

# Impact of Ind-AS Adoption on Value Relevance of Nifty-50 Firms: An Application of Panel Regression in Ohlson Model

*Present paper attempts to explore the impact of mandatory adoption of Ind-AS on financial ratios of the companies. Companies which were constituents of Nifty-50 on April 1, 2016 were chosen as sample for this study but due to unavailability of data, sample size reduced to 36. Data for six years (three years prior to adoption of Ind-AS and three years post-adoption of Ind-AS) were collected from 2013-14 to 2018-19. Various financial ratios were collected and some were calculated for the purpose of analysis. Read more...*



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After rejection of normality (K-S Test), Wilcoxon Signed Rank was used to find any significant difference in the measures of financial ratios in pre- and post-adoption period. Results revealed no significant difference in the measures during the two periods. Further Kruskal-Wallis H Test was used to find any significant difference among the measures of six years. Results revealed that only market price (MPS) showed significant difference over the years. It was also attempted to

estimate Ohlson Model (1995) with some modifications to explore whether there is any change in the predictors of market price of a company during pre- and post-adoption period. Panel Data Regression with three variants (Pooled, Fixed Effect and Random Effect Model) was estimated and compared to choose the most parsimonious model. In both the periods, Fixed Effect Model was proved to be the most parsimonious model. Further, there was major change in the



predictors of market price from pre- to post-adoption period.

## Introduction

Globalisation and technological advancements has changed the economic scenario at the world level. Every country used to have its own set of accounting standards and principles. But in past few decades, economies all over the world have become extremely integrated which make it inevitable to have some accounting platform. IFRSs (International Financial Reporting Standards) provide a single set of standards to be used internationally by companies operating in different countries at a time. IFRS provides a common language for standardized accounting practices. Hence countries are motivated to become IFRS compliant and there are two ways for it – (i) Adopting IFRS or (ii) Converging to IFRS. Convergence of accounting standards is a burning issue all over the world. It involves alignment of two different set of standards. Looking at practical difficulties in adopting IFRS, India has converged its Accounting Standards with IFRS so that it may become easy for investors globally to analyse and compare the financial statements of Indian companies. These converged standards are called Ind-AS.

The Initial date of implementation of Ind-AS was 2011 but due to certain issues, Ministry of Corporate Affairs postponed its implementation date. In July

2014, the Finance Minister announced to apply Ind-AS urgently. On 16 February 2015, the Ministry of Corporate Affairs had notified with the Companies (Indian Accounting Standards) Rules, 2015. It, therefore, revised the roadmap of implementation of Ind-AS for companies excluding the Banking companies, Insurance companies, and NBFC'S from it. As per the notification, from 1<sup>st</sup> April 2015, Ind-AS shall be implemented by the companies on a voluntary basis and will be mandatory from 1<sup>st</sup> April 2016 for companies listed/unlisted or in process of listing on Stock Exchange in India or outside India having net worth greater than equal to 500 crore.

## Statement of the Problem

Companies communicate with the investors through their financial statements or annual reports. All information provided in those statements, are judged on the basis of two parameters – reliability and relevance. Relevance implies that the information has the ability of affect the economic decisions taken by users of financial statements. Value relevance has emerged as an area of research of late. It implies that the information included in the financial statements has an impact on the firm's value. Market value of firm depends on the perceptions of market participants about the performance of the firm and accounting information provided by the company. In this light, it was felt necessary to examine the impact of adoption

of Ind-AS on financial ratios and value relevance of Indian companies.

## Literature Review

Collected literature was classified on the basis of their objectives, tools used, geographical area of research and findings. A summary has been presented below:

When a company adopts any new accounting standard to prepare their financial statement it may positively or negatively impact financial indicators. Sometimes it remains unchanged. Several researchers around the globe aimed to find impact of voluntary adoption of IFRS on the financial statements and financial activities of the companies (Achalapathi & BhanuSireesha, 2015; George & Sankaranarayanan, 2017; Thomas & Lukose, 2018; Perafena & Franco, 2017)

Some of the researchers tried to examine the perception of Public Sector Banks and awareness level of CAs, academicians and stakeholders of the companies towards the implementation of IFRS (Dhankar, Chaklader & Gupta, 2018; Muniraju & Ganesh, 2016). The objective of some researches was to examine positive and negative outcomes of convergence of GAAP with IFRS (Rawal, 2017).

