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Off Balance Sheet Exposure Of Public Sector Banks In India: An Empirical Analysis

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Abstract: *Off-balance sheet activities play an important role in helping the banks to hedge their long-term financial assets in the on-balance sheet and increasing the bank's profitability. These are the fee based incomes of banks having no or a little investment. This enables the banks to extend their leverage against their capital adequacy requirements and maximize the return on invested capital. Off balance sheet activities are an intriguing part of the financial statements. Presented as footnotes to accounts, these contingent items have an important economic impact that affects the future rather than the current shape of an institution. Off-balance sheet activities also help to improve the commercial banks' scope of operations, and diversification of product lines and earnings. The business of financial intermediaries has witnessed a large increase in the use of off balance sheet activities during the last 40 years. This growth that have come as a response to the need of corporate and firms for different types of guarantees did have a conflicting impact on financial stability and bank soundness. This study is designed to investigate the OBS exposure of Indian banks. This study describes empirically the role of OBS in profitability of Indian banking sector. Besides that the various determinants of off balance sheet activities like CRAR, NNPA, NIM, LT and ROA considered and empirically how these are related to Off balance sheet activities of scheduled commercial banks in India by analysing data from 2005-06 to 2014-15.*

Keywords: *Financial Assets, Profitability, Off balance sheet activities, commercial banks, CRAR, NNPA*

INTRODUCTION

Banking sector in India plays a very pivotal role in the Indian economy. As we know that Indian economy is the 3rd largest economy in the world and it has a significant contribution to the world economy. The mainstay of this economy rests upon the banking sector. Like other countries, Indian financial sector is still primarily bank-oriented. So, the banking sector represents the most important and significant part of the whole financial sector in India. Banking Sector has traditionally remains a protected industry in many emerging nations including India. Financial systems have experienced dramatic changes over the last two decades. The sharp acceleration in the pace of innovation has significantly altered the traditional face of the international financial system. These developments have been mainly due to the interaction of a combination of factors. The revolution in information technology, and an increase in competition, at both the national and international levels, has led to a continuing erosion of dividing lines, as the major intermediaries have been global in their geographical coverage and universal in their financial functions, encompassing banking, securities market activities and increasingly, insurance. The risks to global financial stability continued to remain at elevated levels, with global growth witnessing a fragile and multi-paced pattern of recovery. In the meanwhile, the global macro-financial risks shifted from advanced to emerging economies with the latter facing pressures from weakening prospects of growth, falling commodity prices and strengthening of the dollar. Within the emerging world, however, the Indian economy appeared quite resilient, given a modest recovery in the economy, declining inflation and buoyant capital flows that helped in maintaining the external sector balance.

The commercial banking industry has changed dramatically over the past twenty years, and one notable change is in the composition of bank businesses and product lines towards non-interest income activities such as **off balance sheet activities**. As a result the structure of the balance sheet of commercial banks has experienced changes with the introduction of off balance sheet activities. Off-balance sheet activities refer to banking products and practices not related to traditional forms of portfolio lending. Off-balance sheet activities are contingent commitments or contracts which generate income to a bank, but are not captured as assets or liabilities under conventional accounting procedure (Nachane and Ghosh 2002).These items are recorded in a bank's accounts as notes to balance sheet. Off-balance sheet activities of commercial banks include guarantees, commitments, market-related activities (financial derivatives), and advisory or management functions. OBS activities include issuing various types of guarantees, like letters of credit, which often have a strong insurance underwriting element, and making future commitments to lend. Both services generate additional fee income for banks. OBS activities also involve engaging in derivatives transactions, such as futures, forwards, options, and swaps. A loan commitment is a contractual commitment to loan a certain maximum amount to a borrower at a given interest rate over some period in the future. Letter of credit is a guarantee that banks sell to underwrite the future performance of the buyers of guarantees. A commercial letter of credit is used mainly to assist a firm in domestic and international trade. The bank's role is to provide a formal guarantee that it will pay for the goods shipped or sold if the buyers of the goods default on its future payments. Standby letters of credit cover contingencies that are potentially more severe, less predictable or frequent, and not necessarily trade related. Loans sold are loans that banks originate and then sell to other investors that (in some cases) can be returned to the originating institution in the future if the credit quality of the loans deteriorates. Derivatives are a position taken in the form of swaps, options, futures, and forwards contracts by the banks for hedging and trading purposes.

