# Performance Evaluation of Selected Telecom Companies in India - A Taxonomy Approach

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## ABSTRACT

Indian telecommunications industry has shown massive upsurge in the recent years in all respects of industrial growth. From the status of state monopoly with very little growth, the industry has grown in to the level of an industry. The country is ranked third worldwide in terms of having the largest telecommunication network, after China and USA. The Industry is one of the fastest growing in the world with the growth rate of 40-45% p.a. The liberalized economic policy in India led to the entry of more private and foreign players in to the Indian Telecom industry which in turn has led to a cut-throat competition which influenced the financial performance of the telecom companies. Hence it becomes imperative to assess the financial hea lth of the Indian telecom companies in terms of its liquidity, profitability and return generating capability.

In this article, the selected telecom companies' performance is evaluated applying numerical taxonomy approach. The numerical taxonomy analysis is a ranking method which ranks target subjects utilizing a sum of indices. In this case, the financial ratios have been used as a tool for measuring the performance of selected companies. The objective of this method is to measure the financial performance of the telecom companies and their relative significance of how well these ratios have been managed by select companies in telecom business.

## Introduction

Many revolutions have taken shape in the past and have provided the much needed accelerated growth for the economy. The green revolution that provided an opportunity for the agriculture and the white revolution on the other hand improvised the performance of milk production are some of them to be mentioned. In the midst of 19th century, the Indian economy experienced with yet another revolution in telecommunications sector. The reason for the robust growth can be attributed to the reforms made through selective privatization and managed competition in value added services from 1992 onwards.

The series of revolution continued with opening up of cellular and basic services for local area to private competition. The competition furthered with the constitution of Telecom Regulatory Authority of India (TRAI) and the introduction of National and International Long Distance (NLD

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& ILD) segmentation within the sector during the past decade. There have been changes and challenges ahead at the policy introduced by the GOI immediately after the TRAI constitution. All of them have been listed in the below box. A quick review of the past reveals the domination of the two state owned public sector incumbents (BSNL & MTNL in fixed line service) among the large subscriber base. Unfortunately these two companies were the last ones to enter into the cellular segment of the telecom industry which has driven away their market share to other private operators. This has created an asymmetry between public sector incumbents and private sector.

A survey taken from World Telecommunications Development Report 2002 predicts United States to top among all nations across the globe with nearly 159,735 thousand lines whereas India's rankings is at the bottom of the Telecommuni cations Development report with merely 11,978 number of lines. The waiting list for a Direct Exchange Lines has been on an increasing trend comparing the demand situation. However in terms of the density, India has improved its rankings from 160 in 1990 to 145. The motive to introduce competition through introduction of private sector in basic and cellular services thereafter put pressure on the government sector to perform.

The industry should be understood from the perspectives of its sources of growth. The predicted sources or key drivers of growth are economic structure, sectoral policies (includes competition policy) and technological changes. The income gap is being explained as the major factor that is responsible for the divide. The income gap in the industry is due to the differences in structural characteristics which divert the focus of attention from structural gap to income gap. The structural gap includes issues pertinent to the believers of "leapfrogging" capabilities of the countries who are on the wrong side of the divide. The various elements of the structural characteristics are Tele-density, Per-Capita Income, Percentage of population living on less than $2 per day, Value added by the service sector in the Gross Domestic Product.

At present, the Indian telecommunications industry is one of the fastest growing in the world and it is projected that the industry would soon become the second largest telecom market globally. According to the Telecom Regulatory Authority of India (TRAI), the country's mobile user base surpassed 500 million. With this surge, the overall teledensity (telephones per 100 people) has touched 47.89. The telecom industry notched up US$ 8.56 billion in revenues during the quarter ended December 31, 2009 helped by a recovery in earnings from both mobile and landline services. The telecom companies have shown unprecedented growth over the decades.

## Exhibit I

### Growth in New connections of Telecom Companies in 2009

1. Privately held telecom operator Bharti Airtel remains the market leader with roughly 116 million mobile customers recorded at the end of Nov 2009
2. Reliance Communications (at 91 million) and
3. Vodafone Essar (at 88.6 million)
4. Tata Teleservices, a joint venture between NTT DoCoMo (DCM) and India's Tata Group, continue its journey with the maximum number of new customers with 3.3 million in November.