Some of the researchers focused on exploring the impact of IFRS adoption on – financial statements (Achalapathi & BhanuSireesha, 2015; George,

& Sankaranarayanan, 2017; Naderian & Mahadevappa; 2014; Thomas & Lukose, 2018; Kantayya & Panduranga, 2017), on financial indicators and market value (Das, 2017); on financial ratios (Swamynathan & Sindhu, 2011); on cash flow predictability and persistence (Kamath & Desai, 2014; Swamynathan & Sindhu, 2013).

When it comes to researches in different countries, it was found that some researchers focused on the impact of IFRS adoption; some on annual report length in New Zealand (Morunga & Bradbury, 2012), some on the value relevance of accounting information in Turkey (Kargın, 2013), on the quality of the financial information in UK & France (Perafán & Franco, 2017), on the quality of consolidated financial reporting in some European Countries (Müller, 2014).

Majority of researchers, for their study, used the tools like Descriptive statistics (Achalapathi & BhanuSireesha, 2015; Kumara, Erappa & Abhilasha, 2016; Perafán & Franco, 2012; Müller, 2014), Kolmogorov-Smirnov Test (Achalapathi & BhanuSireesha, 2015; George & Sankaranarayanan, 2017; Dhankar, Chaklader & Gupta, 2018), Wilcoxon Signed Test (Achalapathi & BhanuSireesha, 2015; Das, 2017), regression and correlation (Das, 2017; Swamynathan & Sindhu, 2013). And some of them applied ratio analysis and comparative analysis of balance sheet for

their findings (Thomas & Lukose, 2018; Kamath & Desai, 2014).

When it was tried to classify the previous studies on the basis of their findings, some researchers found that value relevance of accounting information has improved with high quality disclosure and by adopting IFRS there would be more transparency in accounting information (Müller, 2014; Sibel, 2013). Some researchers concluded that harmonization of Indian accounting practices with IFRS had improved the accounting quality, measured in terms of cash flow persistence and cash flow predictability and significantly affected the financial indicators, investment activities and operating activities (Swamynathan & Sindhu, 2013; Kamath, & Desai, 2014). IFRS had more significant impact on the Balance sheets as compared to profit and loss of the company and there is only a minimal difference in the values of the components which are recorded in both IFRS and IND-AS statements (Thomas & Alan, 2018). The results of the study showed that IFRS adoption had led to a statistically significant increase in liquidity, profitability and valuation ratios statistics (Achalapathi & BhanuSireesha, 2015).

Thus, the synthesis provided that Indian companies were not so prominently chosen as research subject. Researcher could not find any research which studied impact of standards adoption on financial

ratios and value relevance at the same time. Further, with the roadmap provided earlier for adoption of Ind-AS, current study of value relevance becomes more relevant.

### Research Methodology

Following research methodology was adopted for the present study:

### Research Design

The study is empirical in nature. It attempts to explore the impact of Ind-AS adoption on the financial performance of the sample companies.

### Objectives

1. To find difference between the measures of various financial ratios before and after adoption of Ind-AS.
2. To explore any significant change in the variables affecting shareholders' value before and after adoption of Ind-AS.

### Hypotheses

$H_{01}$ : There is no significant difference between measures of various financial ratios before and after adoption of Ind-AS.

$H_{02}$ : There is no significant difference in the predictors of market value of a firm before and after adoption of Ind-AS.

### Sample and Data Collection

For the sample, companies listed in NIFTY-50 in India are taken for the study which has published their financial

statements for six financial years, 2013-14 to 2018-19. Out of 50 companies, data of 14 companies could not be found for the study period so the final sample size reduced to 36 companies. The companies taken as sample for the study have been listed in Appendix 1.

