

# A Study on Profitability Analysis of Infrastructure Companies in India

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## Abstract

Assessing the profitability of the infrastructure entities will help us to understand how we are creating value for the money spent on infrastructure. The success of the institutions will depend on the utility of the infrastructure. We test whether Return on Equity (ROE), Return on Sales (ROS), Return on Asset (ROA) and Asset Turn Over (ATO) can be used to measure the profitability of Infrastructure companies in Indian context. We use Infrastructure Companies ten years' data to calculate ROE using DuPont model. We found that empirical analysis of the study shows that ROE is better in creating positive shareholders value and also found that ROS, ROA and ATO are positively correlated with ROE. This paper suggests that further study can be conducted by using extended DuPont model in other industries to see if it can explain the total variation in ROE as it has in the Indian Infrastructure companies.

**Keywords:** Infrastructure Companies, Return on equity, Return on Asset, Return on sales, and Asset turn over

## Introduction

Return on equity (ROE) is fairly representative index of profitability evaluation, which comprehensively reflects operation level and financial position of enterprises. For more detailed analysis and evaluation of enterprise operational efficiency, DuPont analysis is proposed using the intrinsic link between the major indicators of financial ratios, forming an evaluation system that takes sales margin, asset turnover and equity multiplier as the core index. In practice, the system is widely applied for its strong operability, and achieved the goal to provide corporate financial position and operating results, and other information related to the target decision for investors, creditors and other stakeholders. The Three step DuPont model became a standard in all financial management textbooks and a powerful tool to illustrate the interconnectedness of a firm's income statement and its balance sheet, and to develop straight-forward strategies for improving the firm's ROE. However, Hawawini and Viallet (1999) offered yet another modification to the DuPont model. This modification resulted in five different ratios that combine to form ROE. In their modification they concede that the financial statements firms put together for their annual reports are not always useful to managers making operating and

financial decisions as indicated by Brigham and Houston (2001). Hawawini and Viallet (1999) restructured the traditional balance sheet into a “managerial balance sheet” which is “a more appropriate tool for assessing the contribution of operating decisions to the firm's financial profitability.” A more detailed explanation of the managerial balance sheet is illustrated as the five steps DuPont Model. The five steps du Pont model decomposes return on equity in to five ratios overcoming the shortcomings of the three step DuPont model. The three-step DuPont Model provides us with insights as to what is driving a company's profit (return on equity) as indicated by Nissim and Penman (2001), Fairfield and Yohn (2001), Ross et al., (1996). The three step DuPont reveals how a company boosts its ROE by improving its profitability; using its assets more efficiently and taking on additional leverage as shown by Moyer et al., (2007), Ross et al., (2008). However, companies that boost ROE by adding leverage will eventually reach a point where the cost of debt will diminish profit margins and decrease asset turnover. Sattar and David (2002) have studied on the US based MNCs utilizing less debt as compared to their domestic counter parts in their capital structure. He has also analysed that MNCs are prone to various types of risks in the host and home country. With the risks, they also have various arbitraging advantages. The possibility of the cash flows getting affected of such MNCs is less due to the non-correlated markets. Manjunatha and Gujjar (2018) analyzed that net income of the organization is not enough to determine its efficiency unless profit margin, asset turnover, financial leverage are taken into consideration. Manjunatha and Gujjar (2018) Extended DuPont model can be used to measure the profitability of Information Technology. Manjunatha and Gujjar (2018) DuPont model can be used to measure the profitability of software and networking companies and there is a positive relationship between profit margin, asset turnover and ROE. This paper proposes to study DuPont model of Indian Information Technology companies Listed in BSE India. The paper is organized in four parts. Part 1 is the introduction; Part 2 presents objectives, and methodology; Part 3 analyses the results; Part 4 presents the summary and conclusions. References are given after Part 4.

### Objectives and Methodology

We have set following objectives based on the evidence Sattar and David (2001), Manjunatha and Gujjar (2018)

- To test whether ROE, ROS, ROA and ATO can be used to measure the profitability of Infrastructure Companies.
- To test whether Indian Infrastructure companies are able to generate positive return on equity for its shareholders.