IMPORTANCE OF THE TOPIC:

For commercial banks operating in India, off balance sheet activities have become important in the reform years because of the following reasons:
(i) The deregulation of the banking sector entry and relaxation of branch licensing policy resulted in substantial decline in banking sector spread (in terms of total assets) compelling the commercial banks to look for some other source of income.
(ii) The introduction of asset classification, income recognition and capital adequacy norms made lending a relatively risky proposition.

This study is designed to investigate the OBS exposure of Indian PSB banks. It will identify the ability of these banks to generate fee based income which will neutralise the pressure of earnings income in terms of profit. This study describes empirically the role of OBS in profitability of Indian public sector banks. Therefore conducting research in this area will benefit shareholders and stakeholders of the banking sector. The study would have benefit for Management, Government, Investors and practitioners and academicians by providing useful information about the impact of regulation in form of reserve requirement and capital adequacy requirement upon OBS activities of commercial banks. Knowledge of these factors would be useful in helping the regulatory authorities and bank managers formulate future policies aimed at improving the banking service, profitability and structure of the Indian banking sector. By establishing OBS activities and their determinants, bank regulators and management can gain better understanding of the issue. This study will help to enrich literatures on the subject matter by providing empirical evidence on the subject. The study could also be used as an initiation for those who are interested to conduct a detailed and comprehensive study regarding the topic. Thus it will serve as a reference for further study on related topics. Therefore, the research on the topic could be of great interest to management, shareholders, as well as for supervisory authorities and researchers and academicians.

RESEARCH GAP AND STATEMENT OF THE PROBLEM:

There is a lot of study on off balance sheet items in other countries. But in India there is a very less number of studies that have been made. In these studies also it is observed that most of the studies were relating to off balance sheet items and its impact upon the market risks of the concerned countries. Besides that there was study relating to profitability of banks in relation to OBS activities of banks and whether there is efficiency of banks to generate profit out of OBS activities. So we found a gap between them that no study has not been made about the empirical relationship between Off balance sheet activities and its various determinants like CRAR, NIM, NNPA etc. so by observing this fact, the current study is taken up with the Public sector banks in India for the year 2005-06 to 2014-15.

OBJECTIVES OF THE STUDY:

1. To understand the conceptual aspects of off balance sheet activities of Commercial banks in India.
2. To study the determinants like CRAR, NNPA, LT, NIM and ROA and their impact on off balance sheet activities of public sector banks in India .

3. To examine whether there is a relationship between off balance sheet activities and net profit of Indian public sector banks.

HYPOTHESIS:

H_1: CRAR positively affects OBS activities of Public sector banks.
H_2: Liquidity to total assets (LT) negatively affects OBS activities of Public sector banks.
H_3: NNPA positively affects OBS activities of Public sector banks.
H_4: NIM negatively affects OBS activities of Public sector banks.
H_5: ROA negatively affects OBS activities of Public sector banks.

LITERATURE REVIEW

Boot and Thakor (1991) and Berger (1991) have contended that off-balance sheet securitisation may occur in larger quantities for safer banks or induce riskier banks to become safer. Their argument is that stand-bys and commitments are uninsured contingent claims whose value increases with the safety of the issuing bank.

Chatterjee and Sinha (2005) and Sinha (2005) estimated the efficiency of Indian commercial banks using the data envelopment approach and FDH approaches respectively. They have taken non interest income out of the output indicators. The results suggest an improvement in performance the existence of considerable gap between public and private sector banks.

Dr.Ram Pratap Sinha (2005) to compare the Indian commercial banks (for the reform period) in respect of their ability to generate income out of off balance sheet activities by using the Data Envelopment Approach and also investigated on the context of a panel data framework, the impact of operating efficiency, capital adequacy and NPA incidence on the risk taking behaviour of the Indian commercial banks the result of his study was that the public sector commercial banks are lagging behind the private sector commercial banks in terms of off balance sheet activities.

