been significantly impacted by the IND-AS implementation, as three null hypotheses (H02, H03 and H04) have been rejected under this category. Secondly, under efficiency measurement, out of four null hypotheses only one null hypothesis (H05) has been rejected, which show that Inventory Turnover Ratio has a significant impact of IND-AS implementation. However, there is no significant impact of IND-AS implementation on the liquidity and solvency position of selected Indian metal sector companies.

**Table 4 : Summary of Results of Paired T-Test**

| Pairs | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| NPR | 9.72683E1 | 206.70429 | 84.38667 | -119.65452 | 314.19118 | 1.153 | 5 | .301 |
| ROA | 2.82667 | 4.95974 | 2.02480 | -2.37826 | 8.03159 | 1.396 | 5 | .222 |
| ROE | 1.06668E3 | 1977.08127 | 807.14005 | -1008.13955 | 3141.49955 | 1.322 | 5 | .244 |
| ROCE | 4.98833 | 9.23659 | 3.77082 | -4.70487 | 14.68154 | 1.323 | 5 | .243 |
| ITR | -.44667 | .31722 | .12950 | -.77957 | -.11377 | -3.449 | 5 | **.018** |
| RTR | 1.49167 | 13.91270 | 5.67983 | -13.10881 | 16.09215 | .263 | 5 | .803 |
| TATR | -.01000 | .06957 | .02840 | -.08301 | .06301 | -.352 | 5 | .739 |
| FATR | .01333 | .08756 | .03575 | -.07855 | .10522 | .373 | 5 | .724 |
| CR | .08500 | .19766 | .08069 | -.12243 | .29243 | 1.053 | 5 | .340 |
| LR | .06667 | .19325 | .07890 | -.13614 | .26947 | .845 | 5 | .437 |
| D/ER | -.02500 | .18802 | .07676 | -.22231 | .17231 | -.326 | 5 | .758 |

*Source: Author's Computation using SPSS version 2016.*

Table 4 presents the results of Paired T-test, which is conducted on the data presented in Table 1. The results of the test shows that there is no significant impact of IND-AS implementation on the financial performance indicators viz. profitability, efficiency, liquidity and solvency except on Inventory Turnover ratio of selected Indian metal sector companies, as the p-value is .018 in case of Inventory Turnover ratio which is less than 0.05 (i.e. at 5% level of significance).

In accordance with the results, null hypothesis H05has been rejected which concludes that there is a significant impact of IND-AS on inventory turnover ratio of selected Indian metal sector companies. On the other hand, all other ten null hypotheses have been accepted, which infers that there is no significant impact of IND-AS implementation on profitability, efficiency (except on Inventory Turnover ratio), liquidity and solvency position of the Indian metal sector companies.

**Conclusion**

The present study is an attempt being made to find out if the IND-AS implementation leads to any changes in the financial performance of the metal sector companies of India. To empirically analyze the impact, financial ratios have been computed under categories: profitability, efficiency, liquidity and solvency. Afterwards, Wilcoxon Signed Ranks test and Paired T-test have been applied for testing the statistical significant difference among the financial ratios calculated under the two regimes that is IGAAP and IND-AS.

According to Wilcoxon Signed Ranks test results, it can be concluded that IND-AS implementation has some significant impact on the profitability and efficiency of the metal sector companies while liquidity and solvency position of the companies do not get affected by IND-AS implementation. As the results of the test disclose that Return on Assets, Return on Equity, Return on Capital Employed and Inventory Turnover ratios have a significant impact of IND-AS implementation.

The results of the Paired T-test indicate that there are no significant differences between the financial ratios computed under the two regimes. More specifically, significant difference has been found in Inventory Turnover ratio only, though the impact hasn't been found for any other ratio under profitability, efficiency, liquidity and solvency.

As far as the comparison of the two tests, it can be argued that there is no significant impact of IND-AS implementation on the financial ratios except on Inventory Turnover ratio of selected metal sector companies of India.

Furthermore, it can be said that major contributory factors or causes of differences between the IGAAP and IND-AS financial statements are fair value measurement, norms of revenue recognition, recognition of deferred tax assets and liabilities and classification of assets and liabilities. Therefore, it can be said that implementation of IND-AS will not significantly affect the performance of companies who has not yet implemented IND-AS. It will lead to greater transparency and harmonization of accounting information.

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