Hypotheses: Based on the available evidence on Manjunatha and Gujjar (2018), Tiwari and Parray (2012) the following null hypotheses are formulated

·Ho: There is no significant relationship between ROE and Return on sales.

·Ho: There is no significant relationship between ROE and Return on Asset

Negations of above hypothesis are alternate hypothesis. We propose to test the above hypotheses in the Indian context by taking the data and sample described below.

### Data and Sample:

This study was based on the twenty five Infrastructure companies listed in BSE India. In this study Infrastructure companies chosen was A2Z Infra Engg, ABC India, ACC, Adani Power, AGI Infra, Ambuja Cement, Axtel Industries, Balasore Alloys, Bharat Wire, Crimson Metal, ADC India, AIA Engg, Aegis Logistics, Alfred Herbert, Anant Raj, Artson Engg., Anjani Portland, APL Apollo, Aplab, Arshiya, ARSS Infra, Ashoka Buildcon, Astra Microwave, Atlanta, ATV Projects. For the study purpose we have taken ten years financial statement viz 2009 to 2018 of twenty five Infrastructure companies. The annual data of the selected companies is obtained from the Capital Line database. The collected data are used for calculating ROE.

### Methodology:

We propose to test whether return on equity (ROE), Return on sales (ROS) and Return on asset (ROA), Asset turn over (ATO) can be used to measure the profitability of Infrastructure companies in Indian context. We have adopted methodology as done by Moyer et al., (2007), Ross et al., (2008). We calculated ROE using following model.

### DuPont Analysis Model

$$\text{ROE} = (\text{Profit margin}) \times (\text{Asset Turnover}) \times (\text{Equity Multiplier}) \quad (1)$$

Where:

Profit margin shows operating efficiency

Asset turnover shows asset utilization efficiency

Equity multiplier shows financial leverage

ROS is calculated using = Operating Profit/Net Sales(2)

ROA is calculated using = ROS \* Asset Turn over(3)

ATO is calculated using = Sales/ Total Asset(4)

We have obtained return on equity, return on sales, return on asset, asset turn over by applying the formula as

mentioned above and the of the same has been listed as shown in Table 1 and Table 4. We have to test whether Indian Infrastructures companies are able to generate value for its shareholders.

We bring out the following analysis to test the objectives and hypothesis.

### Results and Analysis

The study analyze the return on equity, return on sales, return on asset, and asset turn over to know whether A2Z Infra Engg, ABC India, ACC, Adani Power, AGI Infra,

Ambuja Cement, Axtel Industries, Balasore Alloys, Bharat Wire, Crimson Metal, ADC India, AIA Engg, Aegis Logistics, Alfred Herbert, Anant Raj, Artson Engg., Anjani Portland, APL Apollo, Aplab, Arshiya, ARSS Infra, Ashoka Buildcon, Astra Microwave, Atlanta, ATV Projects. Infrastructure companies have created value for shareholders or not. Therefore, we have analysed ten years data of selected companies for the study period 2009 to 2018. Main findings of the study are discussed in the following paragraphs.

