

## An Empirical study of top 20 profitable companies in India in 2015 by using DuPont Model

**Rooplata. P**

Ph. D Research Scholar  
Funding Agency: UGC (NET-JRF)  
PSG College of Arts and Science  
Coimbatore

### Abstract

The objective of the paper is to demonstrate that in most cases the most profitable companies are not the most attractive for investors – through DuPont Analysis method. In order to do this, we take into account the top 20 most profitable companies in India in 2015. Decomposition of Return on Equity (ROE) after Return on Assets (ROA), Return on Sales (ROS), Total Assets Turnover (TAT) and Equity Multiplier (EM) provides an analytical framework appropriate for observing factors that make and influence financial profitability, represented by the value of ROE.

**Key words:** DuPont Model, Profitability, Return on Equity (ROE), Return on Assets (ROA), Return on Sales (ROS), Total Assets Turnover (TAT), Equity Multiplier (EM)

### Introduction

The Indian economy has gone through various phases of remarkable transformation. First phase of economic reforms in the 1980s and second reform in 1991, pushed on to a sustainable higher growth trajectory.

India's GDP growth was of the of eight-plus percentage per annum during 2001-11. In the five years, prior to the global financial crisis of 2008, the Indian economy had averaged 9% annual GDP growth. Aftermath there has been slowdown in growth rate which was temporary. RBI estimates that trend/potential growth rate of the Indian economy, which averaged around 8.5% during 2005-06 to 2007-08, dipped gradually thereafter and presently stands at about 7.0%, the draft Twelfth Five- Year Plan (2012-2017) document prepared by the Government of India indicates that India's full growth potential remains around 9%.

The Economy of India is the seventh- largest in the world by nominal GDP and the third largest by purchasing power parity (PPP). The country is classified as a newly industrialised company, one of the G-20 major economies, a member of BRICS and a developing economy with an average growth rate of approximately 7% over the last two decades. Maharashtra is the richest Indian state and has an annual GDP of US\$220 billion, nearly equal to that of Pakistan or Portugal, and accounts for 12% of the Indian GDP followed by the states of Tamil Nadu and Uttar Pradesh. India's economy became the world's fastest growing major economy from the last quarter of 2014, replacing the People's Republic of China.

India has the one of fastest growing service sector in the world with annual growth rate of above 9% since 2001, which contributed to 57% of GDP in 2012-13. India has capitalised its economy based on its large educated English-speaking population to become a major exporter of IT services, BPO services, and software services with \$167.0 billion worth of service exports in 2013-14. It is also the fastest-growing part of the economy. The IT industry continues to be the largest private sector employer in India. India is also the fourth largest start-up hub in the world with over 3,100 technology start-ups in 2014-15. The agricultural sector is the largest employer in India's economy but contributes to a declining share of its GDP (17% in 2013-14). India ranks second worldwide in farm output. The industry sector has held a constant share of its economic contribution (26% of GDP in 2013-14).

The financial objectives of a for-profit business primarily concern the needs of the external suppliers of debt and equity capital. The economic returns to shareholders comprise dividends and capital gains on the market value of their shares. As earnings determine what can be paid out as dividend in the long run, shareholders are primarily concerned with financial measures like earnings, ROA, ROE.

For an investment to be acceptable to a firm's financial management it must provide a positive answer to the question "Will the acquisition of this asset increase the value of the owner's equity?"

Being the most profitable companies in India, they have a significant impact not only the sector wise growth but also economy as whole. Their performance affects the economy to great extent.

With this introduction, this paper makes an attempt to study the performance of the top 20 profitable firm in 2015, using DuPont Model.

## Literature Review

**Hopkins and Hopkins (1997)** strongly advocated ROE and state that ROE is the ultimate measure to ascertain the strength of any financial institution. They also pointed out that ROE can be effectively used for comparing banks differing in size and structure.

**Isberg (1998)** stated that DuPont identity provides an excellent way to get a quick snapshot view of the overall performance of a firm in three critical areas of ratio analysis.

**Nissim and Penman (2001)** suggested using a modified version of the traditional DuPont model in order to eliminate the effects of financial leverage and other factors not under the control of those managers. Using operating income to sales and sales and assets turnover based on operating assets limits the performance measure of management to those factors over which the management has the most control. The modified DuPont model has become widely recognized in the financial analysis literature.