5. Idea Cellular also had a strong period with 2.5 million new additions.

6. State-owned mobile operator Bharat Sanchar Nigam Ltd ("BSNL), added up in 1.4 million new subscribers for the month.

For the purpose of study, the secondary data of financial results of the following telecom companies for the period of five years from 2004-2005 to 2008-2009 has been collected using Prowess Corporate database.

1. Bharti Airtel Limited (Airtel)

2. Idea Cellular Limited (Idea)

3. Reliance Communications Ltd (Reliance) – Only the data for 3 years from March 2007 to March 2009 was available in the database.

4. Bharat Sanchar Nigam Limited (BSNL)

5. Tata Communications Ltd (Tata)

6. Mahanagar Telecom Nigam Ltd (MTNL)

## Taxonomy Method

Taxonomy method is one of Statistical tools used in ranking the companies based on specific criteria. In this method, we have considered the financial ratios as the tool for measurement of the company's performance, and hence we have taken the key financial ratios of the company and have prepared the performance analysis testing on these as to how well these ratios have indicated the performance of the company. These financial ratios are well explained in the later part of the report. These financial ratios include Debt-Equity Ratio, Long Term Debt Equity Ratio, Current Ratio, Fixed Assets Turnover Ratio, Inventory Turnover Ratio, Debtor Turnover Ratio, Interest Coverage Ratio, Profit before Interest Dividend and Taxes, Profit before Interest and Tax, Profit Before Dividend and Taxes etc.

## Steps in Application of Taxonomy Method:

The below are the given steps to perform the taxonomy method of ranking the performances.

**Step I:** With all the above ratios, we have to first take the previous year data for the last three years and average it for all the companies individually.

**Step II:** Take the Summary of the Average of the all the ratios of the companies averaged and place them in one group.

**Step III:** Perform the Taxonomy method using the following process.

(i) For performing the Taxonomy method, we need to standardize the Values in a matrix called "Standardized Matrix". This standardization is obtained by subtracting the mean value (average values) from the original values and then dividing them by the Standard Deviation of the particular ratio selected.

(ii) Then Calculate the Distances taking the minimum and maximum values for the entire ratios depending upon their level of influence in the performance of the company.

(iii) Now the resultant matrix thus obtained is ideal distances between the original values. This is simply the deviation that the company has realised from the bench mark values (ideal values) and trends.

(iv) We need to square these ideal values to identify the actual performances. Squaring is done to reduce negativity that each ideal value can take into.

(v) After identifying the square of the ideal values, we need to sum up the values of all the ratios for each company individually.

(vi) Now take the square root of the total thus arrived at for each company individually.

(vii) Now we need to calculate the Average Mean, Standard Deviation, and 3 Standard Deviation (S.D. X 3) on the Square root Values of each company.

(viii) Now add up the mean and 3 SD.

(ix) Performance Index is calculated with the following formulae:

### Performance Index

Performance Index = 1 - (Sqrt Sum of Each Value (A1) / (Mean + 3 Std Deviation))

## Application of Taxonomy Method

The selected telecom companies' performance is evaluated applying numerical taxonomy approach. The objective of this method is to measure the financial performance of the telecom companies and their relative significance of how well these ratios have been managed by select companies in telecom business.

### Step I

For the purpose of the study, the following ratios of selected Telecom Companies were calculated under four headings.

1. **Liquidity Ratios** : Quick Ratio, Current Ratio, Debt Equity Ratio and Interest Cover ratios

2. **Turnover Ratios** : Finished Goods Turnover Ratio, Debtors Turnover Ratio and Creditors Turnover Ratio

3. **Profitability Ratios** : PBIT / Total Income, PBT / Total Income, PAT / Total Income and Cash Prof / Total Income

4. **Returns on Net Worth (RONW)** : PAT / Average Net Worth and Cash Prof / Average Net Worth

5. **Returns on Capital Employed (ROCE)** : PBIT / Average Capital Employed and PAT / Average Capital Employed

Average of the above ratios of selected Telecom Companies is given in the **Annexure I**

### Step II

Summary of the Average of the all the ratios of the selected telecom companies is given in the following table.