All these companies were being covered under Phase I mentioned above i.e. they have to compulsorily adopt Ind-AS for their financial statements for the period beginning on or after April 1, 2016. Hence the total sample period was divided into two sub-periods – one was pre-adoption period of three years from 2013-14 to 2015-16 and other one was post-adoption period of three years from 2016-17 to 2018-19. Collected data consisted of various accounting ratios (List mentioned in Appendix 2). Some of the ratios were directly available and some were calculated based on the formulae given in Appendix 2. Data were collected from Ace Equity Knowledge Portal. All data were collected from consolidated financial statements.

## Tools and Techniques

Descriptive statistics was first generated to understand the

basic characteristics of the data. Then Kolmogorov-Smirnov (K-S) normality test was used to determine whether parametric or non-parametric test is to be used. When normality was rejected, Wilcoxon Signed Rank Test was used to explore any significant difference among financial ratios in the pre-adoption and post-adoption period. Further, to find out significance of difference over the entire sample period, Kruskal-Wallis H Test has also been applied.

For exploring the value relevance of adoption of Ind-AS, panel data regression was run. The dependent variable was market value of shares and the independent variables were various financial ratios with a modification in Ohlson (1995) model. The model was tested with its different variants – pooled, fixed effects and random effects models and the most parsimonious model was selected on the basis of some diagnostics.

$$MPS_{jt} = \alpha_1 + \alpha_2 BVPS_{jt} + \alpha_3 EPS_{jt} + \alpha_4 AZS_{jt} + \alpha_5 ROA_{jt} + \alpha_6 ROE_{jt} + \varepsilon_{jt}$$

### Equation 1

This equation was estimated for both pre-adoption period and

post-adoption period separately, with all its variants.

Here,  $MPS_{jt}$  is the market price of firm  $j$  for the year  $t$ ,  $BVPS$  is the book value per share of firm  $j$  for the year  $t$ ,  $EPS$  is the earnings per share of firm  $j$  for the year  $t$ ,  $AZS$  is the Altman's Z Score of firm  $j$  for the year  $t$ ,  $ROA$  is the return on assets of firm  $j$  for the year  $t$  and  $ROE$  is return on equity of firm  $j$  for the year  $t$ . This variable has the value of 1 for 2017, 2018 and 2019 whereas the value of 0 for 2014, 2015 and 2016. Various coefficients to be estimated were  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6$  and  $\varepsilon$ . MS-Excel, SPSS-21 and Eviews 7.0 were used for data compilation and various tests and models.

## Results and Discussion

The finding of the analysis along with the discussion goes on following lines.

### Descriptive Statistics

Table 1 displays the descriptive statistics of various ratios categorizing into Before-adoption and After-adoption of Ind-AS. Mean, standard deviation, skewness and kurtosis have been calculated for the sub-periods.

**Table 1: Descriptive Statistics**

Ratios	Before 2016-17				After 2015-16			
	Mean	Std. Dev.	Skewness	Kurtosis	Mean	Std. Dev.	Skewness	Kurtosis
Debt-Equity Ratio	1.679	1.346	1.712	4.567	1.591	1.330	1.402	2.702
Debt Ratio	.852	.457	.910	.427	.756	.371	.374	-.211
Equity Ratio	.649	.228	-.086	-1.177	.656	.238	-.067	-1.554
Interest Coverage Ratio	154.973	570.640	5.193	28.315	160.831	736.708	5.921	35.331

Ratios	Before 2016-17				After 2015-16			
	Mean	Std. Dev.	Skewness	Kurtosis	Mean	Std. Dev.	Skewness	Kurtosis
Capitalization Ratio	.327	.233	.223	-1.157	.314	.234	.230	-1.480
Current Ratio	1.375	.911	1.778	3.692	1.274	.746	1.157	1.651
Quick Ratio	.982	.783	1.797	3.084	.906	.644	1.164	.811
Cash Returns to Net Assets	-.0547	.389	-5.140	29.046	-.0306	.342	-.790	10.141
Cash Returns to Net Worth	.002	.027	-.106	2.904	.003	.0252	.618	8.749
Cash Returns to Current Liabilities	.009	.056	1.916	6.756	.009	.050	.015	8.147
Cash Return to Total Liabilities	.001	.022	-.144	6.312	.001	.0172	-1.916	11.884
Altman's Z Score	8.290	7.797	1.387	1.476	8.480	8.501	1.094	.098
Net Profit Ratio	.116	.089	.998	1.530	.115	.081	1.439	2.716
Operating Profit Ratio	.203	.163	2.045	4.565	.200	.144	1.862	3.052
Return on Assets	.174	.202	2.347	6.081	.148	.170	3.222	12.549
Return on Equity	.235	.241	2.719	8.815	.205	.200	3.348	13.761
Return on Capital Employed	.180	1.873	-1.281	9.167	-.589	6.997	-5.862	34.922

