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# CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	<b>RECONCILIATION BETWEEN TAXATION AND GDP GROWTH IN BANGLADESH: ISSUES AND ARGUMENTS FOR SOCIAL JUSTICE</b>  <i>Dr. AOULAD HOSEN &amp; Md. ASAD</i>	1
2.	<b>A STUDY ON COPING STRATEGIES FOR RELIEVING STRESS AMONG TEACHERS WORKING IN PRIVATE SCHOOLS WITH SPECIAL REFERENCE TO TIRUPUR CITY</b>  <i>A. PRABUCHANDRU &amp; Dr. D. GNANA SENTHIL KUMAR</i>	12
3.	<b>EVALUATION OF OPERATING AND FINANCIAL PERFORMANCE IN POST- ACQUISITION (WITH SPECIAL REFERENCE TO UNILEVER-BLUE AIR)</b>  <i>LAKSHMI M P &amp; Dr. MANOJ KUMARA N V</i>	19
4.	<b>PERCEPTION TOWARDS LIC's MICRO INSURANCE POLICIES AMONG POLICY HOLDERS IN BANGALORE REGION</b>  <i>MANJULA.R, ASHWINI.N &amp; KARTHIK N.L</i>	23
5.	<b>A STUDY ON MARKETING STRATEGIES OF PHARMACEUTICAL INDUSTRY WITH SPECIAL REFERENCE TO PATHANAMTHITTA DISTRICT</b>  <i>ASWATHY RAMACHANDRAN</i>	26
6.	<b>FINANCIAL PERFORMANCE ANALYSIS OF THE STATE BANK OF INDIA FROM 2011-2015 BY USING THE DUPOUNT SYSTEM FINANCIAL ANALYSIS</b>  <i>ASHA T K</i>	30
	<b>REQUEST FOR FEEDBACK &amp; DISCLAIMER</b>	36

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## FINANCIAL PERFORMANCE ANALYSIS OF THE STATE BANK OF INDIA FROM 2011-2015 BY USING THE DUPOUNT SYSTEM FINANCIAL ANALYSIS

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### ABSTRACT

*This study attempts basically to measure the financial performance of the state Bank of India commercial bank for the period 2011-2015 by using DuPont system of financial analysis which is based on analysis of return on equity model. The return on equity model disaggregates performance into three components: Net profit margin, total assets turnover and the equity multiplier. It was found that the financial performance of State Bank of India is relatively steady and reflects volatility in the return on equity. Total assets turnover exhibit relative stability for the period from 2011 to 2015. The equity multiplier also shows almost stable indicators for the period from 2012 to 2015. Net profit margin declined from 2013 to 2015.*

### KEYWORDS

SBI, DuPont system, asset utilization.

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### INTRODUCTION

For any business in the private sector there are numerous of models to describe how well the business is running. Among these the DuPont model was created in the early 1900s but is still a model valid to use for assessment of the profitability. The model was created by F. Donaldson Brown who came up with the model when he was assigned to clean up the finances in General Motors and has ever since been an important model for financial analysis. Remarkably it has not been used in the security community for risk prioritization or impact analysis. The original DuPont method of financial ratio analysis was developed in 1918 by an engineer at DuPont who was charged with understanding the finances of a company that DuPont was acquiring. He noticed that the product of two often-computed ratios, net profit margin and total asset turnover, equals return on assets (ROA). The elegance of ROA being affected by a profitability measure and an efficiency measure led to the DuPont method becoming a widely-used tool of financial analysis Liesz, (2002). In the 1970's, emphasis in financial analysis shifted from ROA to return on equity (ROE), and the DuPont model was modified to include the ratio of total assets to equity. Regarding this fact the researcher have taken the challenge to use this model for State Bank of India the largest bank in India.