**Table 1 shows ROS of the selected companies**

No	Company Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	A2Z Infra Engg.	0.200	0.189	0.197	0.117	0.014	-0.27	-0.3	0.09	0.08	0.07
2	ABC India	0.081	0.061	0.095	0.109	0.161	0.112	0.08	0.05	0.01	0.05
3	ACC	0.339	0.248	0.219	0.187	0.172	0.151	0.12	0.14	0.15	0.14
4	Adani Power	-0.03	0.64	0.63	0.34	0.18	0.37	0.31	0.31	-0.1	0.34
5	AGI Infra	0.50	0.25	0.20	4.42	12.20	0.28	0.25	0.21	0.12	0.21
6	Ambuja Cement	0.30	0.28	0.26	0.26	0.23	0.24	0.20	0.24	0.22	0.19
7	Axtel Industries	0.11	0.08	0.10	0.11	0.12	0.19	-0.05	0.16	0.16	0.13
8	Balasore Alloys	0.10	0.19	0.17	0.19	0.16	0.17	0.12	0.11	0.20	0.15
9	Bharat Wire	0.08	0.07	0.08	0.11	0.13	0.11	0.09	0.14	0.14	0.23
10	Crimson Metal	0.15	0.08	0.03	0.02	0.05	0.08	0.10	0.09	0.10	0.12
11	ADC India	0.06	0.07	0.08	0.05	-0.13	0.09	0.14	0.11	0.11	0.11
12	AIA Engg.	0.24	0.26	0.21	0.20	0.18	0.26	0.31	0.45	0.34	0.32
13	Aegis Logistics	0.14	0.23	0.24	0.25	0.20	0.15	0.46	0.26	0.32	0.27
14	Alfred Herbert	0.68	0.28	0.35	0.54	1.15	0.52	0.45	0.46	10.3	0.43
15	Anant Raj	1.08	1.00	0.67	0.57	0.31	0.32	0.53	0.32	0.33	0.26
16	Artson Engg.	-0.06	0.08	0.07	-0.10	-0.51	-0.02	0.05	0.07	0.11	0.10
17	Anjani Portland	0.27	0.25	0.23	0.22	0.19	0.08	0.20	0.27	0.27	0.17
18	APL Apollo	0.05	0.11	0.10	0.07	0.06	0.05	0.05	0.04	0.07	0.06
19	Aplab	0.08	0.01	0.08	0.12	0.10	0.14	-0.03	-0.07	-0.01	-0.06
20	Arshiya	0.12	0.11	0.17	0.28	0.20	-0.31	-0.03	-1.19	1.02	2.31
21	ARSS Infra	0.17	0.19	0.22	0.15	0.14	0.22	0.32	0.33	-0.27	-0.02
22	Ashoka Buildcon	0.18	0.15	0.15	0.17	0.15	0.15	0.16	0.18	0.16	0.16
23	Astra Microwave	0.27	0.24	0.27	0.32	0.31	0.18	0.19	0.26	0.29	0.34
24	Atlanta	0.37	0.48	0.39	0.44	0.28	0.25	0.18	0.27	0.66	-0.05
25	ATV Projects	0.38	0.26	0.16	0.07	0.06	0.05	0.79	0.10	2.54	0.72

Note: Return on sales has been calculated using the formula (2) as mentioned in the methodology

Table 1 shows that the calculated return on sales of selected infrastructure companies using formula as mentioned in the methodology, we have found that the return on sales of A2Z Infra Engg ranges from -0.3 to 0.2, ABC India ranges from 0.01 to 0.16, ACC ranges from 0.12 to 0.33, Adani

Power ranges from -0.1 to 0.64, AGI Infra ranges from 0.12 to 12.2, Ambuja Cement ranges from 0.19 to 0.3, Axtel Industries ranges from -0.05 to 0.19, Balasore Alloys ranges from 0.1 to 0.2, Bharat wire ranges from 0.07 to 0.23, Crimson Metal ranges from 0.02 to 0.15, ADC India

ranges from -0.13 to 0.14, AIA Engg ranges from 0.18 to 0.45, Aegis Logistics ranges from 0.14 to 0.46, Alfred Herbert ranges from 0.28 to 10.3, Anant Raj ranges from 0.26 to 1.08, Artson Engg. ranges from -0.51 to 0.110, Anjani Portland ranges from 0.08 to 0.27, APL Apollo ranges from 0.04 to 0.110, Aplab ranges from -0.07 to 0.27,

Arshiya ranges from -1.19 to 2.31, ARSS Infra ranges from -0.27 to 0.33, Ashoka Buildcon 0.15 to 0.180, Astra Microwave ranges from 0.18 to 0.34, Atlanta ranges from -0.05 to 0.66, ATV Projects ranges from 0.05 to 2.54; increase in the return on sales increases the return on equity.

