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DUPONT ANALYSIS OF NATIONALISED BANKS IN INDIA

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Abstract

Profitability of a bank depends on the amount of capital available with the bank for business activities. So it is important to know how efficiently bank utilising its capital and are the profitability ratios true reflection of the performance of a bank. For that purpose 19 Nationalised banks in India are selected to study the performance through DuPont Analysis method. In order to do this, we take into account the nationalised banks in India. 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. The findings reveal that the performance of the bank cannot be judged by profit or some ratios alone and that the banks that made more profit were not really efficient.

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

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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.

The existing banking structure in India has evolved over several decades. The nationalisation of 14 banks in 1969 and six banks in 1980. In the post- financial sector reforms (1991) phase, the performance and strength of the banking structure improved perceptibly.

As of November 11, 2015, 192.1 million accounts had been opened under Pradhan Mantri Jan Dhan Yojna (PMJDY) and 165.1 million RuPay debit cards were issued. These new accounts have mustered deposits worth Rs 26,819 crore (US$ 4 billion).

Standard & Poor's estimates that credit growth in India's banking sector would improve to 12-13 per cent in FY16 from less than 10 per cent in the second half of CY1

The United Economic Forum (UEF), an organisation that works to improve socio-economic status of the minority community in India, has signed a memorandum of understanding (MoU) with Indian Overseas Bank (IOB) for financing entrepreneurs from backward communities to set up businesses in Tamil Nadu

The RBI has allowed third-party white label automated teller machines (ATM) to accept international cards, including international prepaid cards, and said white label ATMs can now tie up with any commercial bank for cash supply.

The RBI has allowed Indian alternative investment funds (AIFs), to invest abroad, in order to increase the investment opportunities for these funds.

In order to boost the infrastructure sector and the banks financing long gestation projects, the RBI has extended its flexible refinancing and repayment option for long-term infrastructure projects to existing ones where the total exposure of lenders is more than Rs 500 crore (US$ 75.1 million)

The Indian economy is on the brink of a major transformation, with several policy initiatives set to be implemented shortly. Positive business sentiments, improved consumer confidence and more controlled inflation are likely to prop-up the country's the economic growth. Enhanced spending on infrastructure, speedy implementation of projects and continuation of reforms are expected to provide further impetus to growth. All these factors suggest that India's banking sector is also poised for robust growth as the rapidly growing business would turn to banks for their credit needs. Also, the advancements in technology have brought the mobile and internet banking services to the fore. The banking sector is laying greater emphasis on providing improved services to their clients and also upgrading their technology infrastructure, in order to enhance the customer's overall experience as well as give banks a competitive edge.

With a view to ensuring that the banking system grows in size and sophistication to meet the needs of a modern economy and improving access to banking services, the RBI is in the issuing new bank licenses consistent with the highest standard of transparency and diligence.

Against this background, this paper makes an attempt to study the performance of the nationalised banks in India, 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.

Soliman (2008) found that DuPont analysis is one of the tools of financial statement analysis which divides return on net operating assets into two components: profit margin and asset turnover. These two financial ratios measure different objects and have different properties.

Previous research discovered that a positive change in asset turnover is correlated to future changes in earnings.

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.

McGowan and Stambaugh (2012) used DuPont model for Monark Bank in the U.S.

Almazari (2012) studied the financial performance of the Jordanian Arab Commercial Bank for the period 2000-2009 using DuPont analysis. It was found that the financial performance of Arab Bank was relatively steady and reflected minimal volatility in the ROE.

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 objectives of the study are:

* To evaluate the performance of the banks using DuPont model.

* To identify the association between the profitability and DuPont analysis indicators.

Data and Methodology

19 Nationalised banks in India are selected to study their financial performance for the last five years (2011 to 2015) using DuPont model.