Banks and other financial institutions are a unique set of business firms whose assets and liabilities, regulatory restrictions, economic functions and operating make them an important subject of research, particularly in the conditions of the emerging financial sectors. Banks' performance monitoring, analysis and control needs special analysis in respect to their operation and performance results from the viewpoint of different audiences, like investors/owners, regulators, customers/clients, and management themselves. Different versions of financial ratio analysis are used for the bank performance analysis using financial statement items as initial data sources. The usage of a modified version of DuPont financial ratio analysis is discussed in the article. Empirical results of the State Bank commercial banking system performance analysis are also presented in the article from (2011-2015).

As with little, et al (2009), the modified DuPont model of financial ratio analysis is used to identify the drivers of financial success under alternative business strategies. Firms in the retail industry are categorized according to their high/low relative net operating income to sales and operating asset turnover ratios. Firms with high relative net operating income to sales and low relative operating asset turnover are assumed to be pursuing a differentiation Published by Canadian Center of Science and Education 87 strategy and those with high relative operating asset turnover and low relative net operating income to sales are assumed to be pursuing a cost leadership strategy. The performance variable used is return on net operating assets.

This study attempts basically to measure the financial performance of the State Bank of India. As a matter of fact banks are classified according to their financial characteristics and financial indicators which can be presented from the banks financial statements. The other objectives will attempt to find out the ratios of net profit margin, asset utilization, equity multiplier and return on equity from the period of 2011-2015. Net profit margin ratios are an indication of how effective a company is at cost control. The higher the net profit margin is, the more effective the company is at converting revenue into actual profit. This study also aims at finding out the asset utilization of the State Bank of India for the same period. The asset utilization ratio calculates the total revenue earned for every dollar of assets a company owns. This ratio indicates a company's efficiency in using its assets. An equity multiplier analysis is used in this study which is a formula used to calculate a company's financial leverage, and the debt a company uses to finance its assets. The equity multiplier is also a kind of leverage ratio, which is any method of determining a company's financial leverage. It can be calculated by looking at a company's balance sheet and dividing the total assets by the total stockholder equity. One of the most important profitability metrics is return on equity (ROE). Return on equity reveals how much profit a company earned in comparison to the total amount of shareholder equity found on the balance sheet. A business that has a high return on equity is more likely to be one that is capable of generating cash internally. For the most part, the higher a company's return on equity compared to its industry, the better.

The paper is organized as follows. Section I introducing the importance and objectives of study. Section II discusses the relevant literature review. Section III gives a brief overview on the State Bank of India-the most important recent developments in the bank. DuPont financial ratio analysis modified methodology and empirical results of the banking system performance are discussed in Section IV. In Section V the paper ends with some concluding remarks.

### LITERATURE REVIEW

In order to more effectively evaluate operational managers, Nissim & Penman (2001) suggest 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 asset turnover based on operating assets limits the performance measure of management to those factors over which management has the most control. The modified DuPont model has become widely recognized in the financial analysis literature. See, for example, Pratt & Hirst (2008), Palepu & Healy (2008), and Soliman (2008). In addition, Soliman (2004) found that industry-specific DuPont multiplicative components provide more useful valuation than do economy-wide components, suggesting that industry-specific ratios have increased validity.

In carrying out bank performance analysis, it is important to emphasize that banks differ in their corporate governance from firms in other, less regulated industries. These differences, in turn, present their own challenges for bank managers, regulators, depositors, investors, and other stakeholders. "Bank managers live in a more complex environment than their peers in industry due to bank regulations. In addition to the demands placed on them by shareholders, regulators have strong incentives to influence managerial action, and this may be in conflict with shareholder demands" Harm (2002). Governance is a set of mechanisms with which the providers of capital and other stakeholders are defending their interests against the firm. The firm is run by managers, and this a point where conflicts of interests starts. An excellent survey of recent literature (both theoretical and empirical) is also presented by Harm (2002).