**Table 1 : Summary of Average Ratios of All Companies taken for Survey**

| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Companies | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Em |
| Airtel | 0.37 | 0.49 | 0.57 | 23.34 | 6.51 | 9.99 | 1.15 | 24.67 | 23.18 | 20.23 | 32.9 | 34.8 | 57.4 | 31.7 | 26.1 |
| BSNL | 2.04 | 2.51 | 0.06 | 55.64 | 3.06 | 4.89 | 2.73 | 17.58 | 15.95 | 15.27 | 36.9 | 8.01 | 18.5 | 8.34 | 7.37 |
| Idea | 0.55 | 0.60 | 1.93 | 2.17 | 9.81 | 12.73 | 2.02 | 19.22 | 9.55 | 8.75 | 23.4 | 18.7 | 47.7 | 15.7 | 7.64 |
| MTNL | 0.83 | 1.40 | 0.00 | 107.89 | 3.06 | 3.60 | 3.24 | 13.88 | 13.66 | 10.20 | 18.2 | 5.35 | 9.47 | 7.32 | 5.40 |
| Reliance | 0.28 | 0.55 | 0.71 | 4.23 | 8.86 | 12.12 | 3.79 | 24.64 | 19.89 | 19.80 | 31.7 | 12.4 | 20.2 | 10.3 | 8.31 |
| Tata | 0.60 | 1.20 | 0.11 | 2538.2 | 3.25 | 3.89 | 1.97 | 19.36 | 18.21 | 12.70 | 21.5 | 8.40 | 14.1 | 12.4 | 8.21 |
| Mean | 0.78 | 1.13 | 0.56 | 455.25 | 5.76 | 7.87 | 2.48 | 19.89 | 16.74 | 14.49 | 27.5 | 14.6 | 27.9 | 14.3 | 10.5 |
| Std Deviation | 0.65 | 0.78 | 0.73 | 1021.2 | 3.08 | 4.22 | 0.96 | 4.19 | 4.80 | 4.82 | 7.41 | 10.9 | 19.6 | 9.06 | 7.73 |

## Step III

### Application of Taxonomy Method

1. After applying the values, the resultant Matrix called Standardized Matrix is calculated using the following formula

   Standardization = (Original Value - Mean Value) / Standard Deviation

**Table 2 : Standardized Matrix**

| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Companies | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Em |
| Airtel | -0.64 | -0.82 | 0.01 | -0.42 | 0.24 | 0.50 | -1.39 | 1.14 | 1.34 | 1.19 | 0.74 | 1.85 | 1.50 | 1.92 | 2.02 |
| BSNL | 1.95 | 1.78 | -0.69 | -0.39 | -0.88 | -0.71 | 0.25 | -0.55 | -0.16 | 0.16 | 1.28 | -0.61 | -0.48 | -0.66 | -0.41 |
| Idea | -0.35 | -0.67 | 1.87 | -0.44 | 1.32 | 1.15 | -0.48 | -0.16 | -1.50 | -1.19 | -0.54 | 0.38 | 1.00 | 0.16 | -0.37 |
| MTNL | 0.09 | 0.35 | -0.77 | -0.34 | -0.87 | -1.01 | 0.79 | -1.44 | -0.64 | -0.89 | -1.25 | -0.85 | -0.94 | -0.77 | -0.66 |
| Reliance | -0.77 | -0.74 | 0.20 | -0.44 | 1.01 | 1.01 | 1.36 | 1.13 | 0.66 | 1.10 | 0.57 | -0.20 | -0.39 | -0.44 | -0.28 |
| Tata | -0.28 | 0.10 | -0.62 | 2.04 | -0.81 | -0.94 | -0.54 | -0.13 | 0.31 | -0.37 | -0.80 | -0.57 | -0.70 | -0.21 | -0.30 |

2. After calculating the standardized matrix, the ideal ratios (lowest/highest) of each category for each company is selected. For example, it is ideal for any company to maintain a high current ratio and quick ratio which indicate the comfortable financial position for most enterprises. Current ratio is a measure of the degree to which current assets cover current liabilities. In the following table, BSNL maintains the highest current ratio of 1.95 and quick ratio of 1.78 which indicates that the company's liquidity position is better when compared with other telecom companies.