**Table 2 shows ATO of the selected companies**

No	Company Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	A2Z Infra Engg.	1.36	1.44	0.755	0.543	0.305	0.186	0.126	0.583	0.404	0.262
2	ABC India	1.19	1.00	1.60	2.22	1.99	2.05	0.05	1.65	2.22	2.35
3	ACC	1.008	0.924	1.123	2163.4	1905.9	1767.0	891.6	1.218	1.389	1.388
4	Adani Power	0.003	0.013	0.066	0.109	191.0	296.2	270.6	0.324	0.308	0.430
5	AGI Infra	0.057	0.125	0.048	0.004	0.016	0.798	0.916	1.048	1.602	0.867
6	Ambuja Cement	0.740	0.726	0.824	655.6	405.7	321.1	299.6	0.473	0.522	0.538
7	Axtel Industries	0.771	0.552	1.317	1.357	0.008	0.006	0.005	1.534	1.673	1.605
8	Balasore Alloys	0.508	0.336	0.623	0.573	24.339	31.44	40.74	0.813	0.894	1.038
9	Bharat Wire	0.800	0.765	0.595	0.214	0.015	0.017	0.014	0.168	0.120	0.245
10	Crimson Metal	2.722	1.901	2.354	3.780	0.190	0.099	0.070	2.077	2.127	1.379
11	ADC India	1.375	1.496	1.860	0.585	169.26	220.455	0.408	0.316	0.284	0.286
12	AIA Engg.	0.747	0.561	0.564	0.581	1910.89	1074.10 2	781.3	380.7	0.805	0.746
13	Aegis Logistics	0.776	0.534	0.489	0.541	4.818	3.405	1.272	1.195	0.432	0.475
14	Alfred Herbert	0.065 3	0.08	0.05	0.05	0.20	0.111	0.07	0.04	0.043	0.054
15	Anant Raj	0.079	0.059	0.073	0.057	2.679	2.025	2.306	2.618	0.074	0.068
16	Artson Engg.	2.6	-48.3	-47.7	27.3	8.8	12.3	7.0	6.9	3.8	3.5
17	Anjani Portland	0.401	0.496	0.630	1.290	27.616	20.277	14.92	10.80	1.085	1.300
18	APL Apollo	0.631	0.539	0.918	1.453	43.361	55.196	53.31	64.07	2.428	2.583
19	Aplab	0.970	0.870	1.102	1.074	25.759	30.210	17.19	21.00	1.212	0.804
20	Arshiya	0.125	0.124	0.249	0.369	123.009	37.713	3.161	2.104	0.033	0.033
21	ARSS Infra	0.355	0.511	0.602	0.527	13.357	17.765	14.08	13.94	0.480	0.339
22	Ashoka Buildcon	0.480	0.710	0.673	0.562	83.981	61.649	61.19	36.69	0.944	1.070
23	Astra Microwave	0.469	0.349	0.420	0.431	3.353	5.078	4.933	2.237	0.670	0.598
24	Atlanta	0.23	0.22	0.31	0.28	0.86	1.10	1.93	0.54	0.28	0.19
25	ATV Projects	0.040	0.098	0.085	0.131	4.386	6.559	7.181	8.500	0.251	0.212

Note: Asset turnover has been calculated using the formula (4) as mentioned in the methodology, in the year 2012 ACC companies ATO is high because of increase in the asset. Similarly for the company Ambuja Cement in the year 2012 ATO is high because of increase in the asset.

Table 2 shows that calculated Asset turnover of selected infrastructure companies using formula as mentioned in the methodology, we have found that the asset turnover of A2Z Infra Engg ranges from 0.13 to 1.424, ABC India ranges from 0.06 to 2.35, ACC ranges from 0.92 to 2163.42, Adani Power ranges from 0.003 to 296.28, AGI Infra ranges from 0.004 to 1.602, Ambuja Cement ranges from 0.473 to 655.681, Axtel Industries ranges from 0.005 to 1.673, Balasore Alloys ranges from 0.336 to 40.742, Bharat wire ranges from 0.014 to 0.800, Crimson Metal ranges from 0.070 to 3.780, ADC India ranges from 0.284 to 220.455, AIA Engg ranges from 0.561 to 1910.892,

Aegis Logistics ranges from 0.432 to 4.818, Alfred Herbert ranges from 0.040 to 0.205, Anant Raj ranges from 0.057 to 2.679, Artson Engg. ranges from -48.3 to 27.3, Anjani Portland ranges from 0.401 to 27.616, APL Apollo ranges from 0.539 to 64.077, Aplab ranges from 0.804 to 30.210, Arshiya ranges from 0.033 to 123.009, ARSS Infra ranges from 0.339 to 17.765, Ashoka Buildcon 0.480 to 83.981, Astra Microwave ranges from 0.349 to 5.078, Atlanta ranges from 0.190 to 1.930, ATV Projects ranges from 0.040 to 8.500; asset turn over considers the total revenue of the company. Increase in the asset turnover increases the return on equity.