Of the stability ratios, Equity Ratio and Interest coverage ratio showed increased values after adoption of Ind-AS in financial statements. Of the liquidity ratios, only Cash Returns to Net Assets, Cash Returns to Net Worth and Altman's Z score showed an increase in value after adoption

of Ind-AS. Of the profitability ratios, all the ratios showed a decreased value after adoption of Ind-AS in the financial statements. Slight variation in both the directions was observed for standard deviation of pre- and post-adoption period. Skewness for most of the variables was positive

in both the periods. Only a few variables had negative skewness. Kurtosis was greater than 3 for majority of variables in both the periods.

#### Normality Test

Results of K-S (Kolmogorov-Smirnov) Test have been summarized in Table 2.

**Table 2: Results of K-S Normality Test**

Ratios	Kolmogorov-Smirnov			
	Before 2015-16		After 2015-16	
	Statistic	Sig.	Statistic	Sig.
Debt-Equity Ratio	.167	.012	.145	.053
Debt Ratio	.123	.183	.122	.192
Equity Ratio	.102	.200*	.174	.007

Ratios	Kolmogorov-Smirnov			
	Before 2015-16		After 2015-16	
	Statistic	Sig.	Statistic	Sig.
Interest Coverage Ratio	.417	.000	.414	.000
Capitalization Ratio	.116	.200*	.158	.023
Current Ratio	.175	.007	.169	.011
Quick Ratio	.188	.002	.160	.020
Cash Returns to Net Assets	.334	.000	.385	.000
Cash Returns to Net Worth	.135	.093	.179	.005
Cash Returns to Current Liabilities	.188	.003	.272	.000
Cash Return to Total Liabilities	.195	.001	.238	.000
Altman's Z Score	.201	.001	.249	.000
Net Profit Ratio	.124	.175	.155	.028
Operating Profit Ratio	.213	.000	.234	.000
Return on Assets	.197	.001	.225	.000
Return on Equity	.243	.000	.249	.000
Return on Capital Employed	.301	.000	.511	.000

On observing the results of normality tests by applying Kolmogorov-Smirnov Test, it was noted that most of the variables derived from the financial statements, in both the periods – pre- adoption of Ind-AS and post- adoption of Ind-

AS are not normally distributed ( $p < 0.05$ ). Hence, choice for further analysis remains with non-parametric tests.

#### Wilcoxon Signed Ranks Test

The most common non-parametric test, Wilcoxon

signed-ranks test, is used to detect whether the differences between the two populations are statistically significant or not, the results of which are presented in Table 3. Results contain mean rank, sum of ranks, test statistic and its significance.

**Table 3: Results of Wilcoxon Signed Rank Test**

Ratios	Mean Rank		Sum of Ranks		Statistics	Sig.
	Negative Ranks	Positive Ranks	Negative Ranks	Positive Ranks		
Debt-Equity Ratio	19.45	17	428	238	-1.493	.136
Debt Ratio	19.14	17.5	421	245	-1.383	.167
Equity Ratio	18.24	18.74	310	356	-.361	.718
Interest Coverage Ratio	18.63	18.4	298	368	-.550	.582
Capitalization Ratio	17.61	19.89	387.5	278.5	-.856	.392
Current Ratio	19.65	17.06	393	273	-.943	.346
Quick Ratio	17.93	19.3	376.5	289.5	-.683	.494
Cash Returns to Net Assets	18.24	18.74	310	356	-.361	.718
Cash Returns to Net Worth	16.76	19.17	285	345	-.491	.623