**Table 3 : Selection of Ideal Ratios of each company (Highest / Lowest ratios depending upon their applicability)**

| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Companies | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| | High | High | Low | High | High | High | High | High | High | High | High | High | High | High | High |
| Airtel | -0.64 | -0.82 | 0.01 | -0.42 | 0.24 | 0.50 | -1.39 | **1.14** | **1.34** | **1.19** | 0.74 | **1.85** | **1.50** | **1.92** | **2.02** |
| BSNL | **1.95** | **1.78** | -0.69 | -0.39 | -0.88 | -0.71 | 0.25 | -0.55 | -0.16 | 0.16 | **1.28** | -0.61 | -0.48 | -0.66 | -0.41 |
| Idea | -0.35 | -0.67 | 1.87 | -0.44 | **1.32** | **1.15** | -0.48 | -0.16 | -1.50 | -1.19 | -0.54 | 0.38 | 1.00 | 0.16 | -0.37 |
| MTNL | 0.09 | 0.35 | **-0.77** | -0.34 | -0.87 | -1.01 | 0.79 | -1.44 | -0.64 | -0.89 | -1.25 | -0.85 | -0.94 | -0.77 | -0.66 |
| Reliance | -0.77 | -0.74 | 0.20 | -0.44 | 1.01 | 1.01 | **1.36** | 1.13 | 0.66 | 1.10 | 0.57 | -0.20 | -0.39 | -0.44 | -0.28 |
| Tata | -0.28 | 0.10 | -0.62 | **2.04** | -0.81 | -0.94 | -0.54 | -0.13 | 0.31 | -0.37 | -0.80 | -0.57 | -0.70 | -0.21 | -0.30 |

3. Distance Matrix is calculated by taking the ideal ratios of each category depending upon their level of influence in the performance of the company. Now the resultant matrix thus obtained is ideal distances between the original values. This is simply the deviation that the company has realized from the bench mark values (ideal values) and trends.

**Table 4 : Distance Matrix for Leveraging**
**(Highest/ Lowest Value – Original Cell Value)**

| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Companies | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Airtel | -2.59 | -2.61 | 0.78 | -2.46 | -1.07 | -0.65 | -2.75 | 0.00 | 0.00 | 0.00 | -0.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| BSNL | 0.00 | 0.00 | 0.08 | -2.43 | -2.19 | -1.86 | -1.11 | -1.69 | -1.50 | -1.03 | 0.00 | -2.45 | -1.97 | -2.59 | -2.43 |
| Idea | -2.30 | -2.46 | 2.64 | -2.48 | 0.00 | 0.00 | -1.85 | -1.30 | -2.84 | -2.38 | -1.82 | -1.47 | -0.49 | -1.77 | -2.39 |
| MTNL | -1.86 | -1.43 | 0.00 | -2.38 | -2.19 | -2.16 | -0.57 | -2.58 | -1.98 | -2.08 | -2.53 | -2.69 | -2.43 | -2.70 | -2.68 |
| Reliance | -2.71 | -2.53 | 0.97 | -2.48 | -0.31 | -0.14 | 0.00 | -0.01 | -0.68 | -0.09 | -0.71 | -2.05 | -1.89 | -2.36 | -2.31 |
| Tata | -2.23 | -1.69 | 0.15 | 0.00 | -2.13 | -2.09 | -1.90 | -1.27 | -1.03 | -1.56 | -2.08 | -2.42 | -2.20 | -2.14 | -2.32 |

4. In order to identify the actual performances of selected telecom companies, squaring is to be done for each category separately. The purpose of squaring is to reduce the negativity that each ideal value can take into. After identifying the square of the ideal values, the values of all the ratios for each company is summed up individually and the following parameters are calculated to evaluate the performance.

   i. Square root of sum

   ii. Average Mean

   iii. Standard Deviation

   iv. 3 Standard Deviation
   on the square root values of each company.

## Table 5 : Squares of each Cell Values (Liquidity Ratios)

| Companies | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Sum | Sqrt Sum (A1) |
|---|---|---|---|---|---|---|
| Airtel | 6.69 | 6.80 | 0.60 | 6.06 | 20.15 | 4.49 |
| BSNL | 0.00 | 0.00 | 0.01 | 5.91 | 5.92 | 2.43 |
| Idea | 5.29 | 6.05 | 6.97 | 6.17 | 24.47 | 4.95 |
| MTNL | 3.47 | 2.05 | 0.00 | 5.66 | 11.17 | 3.34 |
| Reliance | 7.37 | 6.38 | 0.94 | 6.16 | 20.84 | 4.57 |
| Tata | 4.97 | 2.85 | 0.02 | 0.00 | 7.84 | 2.80 |
| **Sum of Squares** | **27.78** | **24.11** | **8.54** | **29.96** | | |
| **Sqrt of Sum** | **5.27** | **4.91** | **2.92** | **5.47** | | |
| **Average Mean** | | | | | **15.07** | **3.76** |
| **Standard Deviation** | | | | | **7.73** | **1.04** |
| **3 Standard Deviation (99.99%)** | | | | | **23.19** | **3.13** |
| **Mean + 3 Std Deviation** | | | | | **38.26** | **6.89** |