Macey and O'Hara (2003) argue that bank officers and directors should be held to broader (if not higher) set of standards than their counterparts in less regulated non-financial firms, and banks pose special corporate governance problems. Kose and Qian (2003) consider another important theme in the corporate governance of banks – the effect of the incentive features built into the compensation schemes of bank managers. Adams and Mehran (2003) focus also on the differences between the corporate governance of banks and manufacturing firms and support the theory that governance structures are industry-specific. In general, the components of firm's governance structure are determined by various different factors, which all will influence also performance analysis aims and techniques: the nature and structure of firm's assets and liabilities (leverage, share of financial assets, business risk, cash-flow patterns), firm size, industry, regulations, etc. Various measures of rates of return are used mainly for that purpose. We fully agree with the opinion that "Relaying too heavily on just a few indicators of bank profitability can be misleading. While ROA, ROE, and interest margin (and non interest expenses) to gross income remain the key measures, they should ideally be supplemented by the analysis of other operating ratios" Sundararajan, et al (2002).

Brigham and Houston, (2001) The modified model was 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.

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 acknowledge that the financial statements firms prepare for their annual reports (which are of most importance to creditors and tax collectors) are not always useful to managers making operating and financial decisions.

## OBJECTIVES OF THE STUDY

1. To analyse the financial position and performance of the State Bank of India by applying Dupont System.
2. To measure the Return on Equity, Equity Multiplier and Net Profit Margin from 2011 to 2015.
3. To analyse the Balance Sheet and Income Statement.
4. To know over all bank financial performance condition from 2011 to 2015.

## RESEARCH METHODOLOGY

The present study is based on secondary data. The published Annual report of SBI taken from their websites, magazines and journals on finance have been used a source of data.

## STATE BANK OF INDIA

The origin of the State Bank of India goes back to the first decade of the nineteenth century with the establishment of the bank of Calcutta in Calcutta on 2<sup>nd</sup> June 1806. Three years later the bank received its charter and was redesigned as the Bank of Bengal (2<sup>nd</sup> January 1809). A unique institution, it was the first joint stock bank of British India sponsored by the Government of Bengal. The Bank of Bombay and the Bank of Madras followed the Bank of Bengal. These three banks remained at the apex of modern banking in India till their amalgamation as the imperial bank of India on 27<sup>th</sup> January 1921.

Pursuant to the provisions of the State Bank of India Act of 1955, the Reserve Bank of India which is India's central bank acquired a controlling interest in the imperial bank of India. On 1<sup>st</sup> July 1955 the imperial bank of India became State bank of India. In 2008 the government of India acquired the Reserve Bank of India's stake in State Bank of India so as to remove any conflict of interest because the RBI is the country's banking regulatory authority.

In 1959 the government passed the State Bank of India Act. This made SBI subsidiaries eight that had belonged to princely states prior to their nationalization and operational take over between September 1959 and October 1960, which made 8 state banks associates of SBI.

SBI has acquired local banks in rescues. The first was the Bank of Bihar which SBI acquired in 1969, together with its 28 branches. The next year SBI acquired National Bank of Lahore which had 24 branches. 5 years later in 1975, SBI acquired Krishnam Baldeo Bank, which had been established in 1916 in Gwalior. In 1985 SBI acquired the Bank of Cochin in Kerala, which had 120 branches. SBI was the acquirer as its affiliate, the state bank of Travancora, already had a network in Kerala.

The first step towards unification occurred on 13<sup>th</sup> August 2008 when State Bank of Saurashtra merged with SBI, reducing the number of associates state banks from seven to six. Then on 19<sup>th</sup> June 2009 the SBI Board approved the absorption of State Bank of Indore.

The acquisition of State Bank of Indore added 470 branches to SBI's existing network of branches. Also following the acquisition, SBI's total assets will inch very close to the 10 trillion mark. The total assets of SBI and the State Bank of Indore stood at 9,98,190 million as of March 2009. The process of merging of State Bank of Indore was completed by April 10, and the SBI Indore branches started functioning as SBI branches on 26<sup>th</sup> August 2010.

### BRANCHES

The corporate centre of SBI is located in Mumbai. In order to cater to different functions, there are several other establishments in and outside Mumbai, apart from the corporate center. The bank boasts of having as many as 14 local head offices and 57 Zonal Offices, located at major cities throughout India. It is recorded that SBI has about 10000 branches, well networked to cater to its customers throughout India.