IMF Working Paper (2000) Research Department Pbreuer opined that the simultaneous unwinding if leveraged positions can trigger financial turbulence. Although Balance Sheet measures of leverage are available, it is useful to construct a measure of leverage that incorporates both on and off balance sheet activities. This paper provides measures of leverage implicit in derivative contracts by decomposing the contracts into cash market equivalent components.

Hassan (1993) examined the relationship between OBS activities and market risk of large commercial banks of the US. He found that OBS activities contribute to the overall diversification of the bank portfolio risk by reducing the total risk. Nevertheless, OBS items do not influence the systematic risk of banks and this may be due to the fact that OBS items are not a concern of well-diversified stockholders.

Chaudhry (1994) investigated the impact of OBS activities on commercial banks' exposure to market-based risk in the US by utilizing a two-stage model. He found that larger banks are more efficient in interest rate risk management as compared to the smaller ones.

D.M.Nachane and Saibal Ghosh (2007) made an Empirical Analysis of the Off-Balance Sheet Activities of Indian Banks and results show that bank-specific factors, regulatory factors and general macroeconomic conditions-all significantly affect the diffusion process of OBS items in India. In public sector and foreign banks, bank size seems to impose constraints on engaging in OBS products. The evidence shows significant diseconomies of scope between aggregated OBS 13 items and loans in the new private and foreign bank groups.

A.K. Swain (2008) made an empirical study of Off balance sheet activities of scheduled commercial banks in India from 1997 to 2006 and identified the various determinants of off balance sheet activities and found that there is a positive relation between NIM with the OBS activities and negative relationship with NNPA and CRAR and it is the NNPA which highly influences the OBS activities.

RESEARCH METHODOLOGY

The data are basically collected from secondary sources. This secondary sources includes mainly Reports on Trends and progress of banking in India from the RBI website. The statistical tables are prepared by compiling data from RBI publications and statistical tables. Besides that we have borrowed a lot of things from various Magazines & journals. Many websites have also been referred for collecting much important information.

The main objective of the study as mentioned earlier to understand the factors driving the OBS activities of Public sector commercial banks and other bank groups. For this purpose an empirical exercise is being carried out by taking **cross sectional data** for public sector bank groups from the period 2005-06 to 2014-15 in a **multiple linear regression** framework. Formally the **Econometric Model** used is written as follows:

$$Y_i = \beta_{i0} + \beta_{i1}x_{i1} + \beta_{i2}x_{i2} + \beta_{i3}x_{i3} + \ldots\ldots\ldots + \beta_{ij}x_{ij} + u_{ij}$$

Y_i = ith observation of the dependent variable.
x_j= independent variables. J= 1, 2, 3, …k.
x_{ij}= ith observation of the jth independent variables.
β_{i0}= Intercept term
u_{ij} = Residual term/ Error term

Dependent and Independent variables:
For the purpose of this study two types of variables have been taken they are Dependent variables and Independent variables.
Here Y is the dependent variable representing OBS activities in terms of total contingent liabilities to total liabilities.
x 1 represents the capital to Risk weighted assets ratio (CRAR).
x 2 represents the ratio of total liquid assets including cash balances, balances with RBI and other banks, money at call and short notice and investment in Govt. and other approved securities as % of total assets.
x 3 represents the net non- performing assets as % of total assets (NNPA).
x 4 represents net interest margin which is the difference between interest income and interest expenses as % to total assets (NIM).
x 5 represents the Return on assets (ROA).
Assumptions of the Model:
1. Linear regression model, or linear in the parameters.
2. Fixed independent values or independent values independent of the error term i.e. we require zero co variance between u_i and each x variables. i.e. Cov (u_i x_{2i}) =cov(u_i x_{3i}) = 0
3. E(u_i / x_{2i} x_{3i}) = 0 for each i
4. Var (u_i) = σ^2
5. Cov (u_i u_j) = 0 I $\neq$ j
6. There must be variation in the values of the independent variables.
7. No exact multicollinearity between the independent variables.
8. No. of observations n must be greater than the no. of parameters to be estimated.
9. There is no specification bias.