Ratios	Mean Rank		Sum of Ranks		Statistics	Sig.
	Negative Ranks	Positive Ranks	Negative Ranks	Positive Ranks		
Cash Returns to Current Liabilities	16.30	19.28	244.5	385.5	-1.155	.248
Cash Return to Total Liabilities	15.64	21.36	281.5	384.5	-.809	.418
Altman's Z Score	18.41	18.64	405	261	-1.131	.258
Net Profit Ratio	17.74	19.35	337	329	-.063	.950
Operating Profit Ratio	19.47	17.63	331	335	-.031	.975
Return on Assets	20.32	15.64	447	219	-1.791	.073
Return on Equity	18.42	18.67	442	224	-1.713	.087
Return on Capital Employed	17.43	20	366	300	-.518	.604

It is found that the p-value is greater than 0.05 ( $p > 0.05$ ) in all the ratios. So it can be concluded that adoption of Ind-AS does not significantly affect the financial ratios of NIFTY50 companies. In other words, there is no significant difference

between financial ratios of pre-adoption period and post-adoption period.

It was further examined that if there is any significant difference among the measures of various ratios over the entire

sample period i.e. during six years. For this purpose, Kruskal-Wallis H Test was used and results have been presented in Table 3.

#### Kruskal-Wallis H Test

Table 4 displays the results of Kruskal-Wallis H Test.

**Table 4: Results of Kruskal-Wallis H Test**

Ratios	Chi-Square	p-Value
Debt-Equity Ratio	1.182	.947
Debt Ratio	1.331	.932
Equity Ratio	.761	.979
Interest Coverage Ratio	.404	.995
Capitalization Ratio	.186	.999
Current Ratio	.975	.965
Quick Ratio	.819	.976
Cash Returns to Net Assets	5.331	.377
Cash Returns to Net Worth	6.279	.280
Cash Returns to Current Liabilities	5.905	.316
Cash Return to Total Liabilities	6.284	.280
Altman's Z Score	.110	1.000
Net Profit Ratio	.675	.984
Operating Profit Ratio	.707	.983
Return on Assets	.963	.965

Ratios	Chi-Square	p-Value
Return on Equity	1.746	.883
Return on Capital Employed	1.329	.932
Market Price Per Share	13.735	.017
Earnings Per Share	7.571	.182
Book Value Per Share	6.446	.265

It is revealed from the results that the Chi-square values of all variables except MPS (market price per share) is less than 8 with very high p-values. The Chi-square value of MPS is 13.735 with a p-value of .017. Hence it can be concluded that MPS over different years

has significant difference in the measures. All remaining variables do not exhibit significant difference in their measures of different years.

### Panel Data Regression

Panel data regression with its three variants pooled, fixed

effects and random effects was run and results have been presented in Table 5. The models were run for both pre-adoption and post-adoption period. Table 5 contains the values of coefficients, their p-values along with diagnostic values for the models.

**Table 5: Results of Panel Regression Models**

Variables	Pre-Adoption of Ind-AS						Post-Adoption of Ind-AS					
	Pooled		FE		RE		Pooled		FE		RE	
	Coefficient	P Value	Coefficient	P Value	Coefficient	P Value	Coefficient	P Value	Coefficient	P Value	Coefficient	P Value
C	-86.59	.20	-733.86	.00	-85.00	.21	-.218	.00	-330.21	.00	-255.84	.00
BVPS	1.317	.00	6.65	.00	1.856	.00	-218.32	.00	3.967	.00	2.351	.00
EPS	14.186	.00	1.622	.47	10.880	.00	1.673	.00	10.878	.00	12.580	.00
AZS	7.317	.15	10.515	.34	6.787	.23	15.416	.00	20.811	.02	20.673	.00
ROA	1840.3	.00	2480.6	.07	2681.3	.00	15.740	.00	186.69	.82	1954.66	.00
ROE	-1299.5	.01	-1349.8	.09	-1903.4	.00	1928.96	.00	-1165.03	.03	-1599.568	.00
R-Squared	0.822		.968		.740		.843		.935		.757	
Adj. R-Squared	0.813		.948		.722		.839		.918		.745	
F	94.23		47.185		40.751		225.42		54.763		63.743	
F (p-Value)	0.00		0.00		0.00		0.00		0.00		0.00	

Results reveal that in pre-adoption period, except Altman's Z Score, all other independent variables are significant in pooled and random effect models estimated.