## Table 6 : Squares of each Cell Values (Turnover Ratios)

| COmpanies | Finished Goods | Debtors | Creditors | Sum | Sqrt Sum (A1) |
|---|---|---|---|---|---|
| Airtel | 1.15 | 0.42 | 7.57 | 9.14 | 3.02 |
| BSNL | 4.81 | 3.45 | 1.23 | 9.49 | 3.08 |
| Idea | 0.00 | 0.00 | 3.41 | 3.41 | 1.85 |
| MTNL | 4.80 | 4.67 | 0.33 | 9.80 | 3.13 |
| Reliance | 0.10 | 0.02 | 0.00 | 0.12 | 0.34 |
| Tata | 4.54 | 4.38 | 3.62 | 12.55 | 3.54 |
| **Sum of Squares** | **15.40** | **12.94** | **16.17** | | |
| **Sqrt of Sum** | **3.92** | **3.60** | **4.02** | | |
| **Average Mean** | | | | **7.42** | **2.49** |
| **Standard Deviation** | | | | **4.66** | **1.20** |
| **3 Standard Deviation (99.99%)** | | | | **13.98** | **3.59** |
| **Mean + 3 Standard Deviation** | | | | **21.40** | **6.09** |

## Table 7 : Squares of each Cell Values (Profitability Ratio (Percentage (%)

| Companies | PBIT / Tot Inc | PBT / Tot Inc | PAT / Tot Inc | Cash Prof / Tot Inc | Sum | Sqrt of Sum (A1) |
|---|---|---|---|---|---|---|
| Airtel | 0.00 | 0.00 | 0.00 | 0.29 | 0.29 | 0.54 |
| BSNL | 2.87 | 2.26 | 1.06 | 0.00 | 6.19 | 2.49 |
| Idea | 1.70 | 8.05 | 5.66 | 3.31 | 18.72 | 4.33 |
| MTNL | 6.64 | 3.93 | 4.32 | 6.39 | 21.28 | 4.61 |
| Reliance | 0.00 | 0.47 | 0.01 | 0.50 | 0.98 | 0.99 |
| Tata | 1.61 | 1.07 | 2.44 | 4.32 | 9.43 | 3.07 |
| **Sum of Squares** | **12.82** | **15.78** | **13.49** | **14.81** | | |
| **Sqrt of Sum** | **3.58** | **3.97** | **3.67** | **3.85** | | |
| **Average Mean** | | | | | **9.48** | **2.67** |
| **Standard Deviation** | | | | | **8.86** | **1.68** |
| **3 Standard Deviation (99.99%)** | | | | | **26.57** | **5.04** |
| **Mean + 3 Standard Deviation** | | | | | **35.43** | **6.71** |

## Table 8 : Squares of each Cell Values (Returns on Capital Employed)

| Companies | PBIT / Avg Cap Emp | PAT / Avg Cap Emp | Sum | Sqrt of Sum (A1) |
|---|---|---|---|---|
| Airtel | 0.00 | 0.00 | 0.00 | 0.00 |
| BSNL | 6.68 | 5.90 | 12.58 | 3.55 |
| Idea | 3.12 | 5.73 | 8.85 | 2.97 |
| MTNL | 7.28 | 7.20 | 14.48 | 3.81 |
| Reliance | 5.59 | 5.32 | 10.91 | 3.30 |
| Tata | 4.56 | 5.38 | 9.94 | 3.15 |
| **Sum of Squares** | **27.23** | **29.54** | | |
| **Sqrt of Sum** | **5.22** | **5.43** | | |
| **Average Mean** | | | **9.46** | **2.80** |
| **Standard Deviation** | | | **5.04** | **1.40** |
| **3 Standard Deviation** | | | **15.13** | **4.20** |
| **Mean + 3 Standard Deviation** | | | **24.59** | **7.00** |

**Table 9 : Squares of each Cell Values (Returns on Net Worth (RONW))**

| Companies | PAT / Avg Net Wrth | Cash Prof / Avg Net Wrth | Sum | Sqrt of Sum (A1) |
|---|---|---|---|---|
| Airtel | 0.00 | 0.00 | 0.00 | 0.00 |
| BSNL | 6.01 | 3.90 | 9.91 | 3.15 |
| Idea | 2.16 | 0.24 | 2.40 | 1.55 |
| MTNL | 7.26 | 5.93 | 13.18 | 3.63 |
| Reliance | 4.19 | 3.56 | 7.75 | 2.78 |
| Tata | 5.84 | 4.83 | 10.67 | 3.27 |
| **Sum of Squares** | **25.45** | **18.46** | | |
| **Sqrt of Sum** | **5.05** | **4.30** | | |
| **Average Mean** | | | **7.32** | **2.40** |
| **Standard Deviation** | | | **5.10** | **1.38** |
| **3 Standard Deviation** | | | **15.31** | **4.13** |
| **Mean + 3 Standard Deviation** | | | **20.41** | **5.50** |

5. Finally the telecom companies are ranked based on their financial performance in each category. For this, the performance index is calculated with the following formula.