Besides these tools Carl pearsons **co- efficient of correlation** and **T- test** has been used to test the significance.

OFF BALANCE SHEET EXPOSURE OF INDIAN PUBLIC SECTOR BANKS:

Due to huge competition in the current market Indian Public sector banks are exposed to different types of risks. Their profit is not increasing up to a global level. So they are going for the off balance sheet activities. Besides that Indian Public sector banks are doing their business in foreign currency .in order to hedge these foreign exchange risks they are going for taking position in the international as well as domestic forward exchange market. This leads to huge amount of off balance sheet activity of them.

Table: 1
Off balance sheet exposure of public sector banks in India from 2005-06 to 2014-15

	OBS OF PUBLIC SECTOR BANKS				In Crores	
YEAR	FEC	GUARANTEES	EA	TOTAL OBS	OBS OF SCB	%
2005-06	505315	103838	233052	842205	4249342	19.82
2006-07	612935	137215	520519	1270669	7656023	16.60
2007-08	986073	175078	696021	1857172	14427369	12.87
2008-09	1034367	255918	613497	1903782	11152487	17.07
2009-10	959314	330555	472555	1762424	10529958	16.74
2010-11	191753	419552	578359	1189664	13838389	8.60
2011-12	1578600	493200	586600	2658400	14594900	18.21
2012-13	1940800	534600	635000	3110400	13258300	23.46
2013-14	2017604	561512	667933	3247049	13389772	24.25
2014-15	2344220	589508	661409	3595137	15013645	23.95

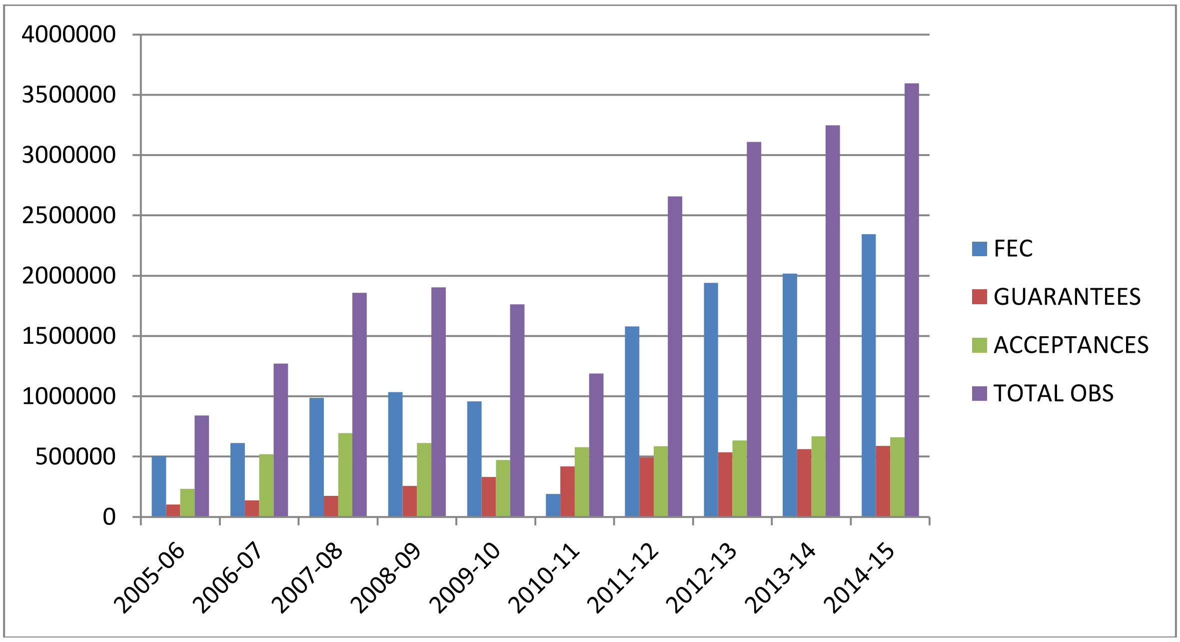
Source: RBI: Reports on trends and progress of banking in India, various years and statistical tables relating to banks in India.