The relevant data for the study was collected from secondary sources for a period of five years i.e. 2011-2015. The major sources of data were: Annual reports of the individual bank, RBI various issues,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= (Net Profit/Sales) * (Sales/Assets) * (Assets/Shareholders' equity)

Therefore, ROE= (Net Profit Margin) * (Assets Turnover) * (Financial Leverage Ratio)

where, ROS= Net Profit/Sales

ROA= Sales/Assets

Equity Multiplier= Assets/Shareholders' equity

Results and Discussion

Table 1 provides a snapshot of the financial performance measured by Net Profit, ROA, ROE and ROS of the 19 nationalised banks

Table 1: Nationalised Banks in India

S. No.	Bank Name	Net Profit (Rs. in Cr)	ROA	ROE	ROS
1	Allahabad Bank	1253.60	0.084	13.26	8.22
2	Andhra Bank	994.97	0.086	15.64	8.56
3	Bank of Baroda	4333.77	0.054	13.01	13.8
4	Bank of India	2470.75	0.231	36.84	8.11
5	Bank of Maharashtra	471.48	0.085	9.55	5.31
6	Canara Bank	3064.30	0.092	17.24	9.78
7	Central Bank of India	428.80	0.082	4.36	2.55
8	Corporation Bank	1099.99	0.0790	13.97	8.50
9	Dena Bank	608.45	0.078	12.11	8.21
10	Indian Bank	1441.26	0.0834	14.57	11.58
11	Indian Overseas Bank	567.46	0.1	-2.11	3.64
12	Oriental Bank of Commerce	1121.77	0.0857	10.15	7.12
13	Punjab & Sind Bank	347.73	0.0852	8.32	5.48
14	Punjab National Bank	4093.90	0.0791	14.42	11.09
15	Syndicate Bank	1520.03	0.076	16.22	9.13
16	UCO Bank	966.35	0.0784	11.58	6.67
17	Union Bank of India	1900.97	0.0865	13.49	8.20
18	United Bank of India	118.18	0.0803	4.166	2.3
19	Vijaya Bank	509.55	0.0808	10.48	6.03

Bank of Baroda is the largest bank in terms of net profit of Rs.4,333.77 crore, followed by Punjab National Bank (4,093.90 cr), Canara Bank (3,064.30 cr), Bank of India (2,470.75 cr) and Union Bank of India (1,900.97 cr)

The lowest net profit earned by United Bank of India i.e. Rs. 118.18 cr, then second lowest by Punjab & Sind Bank (Rs. 347.73 cr) and third lowest by Central Bank of India (428.80 cr)
But in case of RAO,ROE,ROS situation is different for E.g. Bank of Baroda scoring highest in case Net profit & ROS but lowest rank in terms of RAO;

Indian Overseas Bank stands 14th in terms of net profit but 2nd in terms of ROA and lowest in terms ROE. Whereas Bank of India scoring 1st in terms of ROA & ROE but 4th rank in terms of net profit.

In case of Central Bank of India scoring 17th rank in case of Net profit & ROE but 10th rank in case of ROA.

Bank of Maharashtra is at 7th rank in case of ROA but at 16th rank in case of ROS and Net profit.
When we combine all the ranks and re-rank the banks we get a clear picture of the best performing banks.

Table 2: Ranking of Banks in terms of Net profit, ROA,ROE and ROS

Rank	Net Profit	ROA	ROE	ROS
1	Bank of Baroda	Bank of India	Bank of India	Bank of Baroda
2	Punjab National Bank	Indian Overseas Bank	Canara Bank	Indian Bank
3	Canara Bank	Canara Bank	Syndicate Bank	Punjab National Bank
4	Bank of India	Andhra Bank	Andhra Bank	Canara Bank
5	Union Bank Of India	Oriental Bank of Commerce	Indian Bank	Syndicate Bank
6	Syndicate Bank	Punjab & Sind Bank	Punjab National	Andhra Bank