### ATM SERVICES

SBI provided easy access to money to its customers through more than 8500 ATMs in India. The Bank also facilitates the free transaction of money at the ATMs of State Bank Group, which includes the ATMs of State Bank of India as well as the Associate Bank –State Bank of Bikaner & Jaipur, State Bank of Hyderabad, State Bank of Indore, etc.

### SUBSIDIARIES

The State Bank Group includes a network of eight banking subsidiaries and several non-banking subsidiaries. Through the establishment, it offers various services including merchant banking services, fund management, factoring services, primary dealership in government securities, credit cards and insurances.

The eight banking subsidiaries are:

State Bank of Bikaner and Jaipur (SBBJ)

State Bank of Hyderabad (SBH)

State Bank of India (SBI)

State Bank of Indore (SBIR)

State Bank of Mysore (SBM)

State Bank of Patiala (SBF)

State Bank of Saurashtra (SBS)

State Bank of Travancore (SBT)

### PRODUCTS AND SERVICES

SBI Term Deposits SBI Loan for Pensioners

SBI Recurring Deposits Loan against Mortgage of Property

SBI Housing Loan against Shares & Debentures

SBI Car Loan Rent plus Scheme

SBI Educational Loan Medi-Plus Scheme

### OTHER SERVICES

Agricultural/Rural Banking

NRI Services

ATM Services

Demat Services

Corporate Banking  
 Internet Banking  
 Mobile Banking  
 International Banking  
 Safe Deposit Locker  
 RBIEFT  
 E-Pay  
 E-Rail  
 SBI Vishwa Yatra Foreign Travel Card  
 Broking Services

### FINANCIAL ANALYSIS MODEL FOR FINANCIAL INSTITUTION

Saunders (2000) provides a model of financial analysis for financial institutions based on the DuPont system of financial analysis return on equity model. The return on equity model disaggregates performance into three components: net profit margin, total asset turnover, and the equity multiplier. The profit margin allows the financial analyst to evaluate the income statement and the components of the income statement. Total asset turnover allows the financial analyst to evaluate the right-hand side of the balance sheet: assets. The equity multiplier allows the financial analyst to evaluate the left-hand side of the balance sheet: liabilities and owners equity.

Return on equity analysis provides a system for planning as well as analyzing financial institution performance. The profit margin allows the analyst to develop a pro forma income statement. That is, net income is equal to revenues less expenses. Thus, the financial planner can determine the revenue level necessary to achieve the net income target. The total asset turnover ratio allows the analyst to project the total asset level necessary to generate the projected revenue level. The total asset requirement can be used to project the pro forma levels of all of the asset accounts. The fundamental equation of accounting is that assets equal liabilities plus owners equity. Thus, the equity multiplier ratio can be used to project the pro forma financial needs and the financial structure of the financial institution.

Return on equity, ROE is the first decomposed into return on asset, ROA, and the equity multiplier, EM. Return on asset decomposed into net profit margin and total assets turnover.

$$ROE = (ROA) (EM)$$

$$ROA = (NPM) (TAT)$$

Where

ROE = Return on equity

EM= is the equity multiplier

TAT= total assets turnover

ROA = return on assets

NPM= Net profit margin

Return on equity is net income divided by total equity capital and return on assets is net income divided by total assets. The equity multiplier is the ratio of total assets and total equity capital.

$$ROE = (NI) / (TEC)$$

$$ROA = (NI) / (TA)$$

$$EM = (TA) / (TEC)$$

Where

NI= Net Income

TA= Total Assets

TEC=Total Equity Capital

Net profit decomposed into both income and expenses components. Total assets turnover can be decomposed into interest and non interest income components. The net profit margin ratio can be used to develop a proforma income statement. The total assets turnover ratio can be used to estimate the pro forma right hand side of the Balance sheet. The equity multiplier ratio can be used to estimate the pro forma left hand side of the Balance sheet. Thus, the DuPont system of financial analysis can be used to construct a financial plan for the bank. The DuPont system of financial analysis provides a means for the firm to monitor performance through the planning period and to post audit the planning process.