Note: 1. 1. FEC: forward exchange contracts
2. EA: Endorsements and Acceptance

This table clearly shows that from the year 2005-06 to 2006-07 the OBS exposure of Public sector banks are increasing. All the components of OBS i.e. FEC, Guarantees, EA are showing on an increasing trend. But the rate of increasing of FEC is more in comparison to other aspects of OBS activities. In 2005- 06 it was Rs. 505315 crores while in 2014-15 it came to Rs. 2344220 crores by increasing 400 % of the former. It tells that the public sector banks in India are taking positions in the international markets for hedging the foreign exchange risks. Similarly the guarantees also reflect a positive growth from 103838 Crores in 2005-06 to 589508 Crores in 2014-15. Likewise EA or Endorsements and advances also increasing from Rs. 842205 Crores in 2005-06 to 661409 Crores in the tear 2014-15. Besides that the last column states that public sector banks also by their exposure to off balance sheet activities contributing significantly to the total OBS activities of scheduled commercial banks from 19.82 % in 2005-06 to 23.95 % in 2014-15. The data above may be represented through a chart for better understanding.

Chart: 1

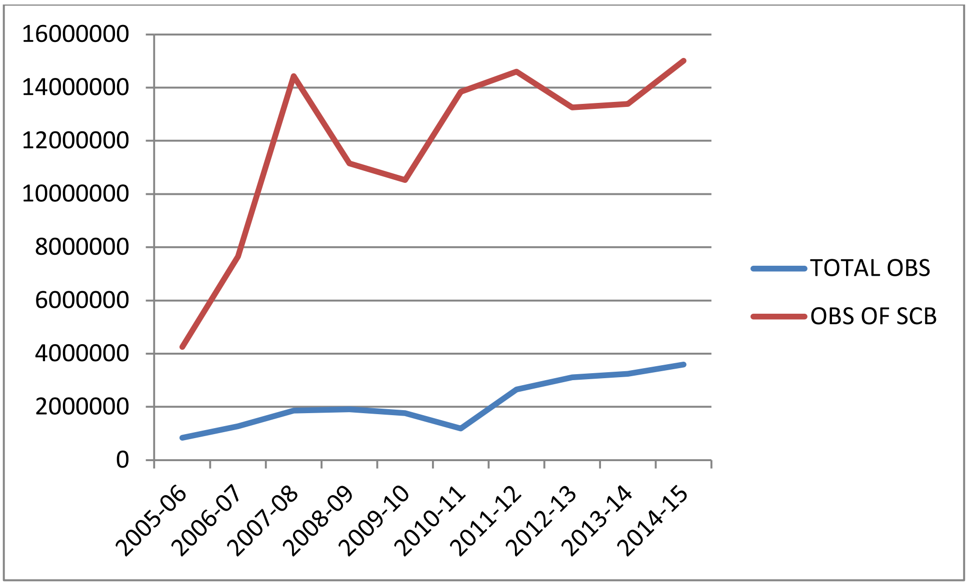
Off balance sheet exposure of public sector banks in Indi a from 2005-06 to 2014-15



Source: self compiled

Chart: 2

Chart showing the trend of total OBS activities of Public sector banks and Scheduled commercial banks in India for different years.



Source: self compiled

This line graph shows the contribution of Public sector banks to OBS of all the scheduled commercial banks.

EMPIRICAL ANALYSIS OF PUBLIC SECTOR BANKS IN INDIA FROM 2005-06 TO 2014-15.

Table: 2

Data relating to OBS of public sector banks in India from 2005-06 to 2014-15.