### Result of Hausman Test

Pre-Adoption	Chi-square	p-Value
	54.837	0.000
Post-Adoption	Chi-square	p-Value
	42.23	0.00

It was further noticed that all three models were a good fit (Significant F Values). Adjusted R-squared was 0.813, 0.948 and 0.722 respectively for pooled, fixed effects and random effects model. Thus fixed effect model

provided the most parsimonious diagnostics. But the choice between fixed effect and random effect model remains with Hausman Test, with the null hypothesis that random effect model is more efficient than the fixed effect model for analyzing the given data. It was found that the Chi-square value was 54.837 with a p-value of 0.00. Thus it can be concluded that fixed effect model is most efficient one. This model, with adjusted R-squared of 0.948, has the ability of explain 94.8% variability in the data. In this model, except Altman's Z score and EPS, all independent variables have p-Values less than 0.05. Thus all remaining variables are significantly influencing market value. The estimated equation is:

$$\begin{aligned} \text{MPS} = & -733.868 + 6.650*\text{BVPS} \\ & + 1.622*\text{EPS} + 10.515*\text{AZS} \\ & + 2480.602*\text{ROA} - 1349.864 \\ & *\text{ROA} + [\text{CX}=\text{F}, \text{PER}=\text{F}] \end{aligned}$$

Table 5 further discloses that for after-adoption period, all the variables were significant in the pooled and random effect models. On the other hand, in fixed effect model, except Return on Assets, all remaining variables were significantly influencing market value. For the choice between random effect and fixed model, Hausman Test revealed the test value as 42.23 with a p value of 0.00. Thus null hypothesis of superiority of random effect model was rejected at 5% level of significance. The fixed effect model was the most parsimonious model in post-adoption period also. The value

of adjusted R-squared was .918 which means that this model is able to explain 91.8% variability in the market price. The estimated equation is:

$$\begin{aligned} \text{MPS} = & -330.215 + 3.966 \\ & *\text{BVPS} + 10.878*\text{EPS} + \\ & 20.811*\text{AZS} + 186.691*\text{ROA} - \\ & 1165.032*\text{ROE} + [\text{CX}=\text{F}, \text{PER}=\text{F}] \end{aligned}$$

As far as the comparison between results of pre-adoption and post-adoption period is concerned, it is found that all the three models are good fit in both the periods. Adjusted R-squared was highest in fixed effect model in both the periods and that too is above .90. Hence fixed effect model is able to explain more than 90% variability in market price in both the periods. Results of Hausman Test were in favour of fixed effect model in both the periods. Fixed effect model of both the period revealed that in pre-adoption period, only BVPS was a variable which had a significant coefficient. EPS, Altman's Z Score, ROA and ROE did not show any significant influence on market price. Whereas in post-adoption period, except ROA, all other independent variables – BVPS, EPS, Altman's Z Score and ROE were significantly influencing market price.

### Conclusion

Present paper attempts to examine the impact of adoption of Ind-AS by the companies which were constituents of Nifty-50. Study aims at exploring any significant difference in financial ratios during pre-adoption and post-adoption

period. For this purpose six years data of 36 Nifty-50 companies were collected which majorly consisted of financial ratios. Some ratios were calculated as they were not directly available. The ratios represented three major categories stability, liquidity and profitability. The collected data were divided into two sub-period – pre-adoption of Ind-AS and post-adoption of Ind-AS.