**Table 3 shows ROA of the selected companies**

No	Company Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	A2Z Infra Engg.	0.27	0.27	0.15	0.06	0.00	-0.05	-0.04	0.06	0.03	0.02
2	ABC India	0.10	0.06	0.15	0.24	0.32	0.23	0.01	0.09	0.03	0.12
3	ACC	0.34	0.23	0.25	404.7	327.2	267.4	113.6	0.17	0.21	0.20
4	Adani Power	0.0001	0.0002	0.0001	0.0003	0.0001	0.0001	0.01	0.001	0.001	0.002
5	AGI Infra	0.03	0.03	0.01	0.02	0.19	0.22	0.23	0.22	0.19	0.19
6	Ambuja Cement	0.22	0.21	0.21	171.3	91.52	75.87	59.8	0.11	0.11	0.10
7	Axtel Industries	0.09	0.04	0.13	0.14	0.001	0.001	0.001	0.24	0.26	0.21
8	Balasore Alloys	0.1	0.1	0.1	0.1	4.0	5.3	4.7	0.1	0.2	0.2
9	Bharat Wire	0.06	0.05	0.04	0.02	0.01	0.001	0.001	0.02	0.01	0.05
10	Crimson Metal	0.40	0.15	0.06	0.06	0.01	0.01	0.01	0.19	0.21	0.16
11	ADC India	0.08	0.11	0.14	0.03	-21.83	18.91	0.06	0.03	0.03	0.03
12	AIA Engg.	0.18	0.14	0.12	0.11	339.0	276.6	241.8	171.4	0.27	0.24
13	Aegis Logistics	0.11	0.12	0.12	0.14	0.95	0.52	0.58	0.31	0.14	0.13
14	Alfred Herbert	0.04	0.02	0.02	0.03	0.24	0.06	0.03	0.02	0.45	0.02
15	Anant Raj	0.08	0.06	0.05	0.03	0.84	0.64	1.21	0.83	0.02	0.02
16	Artson Engg.	-0.1	-3.8	-3.3	-2.6	-4.5	-0.3	0.4	0.5	0.4	0.3
17	Anjani Portland	4.60	4.37	4.33	3.68	3.27	1.43	3.39	2.83	0.30	0.22
18	APL Apollo	0.03	0.06	0.09	0.10	2.55	2.62	2.70	2.33	0.18	0.16
19	Aplab	0.08	0.01	0.09	0.13	2.66	4.31	-0.47	-1.40	-0.01	-0.05
20	Arshiya	0.01	0.01	0.04	0.10	24.16	-11.77	-0.10	-2.50	0.03	0.08
21	ARSS Infra	0.06	0.10	0.13	0.08	1.90	3.93	4.49	4.64	-0.13	-0.01
22	Ashoka Buildcon	0.09	0.11	0.10	0.09	12.55	9.11	9.59	6.53	0.15	0.17
23	Astra Microwave	0.12	0.08	0.11	0.14	1.05	0.92	0.91	0.58	0.19	0.20
24	Atlanta	0.08	0.11	0.12	0.12	0.24	0.27	0.34	0.15	0.19	-0.01
25	ATV Projects	0.02	0.03	0.01	0.01	0.27	0.31	5.64	0.83	0.64	0.15

Note: Return on Asset has been calculated using the formula (3) as mentioned in the methodology, in the year 2012 ACC companies ROA is high because of increase in the net income. Similarly for the company Ambuja Cement in the year 2012 ROA is high because of increase in the net income.