YEAR	CL	CRAR	LT	NNPA	NIM	ROA
2005-06	41.8	12.17	40.73	0.72	2.85	0.88
2006-07	52.07	12.36	36.94	0.62	2.65	0.92
2007-08	61.77	12.51	36.17	0.59	2.15	1
2008-09	50.55	13.49	36.33	0.6	2.1	1.03
2009-10	39.71	13.27	36.04	1.1	2.29	0.97
2010-11	41.37	13.08	34.25	1.09	2.78	0.96
2011-12	44.06	13.23	32.5	1.53	2.76	0.88
2012-13	44.67	12.38	32.76	2.02	2.57	0.8
2013-14	40.75	11.4	32.92	2.56	2.45	0.5
2014-15	41	11.24	34.4	2.92	2.34	0.46

(Source: RBI Reports on Trend and Progress of banking in India, various years.)

Note: All % in the table are calculated by the author taking data from RBI publications
For the calculation of regression MS Excel and NCSS software have been used and the result is outlined as under.
CL- Contingent Liabilities.

Note: Before calculating Regression result we go for multicolinearity test and we found that NNPA and ROA shows a very high degree of VIF value i.e. > 5%. So they are excluded and by re running the regression test it is found that;

RESULT:

The model for the study is

$$Y_i = \beta_{i0} + \beta_{i1}x_{i1} + \beta_{i2}x_{i2} + \beta_{i3}x_{i3} + \dots\dots\dots + \beta_{ij}x_{ij} + u_{ij}$$ [1]

By fitting the result into the above model;

CL = 37.304 + 1.265 CRAR + 0.607 LT – (11.544)

[1] Gujarati, C porter, Gunasekar (2012), "Basic Econometrics" Tata mcgraw-hill education, New Delhi, P-203 & 204

Where R= 0.511,
R^2= 0.261,
adj.R^2= -0.108
and Standard Error of estimate= 7.381

Complete result of the regression test is represented in the following table.

Table 4.3

Result of the regression test for public sector banks

	Co efficient	Std. Error	t value	P value	VIF
INTERCEPT	37.304	56.373	0.662	0.533	
CRAR	1.265	3.192	0.396	0.706	1.006
LT	0.607	0.986	0.616	0.561	1.007
NIM	-11.544	9.181	-1.257	0.255	1.006
ANALYSIS OF VARIANCE					
	DF	SS	MS	F	P
REGRESSION	3	115.630	38.543	0.708	0.58
RESIDUAL	6	326.840	54.473		
TOTAL	9	442.470	93.016		

Note : Value computed by running the regression test with the help of excel and NCSS software and self analyzed.

DISCUSSION OF RESULT

For Public sector banks multiple regression runs were carried out. In the first run Multicolinearity was found and it was removed by removing the variables with high VIF values and finally the result of the run is given above. It is found that R^2= 0.261 i.e. the dependent variable is explained by the independent variables to the extent of 26 %.

Our hypothesis regarding CRAR was that CRAR positively affects banks OBS activities and it is also proven in the above test. So this hypothesis hold true and hence accepted. This means when Public sector banks have an adequate CRAR ratio they can go for more OBS activities and avoid OBS activities in the reverse case.

In case of LT i.e. liquidity to total assets our hypothesis was that LT negatively affects OBS of public sector banks. That means PSBs go for OBS exposures at times also when their liquidity position is good and vice versa. Hence our hypothesis is rejected for LT.

For NIM the relationship is found to be negative and this indicates that the hypothesis holds true. That means banks with better NIM would be in a stable position and can enter OBS activities to further add fee income to their profits.

ANALYSIS OF PROFIT AND OBS OF PUBLIC SECTOR BANKS:

Off balance sheet items are fee based item having a little or no investment as mentioned above in the dissertation. So they must contribute to the Net profit significantly. By the help of Pearson's Correlation analysis we can find whether there is any relationship between the OBS and net profit of public sector banks in different years. The following table shows OBS and NET PROFIT of PSBs for different years.

Table : 4.4 OBS and Net Profit of Public sector banks in India from 2005-06 to 2014-15 (in Crore)

YEAR	OBS	NET PROFIT
2006	842205	16539
2007	1270669	20152
2008	1857172	26592
2009	1903782	34373
2010	1762424	39257
2011	1189664	44901
2012	2658400	50014
2013	3110400	50583
2014	3247049	37019
2015	3595137	37540

Source: report on trend and progress of banking in India , RBI

By applying Carl Pearson's Co efficient of correlation;

$$Correl(X,Y) = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x-\bar{x})^2 \sum (y-\bar{y})^2}}$$

The value comes to **0.57206182**

So we can say here that Net profit and and OBS activities are correlated to the extent of **57%**.