### BALANCE SHEET ITEM

SBI has Three major categories of assets- Investments, Advances and other assets. Other assets include cash and Balance with RBI, Balance with Bank, Money at call, fixed assets, Work In progress. Investments fluctuated from 2.9 crores in 2011 to a 4.9 crores in 2015 with an average of Rs. 3.7 crores. An advance has increased from a low of Rs. 7.5 crores in 2011 to Rs.13 crores in 2015 and an average of Rs. 10.35crore. Other assets are 1.71 crores in 2011 and increased steadily to Rs. 2.53 crores in 2015 with an average of Rs 1.84 crores.

SBI has Three major liabilities accounts- Deposits, Borrowings and Share holder funds. Deposits increased from Rs. 9.3 crores in 2011 to the Rs. 15.7 crores in 2015 with an average level of Rs. 12.3 crores. Borrowings increased from Rs. 1.1 crores in 2011 to the Rs. 2.05 crores in 2015 with an average level of Rs. 1.6 crores. Shareholder funds increased from 0.64 crores in 2011 to the Rs. 1.2 crores in 2015 with an average level of Rs. 0.98 crores.

### INCOME STATEMENTS ITEM

SBI has three sources of income- Interest income, other income and net income. Other income includes income from investment and others. Interest income has fluctuated from Rs. 0.81 crores to Rs. 1.52 crores with an average of Rs. 1.19 crores. Other income increased from Rs. 0.15 crores in 2011 to the 0.22 crores in 2015 with an average of Rs. 0.17 crores. Net income increased from Rs. 0.08 crores in 2011 to the Rs. 0.13 crores in 2015 with an average of Rs. 0.11 crores.

SBI has four expenses categories: Interest expenses, operating expenses, provision and contingencies and taxes. Interest expended has fluctuated from Rs. 0.48 crores in 2011 to Rs. 0.97 crores in 2015 with an average of Rs. 0.74 crores. Operating expenses increased from Rs. 0.23 crores in 2011 to the Rs. 0.38 cores in 2015 with an average of Rs. 0.30 crores. Provision and contingencies increased from 0.10 crores in 21011 to 0.19crores in 2015 with an average of Rs. 0.14 crores. Taxes decreased from 6689.71 crores in 2011 to 6212.39 crores 2015 with an average of Rs. 6161.34 crores.

### DuPont ANALYSIS OF SBI BANK

Return on equity for SBI for the study period averages 12.96% but with a range from 12.84% in 2011 to 11.17% in 2015. Net profit margin averages 9.90% with a range of 10.15% in 2011 to 8.59% in 2015. Total asset turn over averages 0.078 times with a range from 0.07 times in 2011 to 0.08 times in 2015. The equity multiplier averages 16-34times with a range from 18.83times in 2011 to 15.95times in 2015. The equity multiplier decreased from 18.83 times in 2011 to 15.95 times in 2015.net profit margin fluctuates from the low 10.15% in 2011 to 11.78 % in 2013 and then to 8.59% in 2015.

**DISCUSSION OF FINANCIAL RATIOS**

At present total assets of SBI bank, investment averages in 23.27% of total assets with a high of 24.17% in 2015 and a low of 22.24% in 2014. Advances average 64.9% of total assets with a high of 67.48% in 2014 and a low of 61.83% in 2011. Other assets average 11.82% of total assets with a high of 14% in 2011 and a low of 10.27% in 2014. Deposits average 77.20% with a high of 78.15% in 2012 and a low of 76.31% in 2011. Borrowings average 10.07% with a high of 10.80% in 2013 and a low of 9.51% in 2012. Other liability and provisions averages 6.58% with a high of 8.6% in 2011 and 5.41% in 2014. Share holders fund averages 6.15% with a high of 6.60% in 2014 and a low of 5.31% in 2011.