Table 3 shows that calculated return on asset of selected infrastructure companies using formula as mentioned in the methodology, we have found that the return on asset of A2Z Infra Engg ranges from -0.05 to 0.27, ABC India ranges from 0.01 to 0.32, ACC ranges from 0.17 to 404.7, Adani Power ranges from 0.001 to 0.01, AGI Infra ranges from 0.1 to 0.23, Ambuja Cement ranges from 0.1 to 171.3, Axtel Industries ranges from 0.001 to 0.26, Balasore Alloys ranges from 0.1 to 5.3, Bharat wire ranges from 0.001 to 0.06, Crimson Metal ranges from 0.01 to 0.06, ADC India ranges from -21.8 to 18.9, AIA Engg ranges from 0.11 to 339, Aegis Logistics ranges from 0.11 to 0.95, Alfred

Herbert ranges from 0.02 to 0.45, Anant Raj ranges from 0.02 to 1.21, Artson Engg. ranges from -4.5 to 0.5, Anjani Portland ranges from 0.22 to 4.6, APL Apollo ranges from 0.03 to 2.7, Aplab ranges from -1.4 to 4.3, Arshiya ranges from -11.7 to 24.1, ARSS Infra ranges from -0.13 to 4.64, Ashoka Buildcon 0.09 to 12.5, Astra Microwave ranges from 0.08 to 1.05, Atlanta ranges from -0.01 to 0.34, ATV Projects ranges from 0.01 to 5.64; Return on asset considers the net income of the company. Increase in the return on asset increases the return on equity.



**Table 4 shows ROE of the selected companies**

No	Company Name	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	A2Z Infra Engg.	3.005	2.648	0.988	0.837	0.521	0.374	3.005	2.648	0.988	0.837
2	ABC India	4.53	4.02	5.09	5.82	3.94	3.608	3.36	3.003	5.71	5.307
3	ACC	1.379	1.257	1.383	1.572	1.461	1.459	1.411	1.258	1.434	1.431
4	Adani Power	0.001	0.080	0.347	0.696	1.488	1.473	1.487	1.485	2.483	1.058
5	AGI Infra	0.303	0.805	0.463	3.135	5.987	5.560	1.959	2.477	2.938	3.158
6	Ambuja Cement	1.126	1.059	1.084	1.168	0.997	1.028	0.950	0.503	0.545	0.562
7	Axtel Industries	2.070	2.013	2.960	2.556	2.137	1.785	1.821	2.127	2.015	1.963
8	Balasore Alloys	2.667	0.438	0.662	0.632	0.770	0.855	0.981	0.951	1.152	1.322
9	Bharat Wire	3.500	4.282	3.913	1.051	1.181	1.190	1.092	0.421	0.477	1.447
10	Crimson Metal	-47.4	37.9	109.8	107.8	55.5	21.5	12.8	11.4	10.1	6.545
11	ADC India	1.361	1.500	1.379	0.525	0.843	1.024	1.639	1.505	1.452	1.442
12	AIA Engg.	1.450	1.117	1.215	1.362	1.477	1.390	1.353	1.076	0.932	0.877
13	Aegis Logistics	2.110	1.603	0.998	1.009	1.258	1.190	1.080	0.847	0.606	0.691
14	Alfred Herbert	0.07	0.102	0.065	0.071	0.153	0.07	0.06	0.06	0.48	0.054
15	Anant Raj	0.147	0.102	0.113	0.089	0.139	0.115	0.108	0.106	0.109	0.110
16	Artson Engg.	-2.6	-18.3	-52.5	-3.8	-1.1	-1.3	-1.0	-1.8	17.5	18.3
17	Anjani Portland	2.288	1.965	3.060	3.725	3.696	4.555	3.299	3.107	1.539	1.614
18	APL Apollo	2.168	2.033	2.720	4.027	5.512	6.291	6.135	8.724	3.831	4.907
19	Aplab	3.4	4.3	4.2	3.8	2.7	3.7	6.1	-12.5	-4.0	-1.8
20	Arshiya	0.544	0.569	0.926	1.140	1.143	0.541	0.109	0.281	0.143	0.164
21	ARSS Infra	5.064	3.518	3.657	2.818	1.942	2.245	1.745	1.642	10.40	14.01
22	Ashoka Buildcon	2.285	2.807	1.747	1.748	1.986	1.720	1.921	1.205	1.206	1.321
23	Astra Microwave	0.916	0.874	1.145	1.284	1.138	2.414	2.227	1.012	0.883	0.717
24	Atlanta	1.07	0.91	1.05	0.74	0.96	1.24	1.26	0.35	0.43	0.26
25	ATV Projects	-0.06	-0.12	-0.10	-0.168	-0.17	-0.25	-0.69	-0.55	2.266	0.546