**Liesz and Maranville (2008)** DuPont analysis is a sub- part of ratio analysis methodology for monitoring and enhancing a business's profitability and return. The concepts of Return on Assets (ROA) and Return on Equity (ROE) provide the best understanding of the drivers of profitability for a business enterprise and return to its owners. A 'return on' ratio illustrates the relationship between profits and investment needed to generate those profits.

**Mihaela Herciu et al (2011)** analysed most profitable companies in the world by using DuPont Model, in that they emphasized that absolute measurement are not relevant every time. Therefore to have a common basis of comparison between several companies and to compose ranks the relative sizes for measuring efficiency are necessary when calculating the ratio between effect and effort.

**Vaishali Padake and Rashmi Soni (2015)** studied the performance of 12 banks that form the BSE Bankex by using DuPont model, as DuPont analysis provides much deeper understanding on the efficiency of the bank. They found that the performance of the bank cannot be judged by profit or some ratios alone and that the banks that made more profits were not really efficient.

## Objectives

The main objectives of the study are:

1. To analyze the performance of top 20 profitable companies using DuPont Model.
2. To identify the association between the profitability and DuPont analysis indicators.

## Data and Methodology

Top 20 profitable companies are selected to study their financial performance using DuPont model. The relevant data for the study was collected from secondary sources for 2014-2015. The major sources of data were: Annual reports of the individual companies, moneycontrol.com website, RBI website for Trend and Progress Report on Banking.

## DUPONT ANALYSIS – THE LINK BETWEEN ROS, ROA AND ROE

Du Pont analysis, a common form of financial statement analysis, decomposes return on net operating assets into two multiplicative components: profit margin and asset turnover. These two accounting ratios measure different constructs and, accordingly, have different properties. Prior research has found that a change in asset turnover is positively related to future changes in earnings. Du Pont analysis takes into account three indicators to measure firm profitability: ROS, ROA, and ROE.

**Return on Sales** (Net Profit Margin Ratio) – **ROS** (1) – measures how profitable a firm's sales are after all expenses, including taxes and interest, have been deducted.

**Return on assets** – **ROA** (2) – offers a different take on management effectiveness and reveals how much profit a company earns for every rupees of its assets. Assets include things like cash in the bank, accounts receivable, property, equipment, inventory and furniture.

**Return on equity** – **ROE** (3). It is a basic test of how effectively a company's management uses investors' money – ROE shows whether management is growing the company's value at an acceptable rate. Also, it measures the rate of return that the firm earns on stockholder's equity. Because only the stockholder's equity appears in the denominator, the ratio is influenced directly by the amount of debt a firm is using to finance assets. Practically, ROE reflects the profitability of the firm by measuring the investors' return.

DuPont model basically segregates the ROE into three parts: net profit margin, total assets turnover and equity multiplier.

$ROE = (\text{Net Profit/Sales}) * (\text{Sales/Assets}) * (\text{Assets/Shareholders' equity})$

Therefore,  $ROE = (\text{Net Profit Margin}) * (\text{Assets Turnover}) * (\text{Financial Leverage Ratio})$

where,  $ROS = \text{Net Profit/Sales}$

$ROA = \text{Sales/Assets}$

$\text{Equity Multiplier} = \text{Assets/Shareholders' equity.}$

## Results and Discussion

This paper is trying to prove that in most cases the most profitable companies are not the most attractive for investors. To prove this we consider the top 20 most profitable companies in India recorded in 2015 in absolute form. To achieve the Du Pont analysis and to demonstrate this we calculated for each of the 20 companies profitability ratios such as: ROS, ROA and ROE.

The results are shown in the table below (Table 1):

**Table 1: Top 20 profitable companies in India in 2015**

Rank	Company Name	Net Profit (in crore)	ROA	ROE	ROS
1	Reliance Industries (RIL)	22,719.00	1.12	10.89	6.90
2	Tata Consultancy Services (TCS)	19,256.96	1.64	43.34	26.17
3	ONGC	17,732.95	0.59	12.74	21.39
4	Coal India	13,383.39	0.02	69.14	3457.16
5	Bharti Airtel	13,200.50	0.64	19.02	23.78
6	State Bank of India (SBI)	13,101.57	0.08	10.95	8.59
7	Infosys	12,164.00	1.05	26.99	25.71
8	ICICI Bank	11,175.35	0.08	14.62	22.76
9	NTPC	10,290.86	0.47	12.94	14.04
10	HDFC Bank	10,215.92	0.10	20.05	21.07
11	ITC	9,607.73	1.28	33.71	26.31
12	WIPRO	8,193.73	1.11	25.81	19.88
13	Hindustan Zinc	8,178.00	0.37	2.46	55.30
14	Axis Bank	7,357.82	0.09	19.27	20.73
15	Tata Steel	6,439.12	0.46	9.85	15.41
16	NMDC	6,421.86	0.40	20.78	51.97
17	HCL Technologies	6,345.95	0.97	35.93	36.99
18	HDFC	5,990.14	0.18	20.53	21.86
19	Power Finance	5,959.33	0.13	19.44	23.97
20	IOC	5,273.03	3.31	6.87	1.20