**SUMMARY AND CONCLUSION**

This paper presents a model for the financial analysis of a bank based on the DuPont system of financial analysis. The bank return on equity is decomposed into net profit margin, total assets turnover and the equity multiplier. This model is applied to State Bank of India is one of the largest Bank in India. The DuPont system of financial analysis shows the performance of the State Bank of India over the years from 2011 to 2015.

Beginning with 2011, State Bank of India had high return on equity as well as equity multiplier as compared to other years under study. The equity ratios declined from 2012-2015 which indicates that the State bank had less financial leverage in the recent years, which means the bank is relying less on debt to finance its assets. Total assets turnover exhibit relative stability for the period from 2011 to 2015. Net profit margin declined from 2013 to 2015. Net profit reached 10.99% with an average 9.90%, total assets turnover of about 9.05% and a average of 8.57% and the equity multiplier levelled out an about 18.83% with average of 16.34%.

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**REPORT**

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**WEBSITES**

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**APPENDIX****TABLE 1: STATE BANK OF INDIA FINANCIAL STATEMENTS (2011-2015)**

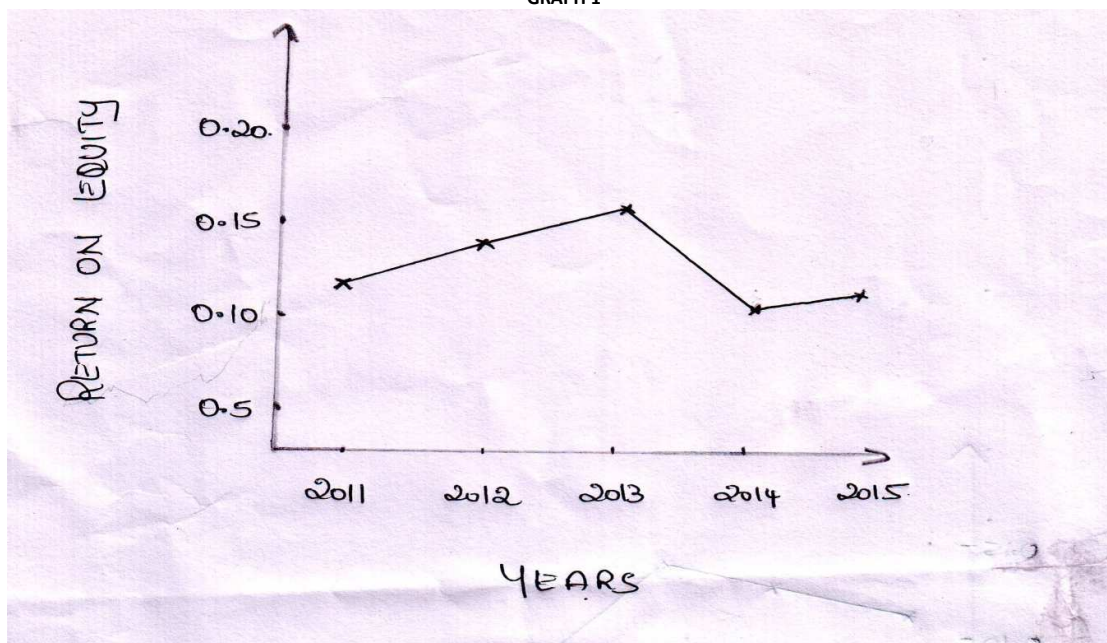
Income Statement-Income	2011	2012	2013	2014	2015	Average
Interest Income	81394.36	106521.45	119655.10	136350.81	152397.07	119263.75
Other Income	15824.59	14351.45	16036.84	18552.92	22575.89	17468.32
<b>Expenses</b>						<b>Average</b>
Interest Expended	48867.96	63230.37	75325.80	87068.63	97381.82	74374.92
Operating Expenses	23015.43	26068.99	29284.42	35725.85	38677.64	30554.47
Provision and contingencies	10381.34	13090.23	11130.83	15935.36	19599.54	14027.46
Taxes	6689.71	6776.02	5845.91	5282.71	6212.39	6161.35
Net profit	8264.51	11701.29	14104.98	10891.18	13101.57	11613.91
Brought forward	0.34	0.34	0.34	0.34	0.32	
Transferred from amalgamation	0.00	0.57	0.00	0.00	0.00	
Total Net Income	8264.86	11713.34	14105.32	10891.51	13101.90	11615.39
<b>Balance Sheet-Assets</b>	2011	2012	2013	2014	2015	<b>Average</b>
Investments	295601	312198	350878	398800	495027	370480.08
Advances	756719	867579	1045617	1209829	13,00026	1035954
Other Assets	171416	155742	169716	184119	253027	186804
Total Assets	1223736	1335519	1566211	1792748	2048080	
<b>Balance Sheet-Liabilities</b>						<b>Average</b>
Deposits	933933	1043647	1202740	1394409	1576793	1230304.4
Borrowings	119569	127006	169183	183131	205150	160807.8
Others	105248	80915	95404	96927	137698	103238.4
Share holder fund	64986	83951	98884	118283	128439	98908.6
Total Liability	1223736	1335519	1566211	1792748	2048080	