## Performance Index

Performance Index = 1 - (Sqrt Sum of Each Value (A1) / (Mean + 3 Std Deviation))

**Table 10 : Performance Index with rankings**

| Companies | Liquidity | Rank | Turnover | Rank | Profitability | Rank | RONW | Rank | ROCE | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| Airtel | 0.35 | 4 | 0.50 | 3 | 0.92 | 1 | 1.00 | 1 | 1.00 | 1 |
| BSNL | 0.65 | 1 | 0.49 | 4 | 0.63 | 3 | 0.43 | 4 | 0.49 | 5 |
| Idea | 0.28 | 6 | 0.70 | 2 | 0.36 | 5 | 0.72 | 2 | 0.58 | 2 |
| MTNL | 0.52 | 3 | 0.49 | 5 | 0.31 | 6 | 0.34 | 6 | 0.46 | 6 |
| Reliance | 0.34 | 5 | 0.94 | 1 | 0.85 | 2 | 0.49 | 3 | 0.53 | 4 |
| Tata | 0.59 | 2 | 0.42 | 6 | 0.54 | 4 | 0.41 | 5 | 0.55 | 3 |

## Interpretations

The application of the method has been performed for Select Telecom companies such as Bharti Airtel, BSNL, Idea Cellular, MTNL, Reliance Communications, and Tata Communications respectively. The outcome of the application reveals that the companies take different positions (within these rankings) from the respective ratios calculated.

## Liquidity Ratios

Among the liquidity ratios, BSNL stands on top of all of these companies with 0.65 points, followed by Tata Communications, and MTNL (also showing more than 0.50 points). Here the company's average and the industry's average are taken for the above said companies while ranking the companies according to the performances in the respective ratios. The statistical reference of calculating the standardized matrix and the 3 STD is to normalize the differences between the averages (individual and industry) and to cover 99% (theoretically) of the region in a normal distribution curve mathematically. This gives a complete picture of the performance of a company. To summarize, BSNL has been able to hold the first position when comparing within the other providers of the Telecom with respect to liquidity ratios.

## Turnover Ratios

Reliance occupies the first position in the turnover ratios with 0.94 points followed by Idea and Airtel with 0.70 and 0.50 respectively. BSNL, MTNL and Tata are in the subsequent positions. A high turnover ratio is a sign that the company is producing and selling its goods or services very quickly.

## Profitability

When comparing the profitability position of various companies, it could be seen that Airtel takes the top position with 0.92 points while Reliance ranked second with 0.85 points and BSNL with 0.63 points followed by Tata, Idea and MTNL. For most of these ratios, having a higher value relative to a competitor's ratio or the same ratio from a previous period is indicative that the company is doing well.

## Returns

Airtel sets on the top position in the RONW and ROCE performance index which show that the company enjoys a very high return amongst all the telecom companies. Like wise, Idea ranks second position in fetching good returns to its shareholders. Reliance occupies the third position in RONW followed by BSNL TATA and MTNL while Tata takes the third position in ROCE followed by Reliance, BSNL and MTNL.

## Conclusion

To conclude the telecommunication sector has been on the rise for sometime now for the policy measures indicated in the introduction. Equivocally it has also had its share of bureaucracy in the latest television channels. However, the industry is still looking vibrant and we could see the same through the innumerable advertisements and marketing for the products in the sector. The company's rankings provided above have however shown how much does companies perform with respect to measurements of tools through Financial Ratios.