To know its significance we will apply T- test.

$$t= \frac{r}{\sqrt{1-r2}} \times \sqrt{n-2}$$

H_0=relationship is not significant.

H_1= relationship is significant.

Degrees of freedom = 8

$\alpha = 0.05$

by applying t- statistics the value comes to 6.029

Critical value of t for V=8, and $\alpha = 0.05$ in a two tailed test is 1.860

Calculated value > Critical value . Hence null hypothesis is rejected so the relationship between OBS and Net Profit of Public sector bank in India is significant.

RESEARCH FINDINGS:

1. Off balance sheet activities are non interest income activities concerned with FECs, Endorsements and advances and guarantees.
2. OBS activities has both risk reducing as well as risk increasing attributes and the net impact of the risk will depend on the ability to manage the risk from engaging in these activities.
3. Forward exchange contracts are the major component of OBS of Indian Scheduled commercial banks by having the highest amount of exposure.
4. All the components of OBS are showing a positive trend where as contribution of Forward exchange contract is more.
5. In case of PSBs, CRAR and LT positively affects the OBS exposure while NIM negatively affects and multicolinearity was found for NNPA and ROA.
6. Public sector banks with better NIM will try to lock in their stability to improve and maintain stability through enhancement of fee incomes from OBS activities.
7. There is a relationship of 57 % of profit with OBS activities of PSBs.

SUGGESTIONS:

1. Indian public sector banks should go for more forward exchange contracts as they have a huge competition from the private as well as foreign players.
2. As off balance sheet activity is a double edged weapon and it has the capacity to both reduce and enhance risk, so PSU banks should consider both pros and cons of off balance sheet activities while going for that.
3. Besides traditional instruments PSU banks should go for inventing new instruments from where they can earn fee based income.

CONCLUSION:

At this competitive juncture Indian banking industry has undergone with a new era, where Public sector banks are the lifeline of the country but in the same time they are being posed with various types of risks. So OBS activities are now regarded as a better way to neutralise the losses and to arrest the competition. But at the same time also it is creating risks among the banks. So in a confusing situation banks needs to be very alert and grab the coming opportunities.

This paper summarised the various determinants of off balance sheet activities of Indian Public sector banks in an empirical manner and found the determinants and their nature of effect to the off balance sheet activities. The purpose of this paper is to investigate the relationship between off-balance sheet items and the profitability of Indian banking sector also. Off-balance sheet items include traditional (standard) off-balance sheet bank obligations with derivative financial instruments. The most significant off-balance sheet items in Indian banking sector in the period from 2005 to 2015 are forward exchange contracts, guarantees, revolving credits and other lines of credits and financing obligations. In this research paper, the relationship between net profit and off balance sheet activities were tested and found significant and a positive relationship. This is one area where the banks must pay adequate attention to improve their financial health. Further, the PSBs exhibited decreasing returns to scale which is not very encouraging for the banking sector. Like many other financial activities represented as a transition in the financial system, financial researchers believe that OBS activities are driven by regulatory changes, financial innovations, and the technological progress that is accompanying them. Banks are just like any other firm in that they aim to maximize their revenues and minimize their expenses; the deregulation process during the last few decades has put more constraints in bank's traditional activities which, of course, decreased bank's revenues and increased bank's expenses, decreasing bank's profit. As a result of these regulatory changes bank's escaped from the traditional, on-balance sheet activities where the regulations applied, to off-balance sheet activities in order to generate new income sources. Although, this hypothesis is true for some new activities and it may be one reason to begin engagement in these sophisticated OBS activities. Our results, consistent with recent research, reveal that bank's regulations do not explain much of the reasons behind the increasing use of these OBS activities, both guarantees and derivatives.