TABLE 2: STATE BANK OF INDIA RATIO COMPUTATION:

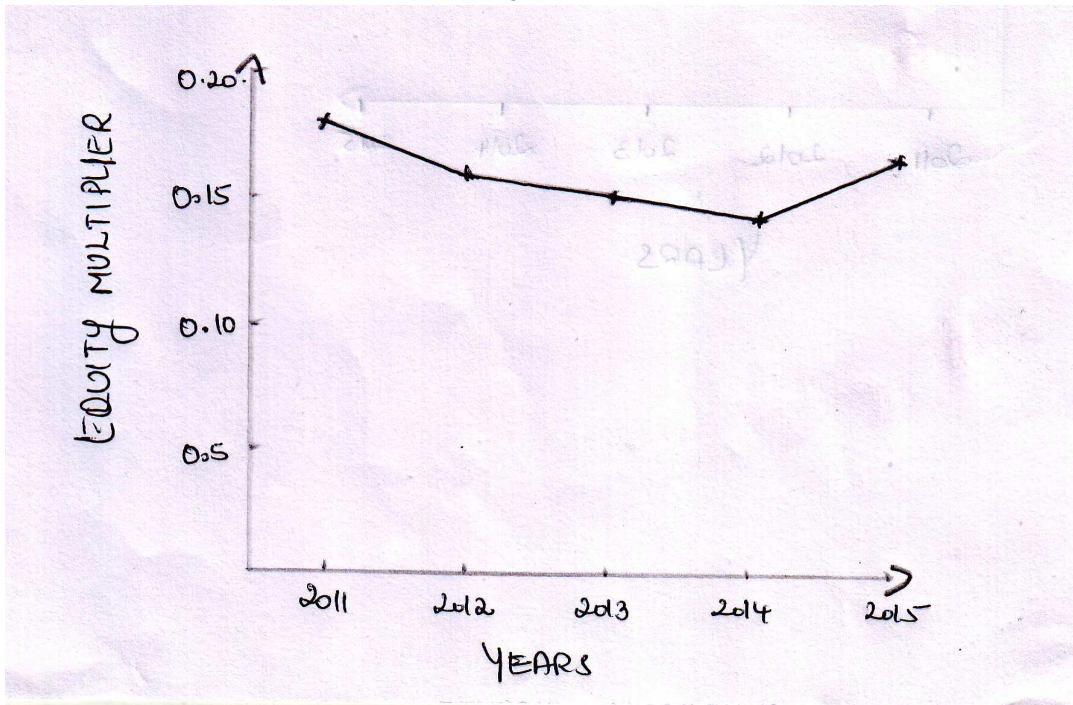
Income Statement Item	2011	2012	2013	2014	2015	Average
Interest Expended	50.27%	52.31%	55.51%	56.21%	55.66%	54.00%
Operating Expenses	23.67%	21.57%	21.58%	23.06%	22.10%	22.40%
Provision and contingencies	10.69%	10.83%	8.20%	10.29%	11.20%	10.24%
Taxes	6.88%	5.60%	4.31%	3.42%	3.56%	4.75%
Net Income	8.50%	9.69%	10.39%	7.03%	7.49%	8.62%
<b>Total Income Statement</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Balance Sheet-Assets	2011	2012	2013	2014	2015	Average
Investments	24.15%	23.37%	22.40%	22.24%	24.17	23.27%
Advances	61.83%	64.96%	66.76%	67.48%	63.47%	64.9%
Other Assets	14%	11.66%	10.83%	10.27%	12.35%	11.82%
Total Assets	100%	100%	100%	100%	100%	100%
Balance Sheet-Liabilities	2011	2012	2013	2014	2015	Average
Deposits	76.31%	78.15%	76.79%	77.78%	76.99%	77.20%
Borrowings	9.77%	9.51%	10.80%	10.22%	10.07%	10.07%
Others	8.60%	6.06%	6.09%	5.41%	6.72%	6.58%
Share holder funds	5.31%	6.28%	6.31%	6.60%	6.27%	6.15%
Total Liabilities and share holder equities	100%	100%	100%	100%	100%	100%
DuPont Ratios	2011	2012	2013	2014	2015	Average
Net Profit Margin (NPM)	10.15%	10.99%	11.78%	7.98%	8.59%	9.90%
Assets Utilization(TAT)	7.94%	8.00%	8.66%	8.64%	8.54%	8.57%
Equity Multiplier (EM)	18.83%	15.91%	15.83%	15.16%	15.95%	16.34%
Return on Equity (ROE)	12.84%	14.36%	15.94%	10.49%	11.17%	12.96%