The three ratios analyzed reconfigure the ranking with higher profits; none of the companies keep their place in the standings initially held. On the contrary the deviations are relatively high.

**Table 2: Ranking of the companies in terms of Net Profit, ROA, ROE and ROS**

Net Profit	ROA	ROE	ROS
Reliance Industries (RIL)	IOC	Coal India	Coal India
Tata Consultancy Services (TCS)	Tata Consultancy Services (TCS)	Tata Consultancy Services (TCS)	Hindustan Zinc
ONGC	ITC	HCL Technologies	NMDC
Coal India	WIPRO	ITC	HCL Technologies
Bharti Airtel	Reliance Industries (RIL)	Infosys	ITC
State Bank of India (SBI)	Infosys	WIPRO	Tata Consultancy Services (TCS)
Infosys	HCL Technologies	NMDC	Infosys
ICICI Bank	Bharti Airtel	HDFC	Power Finance
NTPC	ONGC	Hindustan Zinc	Bharti Airtel
HDFC Bank	NTPC	HDFC Bank	ICICI Bank
ITC	Tata Steel	Power Finance	HDFC
WIPRO	NMDC	Axis Bank	ONGC
Hindustan Zinc	Hindustan Zinc	Bharti Airtel	HDFC Bank
Axis Bank	HDFC	ICICI Bank	Axis Bank
Tata Steel	Power Finance	NTPC	WIPRO
NMDC	HDFC Bank	ONGC	Tata Steel
HCL Technologies	Axis Bank	SBI	NTPC
HDFC	SBI	Reliance Industries (RIL)	SBI
Power Finance	ICICI Bank	Tata Steel	Reliance Industries (RIL)
IOC	Coal India	IOC	IOC

As per the rank on the basis of ROA, ROE and ROS, it is clearly seen that companies holding rank per net profit has changed.

Reliance Industries the highest profit earning company has drastically come to 5th rank in case of ROA, while scoring 18th rank and second last rank in case of ROE and ROS respectively are concerned. Whereas 2nd position holding in terms of Net Profit Tata Consultancy maintained same rank in case of ROA and ROE but when it comes to ROS it is at 6th position.

Coal India is holding rank 1st in terms of ROE and ROS and exactly opposite i.e. rank 20 as far as ROA is concerned, it shows company is very good at maintaining Net Profit margin and ROE but cannot utilised its assets efficiently. Where the case of Bharti Airtel it maintaining average rank- 8th and 9th in terms of ROA and ROS but in case of ROE it stood at rank 13th.

If we see SBI and ICICI bank, SBI is the largest bank in India and ICICI bank is biggest private sector bank in India, SBI had different picture, where standing 6th rank in term of Net profit but at the same time holding 18th rank in case of ROA and ROS and 17th rank in case of ROE, which is not good. It shows when it comes to utilisation of assets, ROE and Net Profit margin it is not efficient. but ICICI bank, whereas holding 10th and 14th rank in terms of ROS and ROE respectively but second last rank in case of ROA.

ITC and HCL Technologies, on the other hand maintaining themselves at good position. ITC scoring 3rd, 4th and 5th rank in terms of ROA, ROE and ROS respectively, while HCL Technologies is at 3rd,7th and 4th in terms of ROA, ROE and ROS respectively.

If we talk about IOC, holding the last rank in case of ROE and ROS but exactly opposite when it comes to ROA, i.e. is at 1st position. Here we can see the picture of Coal India and IOC is exactly opposite to each other, where Coal India is holding 1st rank, IOC is at last rank and vice-versa.

To identify the relationship between the Net Profit, ROS, ROA and ROE the KARL PEARSON'S COEFFICIENT OF CORRELATION has been calculated. As the value approaches 1 the connection is very strong; as the value approaches 0 it is the weakest link.