			Bank	
7	Indian Bank	Bank of Maharashtra	Corporation Bank	Corporation Bank
8	Allahabad Bank	Indian Bank	Union Bank Of India	Allahabad Bank
9	Oriental Bank of Commerce	Allahabad Bank	Allahabad Bank	Dena Bank
10	Corporation Bank	Central Bank of India	Bank of Baroda	Union Bank Of India
11	Andhra Bank	Vijaya Bank	Dena Bank	Bank of India
12	UCO Bank	Union Bank Of India	UCO Bank	Oriental Bank of Commerce
13	Dena Bank	United Bank of India	Vijaya Bank	UCO Bank
14	Indian Overseas Bank	Punjab National Bank	Oriental Bank of Commerce	Vijaya Bank
15	Vijaya Bank	Corporation Bank	Bank of Maharashtra	Punjab & Sind Bank
16	Bank of Maharashtra	UCO Bank	Punjab & Sind Bank	Bank of Maharashtra
17	Central Bank of India	Dena Bank	Central Bank of India	Indian Overseas Bank
18	Punjab & Sind Bank	Syndicate Bank	United Bank of India	Central Bank of India
19	United Bank of India	Bank of Baroda	Indian Overseas Bank	United Bank of India

Table 2 clearly show that Bank earning more profit is not scoring high rank in terms ROA, ROE and ROS, Similarly for less earning Bank.

Table 3 shows Over ranking in terms total score secured by the banks arrived by rank of - Net profit + ROA + ROE + ROS.

Table 3: Overall Ranking

Bank Name	Net Profit	ROA	ROE	ROS	Total Score	Overall Rank
Canara Bank	3	3	2	4	12	1
Bank of India	4	1	1	11	17	2
Indian Bank	7	8	5	2	22	3
Andhra Bank	11	4	4	6	25	4.5
Punjab National Bank	2	14	6	3	25	4.5
Bank of Baroda	1	19	10	1	31	6
Syndicate Bank	6	3	18	5	32	7
Allahabad Bank	8	9	9	8	34	8
Union Bank Of India	5	12	8	10	35	9
Corporation Bank	10	15	7	7	39	10
Oriental Bank of Commerce	9	5	14	12	40	11
Dena Bank	13	17	11	9	50	12
Indian Overseas Bank	14	2	19	17	52	13
Vijaya Bank	15	11	13	14	53	14.5
UCO Bank	12	16	12	13	53	14.5
Bank of Maharashtra	16	7	15	16	54	16
Punjab & Sind Bank	18	6	16	15	55	17
Central Bank of India	17	10	17	18	62	18
United Bank of India	19	13	18	19	69	19

Canara Bank emerges as the best performing bank among all the banks under study. The next best performing bank is Bank of India, flowed by Indian Bank. If we look the past performance of Canara Bank, Bank of India and Indian Bank, they are quite consistent in their Profitability, ROA, ROE and ROS.

This makes them more stable and well managed Banks in the long run.

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 4: Correlation between the four Variables (ratios)

	Net Profit	**ROA**	**ROE**	**ROS**
Net Profit	1			
ROA	-0.024	1		
ROE	0.110	0.701	1	
ROS	0.192	-0.083	0.530	1

The correlation between Net profit and ROA is Negative, indicating that higher profit does not lead to high level profitability ratio. The banks which generate maximum profit may not be efficient in utilizing asset or sometimes even share holders equity. It is again reflected in weak correlation between Net profit and ROE i.e. 0.110.

The business model of Banking is purely based on mobilization of funds and earn spread margin and ROS is not a true reflection of efficiency of bank.

There is negative correlation between ROA and ROS and positive relation between ROA and ROE.

Conclusion:

The Banks profitability for most investors is a landmark in terms of earnings they could obtain by placing capital. Profits earned by a Banks, taken the absolute amount, provides an overview of a Banks activity without giving details about the extent to which the banks 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 Banks 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 Bank of Baroda and Bank of India. Bank of Baroda is the bank with the highest profit in last five years (Rs. 4,333.77 crore) whereas Bank of India is the bank with the highest ROE (36.84%) of all the banks that we have analyzed. But Net profit of Bank of India is Rs. 2,470.75 crore. Bank of Baroda has a profit of 75% higher than Bank of India, but a ROE of 3 times smaller than Bank of India (13.01% compared to Bank of India 36.84%).

But Canara Bank is the best performing bank among all nationalised banks if Net Profit, ROA, ROE and ROS is considered together.

DuPont model helped in capturing the efficiency of banks. The bank 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.

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