Normality was checked using K-S Test which was rejected for all the ratios. Hence non-parametric tests such as Wilcoxon Signed Rank Test and Kruskal-Wallis H Test were used to find any significant difference in the measures of ratios – between two sub-periods and over the years respectively. Only market price (MPS) showed significant change over the years. Further Ohlson model (1995) with some modifications was estimated in three variants – pooled, fixed effect and random effect. Fixed Effect Model, in both the periods, emerged as the most parsimonious model. Results revealed that there was a major change in the predictors of market price during pre- and post-adoption period. Altman's Z score and EPS were not significantly influencing market price during pre-adoption period whereas these variables turned to be significant predictors in post-adoption period. Return on assets (ROA) remained insignificant in both the periods. Thus it can be concluded that adoption of Ind-AS has major implications for measuring the financial health of the companies.

## Appendix 1: Sample Companies

S. N.	Company	S. N.	Company
1	Adani Ports and Special Economic Zone Ltd.	19	JSW Steel Ltd.
2	Asian Paints Ltd.	20	Larsen & Toubro Ltd.
3	Bajaj Auto Ltd.,	21	Mahindra & Mahindra Ltd.
4	Bharat Petroleum Corporation Ltd.	22	Maruti Suzuki India Ltd.
5	Bharti Airtel Ltd.	23	NTPC Ltd.
6	Bharti Infratel Ltd.	24	Oil and Natural Gas Corporation (ONGC) Ltd.
7	Britannia Ltd.	25	Powergrid Corporation Ltd.
8	Cipla Ltd.	26	Reliance Industries Ltd.
9	Coal India Ltd.	27	Sunpharma Ltd.
10	Dr. Reddys Laboratories Ltd.	28	Tata Motors Ltd.
11	GAIL (India) Ltd.	29	Tata Steel Ltd.
12	Grasim Industries Ltd.	30	Tech Mahindra Ltd.
13	HCL Ltd.	31	Titan Company Ltd.
14	HDFC Housing & Finance Ltd.	32	Ultratech Cement Ltd.,
15	Hindalco Ltd.	33	UPL Ltd.
16	Hindustan Unilever Ltd.	34	Vedanta Ltd.
17	Indian Oil Corporation Ltd.	35	Wipro Ltd.
18	ITC Ltd.	36	Zee Entertainment Enterprises Ltd.

S. N.	Financial Ratio	Symbol Used	Formula
1	Debt Equity Ratio	DER	Total Debt / Total Equity
2	Debt Ratio	DR	Total Debt / Total Assets
3	Equity Ratio	ER	Total Equity / Total Equity
4	Interest Coverage Ratio	ICR	EBIT / Interest Expenses
5	Capitalization Ratio	CapR	Total Debt / (Total Debt + Total Equity)
6	Current Ratio	CR	Current Assets / Current Liabilities
7	Quick Ratio	QR	Quick Assets / Current Liabilities
8	Cash Returns to Net Assets	CRNA	Net Cash Inflows / Net Assets
9	Cash Returns to Net Worth	CRNW	Net Cash Inflows / Net Worth
10	Cash Returns to Current Liabilities	CRCL	Net Cash Inflows / Current Liabilities
11	Cash Return to Total Liabilities	CRTL	Net Cash Inflows / Total Liabilities

S. N.	Financial Ratio	Symbol Used	Formula
12	Altman's Z Score	AZS	$1.2 T_1 + 1.4 T_2 + 3.3 T_3 + 0.6 T_4 + 0.99 T_5^*$
13	Net Profit Ratio	NPR	Net Profit / Net Sales
14	Operating Profit Ratio	OPR	Operating Profit / Net Sales
15	Return on Assets	ROA	Net Income / Net Assets
16	Return on Equity	ROE	Net Income / Total Equity
17	Return on Capital Employed	ROCE	Net Income / Capital Employed
18	Market Price Per Share	MPS	
19	Earnings Per Share	EPS	Total Earnings for Equity Shareholders / No of Equity shares outstanding
20	Book Value Per Share	BVPS	

\*  $T_1$  = Working Capital / Total Assets

$T_2$  = Retained Earnings / Total Assets

$T_3$  = EBIT / Total Assets

$T_4$  = Market Value of Equity / Book Value of Liabilities

$T_5$  = Sales / Total Assets

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