**The correlation coefficient - CORREL**

$$\frac{n\sum xy - \sum x \sum y}{\sqrt{n\sum x^2 - (\sum x)^2} * \sqrt{n\sum y^2 - (\sum y)^2}}$$

Where,

n – number of the elements/index/variable

x, y – elements/indexes/variables to be considered

(in our case Net Profit, ROS, ROA, ROE)

The results are given below:

**Table 3: Correlation between the four Variables (ratios)**

	Net Profit	ROA	ROE	ROS
Net Profit	1			
ROA	0.039	1		
ROE	0.15	-0.057	1	
ROS	0.12	-0.21	0.78	1

Analyzing the correlation between the Net Profit, ROS, ROA and ROE it results that a high level of profit doesn't lead to high levels of profitability ratios. Correlations are very weak, which confirms that firms with high profits don't have in general high ratios of profitability, because they have high values both at the denominator (the total assets, the stockholder's equity and the sales) and at the numerator. For these reasons companies with a low level of profit often have higher profitability ratios.

The correlation between Net Profit and ROA is not strong, indicating that higher profit does not lead to high level of profitability ratio. The companies which generates maximum profit may not be efficient in utilising assets or sometimes even shareholders' equity. It is again reflected in weak correlation between Net Profit and ROE.

The correlation between ROE and ROA is negative, indicating that companies are more concern about maximizing shareholders' wealth compared to maximizing the return s on investment, leaving behind the opportunity cost in certain assets.

A strong correlation between ROS and ROE is also revealed by the fact that the first seven positions in the top 20 companies – based on ROS and ROE – are occupied by the same companies ( Coal India, Tata Consultancy (TCS), HCL Technologies, ITC, Infosys and NMDC)

## Conclusion

The company profitability for most investors is a landmark in terms of earnings they could obtain by placing capital. Profits earned by a company, taken the absolute amount, provides an overview of a company's activity without giving details about the extent to which the company manages dividends, debts, liabilities or other indicators. In this paper we are trying to demonstrate with the help of profitability ratios like ROS, ROA, ROE that the companies' profits are not relevant to investors except to the extent that they relate to other indicators to identify a relation between effect and effort (effect is profit while effort is given by either sales, total assets, or the stockholder).

A conclusive example for the ROE importance is the comparative analysis between Reliance Industries (RIL) and Coal India. RIL is the company with the highest profit in 2015 ( Rs. 22,719 crore). Coal India is the company with the highest ROE of all the companies that we analyzed (a net profit of Rs. 13,383.39 crore). RIL has a profit of 69% higher than Coal India, but a ROE of 6 times smaller than Coal India (10.89% compared to Coal India's 69.14%).

As a conclusion, the DuPont analysis that we made (by calculating ROS, ROA and ROE) for the top 20 profitable companies in India emphasize that absolute measurements are not relevant every time. DuPont analysis provides a much deeper understanding of the efficiency of

the firm. The company that made more profits were not really efficient. Highest profit is a mere reflection of more capital but there is no efficiency in utilizing all the capital.

## References

- Padake, V & Soni, R (2015), 'Measurement of efficiency of top 12 banks in India using DuPont analysis', *The IUP Journal of Bank Management*, Vol. 14, no. 4, pp. 59-68.
- Almazari Ahmed, A (2012), 'Financial performance analysis of the Jordanian Arab Bank by using the DuPont system of financial analysis', *international Journal of Economics and Finance*, vol. 4, no. 4, pp. 86-94.
- Mihaela, H, Claudia, O & Lucian B (2010), 'A DuPont analysis of the 20 most profitable companies in the world', *International Conference on Business and Economics Research IACSIT*, pp. 45-48.
- Liesz Thomas, J & Maranville Steven, J (2008), 'Ratio analysis featuring the DuPont method: An overlooked topic in the finance module of small business management and entrepreneurship courses', *Small Business Institute Journal*, vol. 1, pp. 18-34.
- Nissim, D & Penman, S (2001), 'Ratio analysis and valuation: from research to practice', *Review of Accounting Studies*, vol. 6, pp. 109-154.
- Isberg, S C (1998), 'Financial analysis with the DuPont ratio: a useful compass', *Credit and Financial Management Review*, Second Quarter, pp. 1-4.
- Hopkins, W E & Hopkins, S A (1997), 'Strategic planning- financial performance relationships in banks: a casual examination', *Strategic Management Journal*, vol. 18, no. 8, pp. 635-652.