Source: Calculated from the State Bank Annual Financial Reports 2011-2015

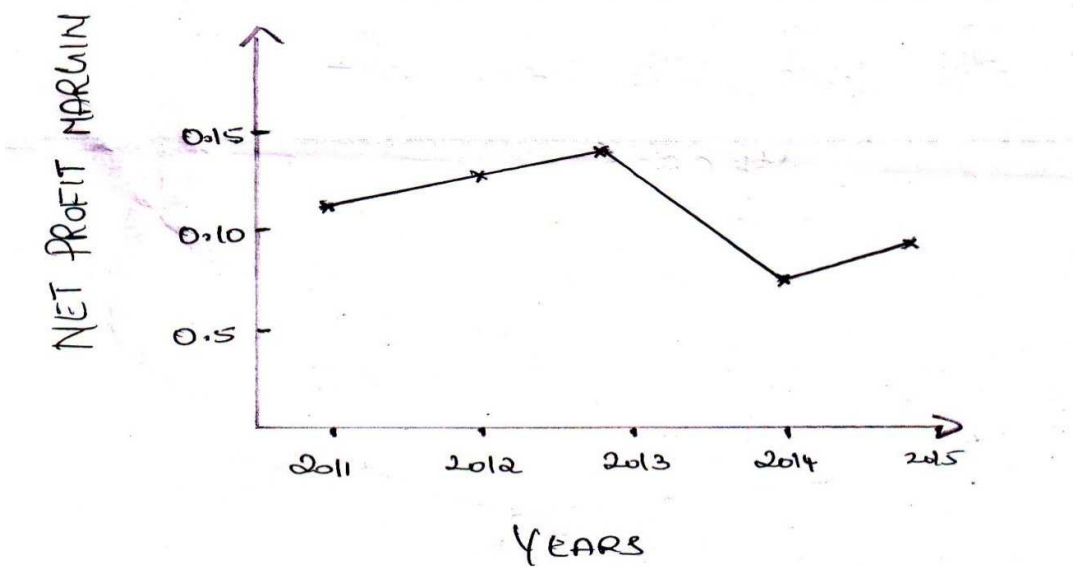
GRAPH 1



GRAPH 2



GRAPH 3



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