## References

### Books/ Journals


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## Annexure I

### Average of ratios of selected Telecom Companies

| Airtel | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 0.41 | 0.67 | 0.28 | 39.53 | 6.19 | 9.86 | 1.10 | 24.24 | 23.63 | 22.42 | 31.15 | 32.34 | 44.94 | 27.42 | 25.37 |
| Mar-08 | 0.39 | 0.54 | 0.32 | 34.40 | 5.30 | 8.64 | 0.97 | 27.25 | 26.45 | 23.94 | 36.97 | 39.41 | 60.88 | 36.93 | 32.44 |
| Mar-07 | 0.27 | 0.34 | 0.46 | 23.25 | 5.45 | 8.79 | 0.96 | 26.85 | 25.71 | 22.45 | 36.79 | 42.93 | 70.36 | 42.68 | 35.68 |
| Mar-06 | 0.30 | 0.37 | 0.65 | 12.80 | 5.48 | 8.37 | 0.97 | 21.87 | 20.18 | 17.76 | 32.43 | 33.88 | 61.86 | 25.09 | 20.37 |
| Mar-05 | 0.45 | 0.52 | 1.12 | 6.71 | 10.11 | 14.30 | 1.77 | 23.16 | 19.93 | 14.57 | 27.59 | 25.87 | 48.99 | 26.75 | 16.83 |
| Avg of Ratios | 0.37 | 0.49 | 0.57 | 23.34 | 6.51 | 9.99 | 1.15 | 24.67 | 23.18 | 20.23 | 32.99 | 34.89 | 57.41 | 31.77 | 26.14 |

| Bharat Sanchar Nigam Ltd | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 1.84 | 2.44 | 0.04 | 1.60 | 3.48 | 4.25 | 2.99 | 4.79 | 3.55 | 1.60 | 23.02 | 0.65 | 9.33 | 1.90 | 0.64 |
| Mar-08 | 1.98 | 2.48 | 0.01 | 5.16 | 3.16 | 4.28 | 3.22 | 13.95 | 11.70 | 7.87 | 33.21 | 3.46 | 14.58 | 5.97 | 3.37 |
| Mar-07 | 2.22 | 2.69 | 0.04 | 10.18 | 2.86 | 4.91 | 2.03 | 22.28 | 20.38 | 19.05 | 40.48 | 9.36 | 19.88 | 10.33 | 8.83 |
| Mar-06 | 2.05 | 2.49 | 0.08 | 8.42 | 2.94 | 5.62 | 2.24 | 23.40 | 20.72 | 21.93 | 43.24 | 11.65 | 22.96 | 11.35 | 10.64 |
| Mar-05 | 2.12 | 2.47 | 0.11 | 252.85 | 2.84 | 5.35 | 3.14 | 23.48 | 23.41 | 25.87 | 44.90 | 14.92 | 25.89 | 12.14 | 13.37 |
| Avg of Ratios | 2.04 | 2.51 | 0.06 | 55.64 | 3.06 | 4.89 | 2.73 | 17.58 | 15.95 | 15.27 | 36.97 | 8.01 | 18.53 | 8.34 | 7.37 |

| Idea Cellular Ltd | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 1.06 | 1.17 | 0.68 | 2.26 | 15.42 | 18.70 | 2.63 | 19.71 | 11.60 | 9.57 | 20.09 | 13.49 | 28.32 | 14.70 | 7.14 |
| Mar-08 | 0.40 | 0.45 | 1.90 | 3.44 | 12.23 | 16.39 | 1.68 | 23.16 | 16.65 | 15.00 | 26.78 | 36.48 | 65.14 | 21.40 | 13.86 |
| Mar-07 | 0.90 | 0.94 | 1.95 | 2.53 | 10.15 | 13.86 | 1.54 | 18.84 | 11.54 | 11.38 | 26.27 | 29.99 | 69.26 | 19.25 | 11.63 |
| Mar-06 | 0.16 | 0.18 | 2.53 | 1.50 | 6.00 | 7.88 | 1.74 | 18.15 | 6.36 | 6.22 | 22.99 | 11.36 | 42.01 | 13.39 | 4.58 |
| Mar-05 | 0.24 | 0.27 | 2.59 | 1.11 | 5.27 | 6.80 | 2.51 | 16.23 | 1.59 | 1.59 | 21.27 | 2.53 | 33.77 | 10.07 | 0.99 |
| Avg of Ratios | 0.55 | 0.60 | 1.93 | 2.17 | 9.81 | 12.73 | 2.02 | 19.22 | 9.55 | 8.75 | 23.48 | 18.77 | 47.70 | 15.767 | .64 |