REFERENCES:

1. Agusman, A., Monroe, G., Gasborro, D. & Zumwalt J. (2008) "Accounting and capital market measures of risk: evidence from Asian banks during 1998-2003," Journal of Banking and Finance, vol. 32(4), April, p. 480-488
2. Angelidis, D. & Lyroudi, K. (2005) "The Magnitude of Off Balance Sheet Activities for The Evaluation Of Banking Productivity," working paper, presented at the International Conference on Finance Copenhagen-Denmark, September 2-4,
3. Altunbas, Y. & Chakravarty, S. (2001) "Frontier cost functions and bank efficiency," Economics Letters, vol. 72(2), August, p. 233–240
4. Altunbas, Y., Gardener, E., Molyneux, P. & Moore, B. (2001) "Efficiency in European banking,"
5. Avery, R. & Berger, A. (1991) "Loan Commitments and Bank Risk Exposure" Journal of Banking and Finance, vol. 15(1), February, p. 173-92
6. Avery, R. & Berger A. (1988) "Risk – Based Capital and Off – Balance Sheet Activities," Finance and Economics Discussion Series, Board of Governors of the Federal Reserve System (U.S.), Federal Reserve Bank of Chicago, p. 261-287
7. Berger, A. & Udell, G. (1990) "Collateral, Loan Quality, and Bank Risk," Journal of Monetary Economics, vol. 25(1), January, p. 21-42
8. Boot, A. & Thakor, A. (1991) "Off-balance sheet liabilities, deposit insurance and capital regulation," Journal of Banking and Finance, vol. 15 (4-5), September, p. 825–846
9. Bos, J. & Colari, J. (2005) "Large bank efficiency in Europe and the United States: are there economic motivations for geographic expansion in financial services," Journal of Business, vol. 78(4), July, p.1555– 1592

10. Chaudhry M K (1994), "Commercial Bank's Off-Balance Sheet Activities and Their Relationship with Market-Based Risk Measures", 4th AFIR International Colloquium,
Orlando, pp. 1241-1274

11. European Economic Review, vol. 45(10), December, p. 1931–1955 Angbazo, Lazarus (1997) "Commercial bank net interest margins, default risk, interest-rate risk, and offbalance sheet banking," Journal of Banking and Finance, vol. 21(1), January, p. 55–87.

12. Demirguc-Kunt, A. & Huizinga, H. (1999) "Determinants of commercial bank interest margins and profitability: some international evidence," The World Bank Economic Review, vol. 13(2), May, p. 379– 408

13. Demsetz, R. & Strahan, P. (1997) "Diversification, size and risk at bank holding companies," Journal of Money, Credit and Banking, vol. 29(3), August, p. 300–313

14. Hassan, K., Karels, G. & Peterson, M. (1994) "Deposit insurance, market discipline and off-balance sheet anking risk of large U.S. commercial banks," Journal of Banking and Finance, vol. 18(3), May, p. 575– 93

15. Hassan, K., Lai, V. & Yu, M. (2002) "Market Discipline of the Canadian Bank's Letters of Credit ctivities: An Empirical Examination," The Service Industries Journal, Vol. 22(4), September, p. 187- 208

16. Hryckiewicz, A. & Kowalewski, O. (2010) "Economic determinates, financial crisis and entry modes of foreign banks into emerging markets," Emerging Markets review, vol. 11(3), September, p. 205–228

17. Ketz, J.E. (2003), Hidden Financial Risk: Understanding Off-balance Sheet Accounting, Wiley, New York, NY, August.

18. Ketz, J.E. (2006a), "Debunking the supposed link between rules and accounting scandals", SmartPros, available at: http://accounting.smartpros.com/x51840.xml (accessed October 12, 2006).

19. Swain, Anil kumar (2006): "An Empirical analysis of Off balance sheet activities of scheduled commercial banks in India", The Utkal business Review, 01, p 1-15.

BOOKS :

1. Gujarati, C porter, Gunasekar (2012), "Basic Econometrics" Tata mcgraw-hill education, New Delhi

WEBSITES:

*https://www.**rbi**.org.in/*
www.economictimes.com
www.times of india.com