Note: Return on equity has been calculated using the formula (1) as mentioned in the methodology.

Table 4 shows that calculated return on equity of selected infrastructure companies using formula as mentioned in the methodology, we have found that the return on equity of A2Z Infra Engg ranges from 0.374 to 3.005, ABC India ranges from 3.004 to 5.823, ACC ranges from 1.257 to 1.572, Adani Power ranges from 0.001 to 2.483, AGI Infra ranges from 0.303 to 5.987, Ambuja Cement ranges from 0.503 to 1.168, Axtel Industries ranges from 1.785 to 2.960, Balasore Alloys ranges from 0.438 to 2.667, Bharat wire ranges from 0.421 to 4.282, Crimson Metal ranges from -47.461 to 109.851, ADC India ranges from 0.525 to 1.639, AIA Engg ranges from 0.877 to 1.447, Aegis Logistics ranges from 0.606 to 2.110, Alfred Herbert ranges from 0.054 to 0.481, Anant Raj ranges from 0.089 to 0.147, Artson Engg. ranges from 0.71 to 2.41, Anjani Portland ranges from 1.539 to 4.555, APL Apollo ranges from 2.033 to 8.724, Aplab ranges from -12.598 to 6.117, Arshiya ranges from 0.109 to 1.143, ARSS Infra ranges from 1.642 to 14.013, Ashoka Buildcon 1.205 to 2.807, Astra Microwave ranges from 0.717 to 2.414, Atlanta ranges from 0.260 to 1.260, ATV Projects ranges from -0.692 to

2.266; increase in the return on equity because of increase in the return on sales and asset turn over;

From the Table 1 to Table 4 results shows that ROS, ATO, ROA and ROE can be used to measure the profitability of Infrastructure Companies. And Indian Infrastructure companies are able to generate positive return on equity for its shareholders.

Further we have found that ROS, ROA and ATO are positively correlated with the ROE. With the increase of the ROS and ATO there is increases ROE. It was found that p value for the corresponding r value shows greater than 0.05 hence we reject null hypothesis.

We reject null hypothesis and accept alternate hypothesis that there is a significant relationship between ROE and asset turn over. Further there is a significant relationship between ROE and ROS. And there is a significant relationship between ROE and ROA.

### Summary and Conclusion

This paper has attempted to test ROE, ROS, ROA and ATO

can be used to measure the profitability of Infrastructure Companies in India and these companies are able to generate positive return on equity for its shareholders. The overall conclusions of this study are summarized as follows:

- The analysis of return on equity, return on sales, return on asset and asset turn over shows that increase in the return on sales is having positive correlation with return on equity and further it was noticed increase in the asset turnover increases the return on equity. P value is greater than 0.0.5 hence we reject null hypothesis and accept alternate hypothesis that there is a significant relationship between ROE and asset turn over. Further there is a significant relationship between ROE and ROS. And there is a significant relationship between ROE and ROA.
- The analysis of return on equity shows positive for all the selected companies during the study period. Hence ROE, ROS, ROA and ATO can be used to measure the profitability of Infrastructure Companies. And Indian Infrastructure companies are able to generate positive return on equity for its shareholders.

The results of the present study are consistent with the studies undertaken by Manjunatha and Gujjar (2018). Empirical analysis of this paper is helpful for academicians, researcher and investors for evaluating profitability of the infrastructure companies in India. For future research direction, researchers can employ the five step DuPont model in other industries to see if it can explain the total variation in ROE as it has in the Indian infrastructure companies.

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