| Mahanagar Telecom Nigam Ltd | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 1.12 | 1.51 | 0.00 | 117.50 | 4.15 | 4.50 | 2.97 | 5.59 | 5.57 | 3.84 | 15.80 | 1.77 | 7.27 | 2.60 | 1.78 |
| Mar-08 | 1.11 | 1.54 | 0.00 | 183.95 | 3.48 | 4.17 | 2.66 | 14.52 | 14.47 | 10.47 | 16.11 | 4.98 | 7.67 | 7.03 | 5.07 |
| Mar-07 | 0.98 | 1.60 | 0.00 | 190.58 | 2.97 | 3.43 | 3.04 | 17.38 | 17.35 | 11.73 | 16.98 | 5.96 | 8.63 | 8.97 | 6.05 |
| Mar-06 | 0.58 | 1.22 | 0.00 | 17.36 | 2.55 | 3.11 | 3.76 | 11.45 | 11.05 | 9.51 | 19.73 | 5.23 | 10.86 | 6.33 | 5.26 |
| Mar-05 | 0.39 | 1.14 | 0.00 | 30.07 | 2.18 | 2.79 | 3.78 | 20.44 | 19.85 | 15.45 | 22.58 | 8.83 | 12.90 | 11.68 | 8.83 |
| Avg of Ratios | 0.83 | 1.40 | 0.00 | 107.89 | 3.06 | 3.60 | 3.24 | 13.88 | 13.66 | 10.20 | 18.24 | 5.35 | 9.47 | 7.32 | 5.40 |

| Reliance Communications Ltd | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 0.33 | 0.94 | 0.60 | 2.81 | 7.21 | 8.34 | 6.61 | 28.91 | 24.09 | 24.03 | 33.68 | 12.55 | 17.59 | 9.98 | 8.30 |
| Mar-08 | 0.25 | 0.34 | 0.82 | 4.05 | 6.75 | 9.30 | 2.08 | 22.53 | 16.99 | 16.87 | 28.87 | 11.40 | 19.51 | 9.32 | 6.98 |
| Mar-07 | 0.27 | 0.38 | 0.71 | 5.84 | 12.61 | 18.72 | 2.69 | 22.49 | 18.60 | 18.51 | 32.61 | 13.41 | 23.64 | 11.74 | 9.66 |
| Avg of Ratios | 0.28 | 0.55 | 0.71 | 4.23 | 8.86 | 12.12 | 3.79 | 24.64 | 19.89 | 19.80 | 31.72 | 12.46 | 20.25 | 10.35 | 8.31 |

| Tata Communications Ltd | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liquidity Ratios | | | | | Turnover Ratios | | | Profitability Ratio (Percentage (%)) | | | Returns on Net Worth (RONW) | | | Returns on Capital Employed | |
| Years | Quick Ratio | Current Ratio | Debt Equity Ratio | Interest Cover | Finished Goods | Debtors | Creditors | PBIT/ Tot Inc | PBT/ Tot Inc | PAT/ Tot Inc | Cash Prof / Tot Inc | PAT/ Avg Net Wrth | Cash Prof / Avg Net Wrth | PBIT/ Avg Cap Emp | PAT/ Avg Cap Emp |
| Mar-09 | 0.40 | 1.04 | 0.36 | 5.14 | 2.26 | 2.69 | 1.39 | 20.84 | 16.45 | 11.89 | 24.71 | 7.73 | 16.06 | 11.99 | 6.84 |
| Mar-08 | 0.37 | 0.98 | 0.13 | 11.39 | 2.36 | 2.77 | 2.01 | 14.12 | 12.98 | 8.78 | 17.51 | 4.72 | 9.41 | 7.59 | 4.72 |
| Mar-07 | 0.52 | 1.10 | 0.03 | 89.02 | 3.06 | 3.79 | 2.46 | 18.10 | 17.92 | 11.79 | 20.13 | 7.54 | 12.89 | 11.59 | 7.54 |
| Mar-06 | 0.56 | 1.07 | 0.02 | 319.22 | 4.12 | 5.03 | 2.18 | 17.06 | 17.02 | 11.88 | 20.66 | 8.14 | 14.14 | 11.68 | 8.14 |
| Mar-05 | 1.13 | 1.83 | 0.00 | 12266.5 | 4.42 | 5.16 | 1.79 | 26.68 | 26.68 | 19.15 | 24.85 | 13.88 | 18.02 | 19.23 | 13.80 |
| Average of Ratios | 0.60 | 1.20 | 0.11 | 2538.26 | 3.25 | 3.89 | 1.97 | 19.36 | 18.21 | 12.70 | 21.57 | 8.40 | 14.10 | 12.42 | 8.21 |