IMPACT OF NON PERFORMING ASSETS ON PROFITABILITY AND PRODUCTVITY OF PUBLIC SECTOR BANKS IN INDIA

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ABSTRACT

Banks directly or indirectly affect economic development because of their many facets. During colonial rule in India, banks were geographically confined to urban areas and provided credit particularly business and trading class and were restructured into nationalized banks during post –independence period to achieve broader economic objectives and registered an overall impressive achievement. Despite of this, the question has been raised time and again on myriad restriction of nationalised banks which merely fulfills social agenda of the government and increased non-performing assets.

This paper deals with the concept of non-performing assets, its magnitude and impact. One fourth credit of total advances was in the form of doubtful asset in the initial year of the nineties and has an adverse impact on profitability of public banks at aggregate or sectoral level indicating high degree of riskiness in credit portfolio and raising question mark on the credit appraisal. The profitability of all public sector banks affected at very large extent when non-performing assets (NPAs) work with other banking strategic variables and also affect productivity and efficiency.

INTRODUCTION

Banks directly or indirectly affect economic development (Schumpter1961, Gold Smith1969 and Anagdi 2003) and established all over the world to mobilize savings and invest into economy either directly or indirectly for production and generation of income and employment (Shrivastav 1981). During colonial rule in India, banks were geographically confined to urban areas and provided credit particularly to business and trading class (Gupta2001).

The importance and necessity of banking system has been realised in post-independence period and were restructured into nationalised or public sector banks till eighties to achieve broader economic objectives (Chhipa1987 and Deb1988) and registered an impressive achievement in terms of branch expansion, deposits, credit and investment (RamMohan and Ray2004).

Despite of this, the question on myriad restrictions of nationalised banks has been raised time and again by academician, policymakers and private players (Purakayastha 1996 and

Ruet2003) and placed spurious argument that public banks merely fulfill social obligation agenda of the government. This has led to increase non-performing assets (NPA) and put adverse impact on productivity and profitability of public banks (Abhiman Das 1997), extensively advocating privatisation and globalisation. The government of India set up Goiporia (1991) and Narasimham(1991and1998) committee to examine the efficiency and productivity of the nationalized banks and that recommended to deregulates mechanism and merger public sectors banks into two or three mega banks on the pattern of western countries banking policy. This will increase competitiveness among banks which strengthen not only their capital base but also improve the customer services (Chandrasekhar2005).

A number of studies found that banking sector does not work as general commodity production because its have many facets as an industry itself, as an input and the servicing providing sector also. Advocacy of banks mergers as general policy by using the argument of economies of scale, really conceal the hidden goal of exclusion of small borrowers and marginal farmers from the credit policies of the banking sector. In fact, merging of banks did not give viable results at international level (Bagchi and Benerajee2005).

The issue of non-performing assets (NPAs) came into existence in 1992 and its absolute amount is increasing continuously from Rs.39253 crore in1993 to Rs.48406 crore in 2006 (FICCI 1999) indicates poor quality in recovery management and high degree of riskiness in the credit-portfolio of the public banks, resulted adverse impact on profitability of banks (Kaveri1995 and RBI 1999).

The above discussion and outing debate about non-performing assets (NPAs) of public sector banks necessitates to evaluate and analyses its impact on the profitability and productivity of public sector banks over a period of ten years to reach a final conclusion about strengthening or winding up state public banks.

OBJECTIVE OF THE STUDY

The broad objectives of the present research paper are:

-To analyses the impact of non-performing assets on profitability of public sector banks at aggregate and sectoral level;

-To evaluate the impact of non-performing assets on profitability with other variables;

-To examine the impact of non-performing assets on efficiency and productivity.

DATA BASE AND METHODOLOGY

The present study is based on secondary data provided by various publications of Reserve Bank of India. The data is collected for the period of 1994-95 to 2005-06 for the indices of profit, non-performing asset, spread burden, credit-deposits ratio, fixed deposits ratio, operating expenses, provisions and contingences and various other indices of all twenty seven public sector banks. The data regarding to business per employee and profit per employee is collected to examine the impact of non-performing assts on efficiency and productivity of public banks for the period of 1997-98 to 2005-06.

The simple linear regression function is used to analyse the impact of non- performing asset on profitability of the public banks.

The regression equation for non-performing assets on profitability at aggregate level is:

$Y = a + b1X1 + u$ ----------(1)

Where Y=Profit as a percentage of total asset;

X1= Gross non- performing asset as percentage of total asset;

a= intercept, b=regression parameter; u= standard error.

The regression equation for non-performing assets on profitability at sectoral level is:

$Y = a + b1\ X1 + b2\ X2 + b3\ X3 + u$---------- (2)

Where Y=Profit as a percentage of total asset.

X1= Gross non- performing asset as percentage of total asset.

X2= Gross non- performing asset of priority sector as a percentage of total asset.

X3= Gross non- performing asset of non- priority sector as a percentage of total asset.

a= Intercept, b=Coefficients of regression parameters, u= standard error.

The analysis of non-performing assets at aggregate and sectoral level may not give viable explanation regarding to the performance of banking sector because profitability affected by many other factors such as spread burden, level of priority sector advances, credit-deposits ratio, term deposits ratio to total deposits, operating expenses and provisions and contingencies. The following linear regression function is used to examine the impact of non-performing asset on the profitability of public sector banks with other variables:

The linear function of regression models is:

$Y = a + b1X1 + b2\ X2 + b3\ X3 + b4\ X4 + b5X5 + b6X6 + b7X7 + u$ ----------(3)

Where Y = Gross profit as a percentage of total asset;

X1 = Gross non- performing asset as percentage of total asset;

X2 =Difference between spread and burden;

X3 = Priority sector advances as a percentage of total advance.

X4 = Credit-deposit ratio;

X5 = Operating expenses as a percentage of total asset.

X6 = Fixed deposit ratio as a percentage of total deposits;

X7 = Provisions and contingencies as a percentage of total asset;

a = Intercept; b = Co-efficient of regression parameters, u = standard error.

Business per employee and operating profit per employee were used for productivity variable, treat as dependent and NPA as independent variable. The linear regression function of productivity for business per employee is:

$Y = a + b1X1 + u$ ----------(4)

Where Y = Productivity in terms Business per employee as percentage of total asset; X1 Gross non-performing asset as a percentage of total asset =; a = intercept, b= Regression parameter; u= standard error.

The linear regression function of productivity for profit per employee is:

$Y = a + b1\ X1 + u$ ----------(5)

Where Y= Productivity in terms of Profit per employee as percentage of total asset, X1 Gross non-performing asset as a percentage of total asset, a = intercept, b = Regression parameter, u = standard error.

IMPACT OF NON-PERFORMING ASSETS ON AGGERATE AND SECTORAL LEVEL

Table -1 represents trend, magnitude and composition of gross advances and non-performing assets of public sector banks. Non-performing assets means that the repayment of advances which has been delayed beyond 180 days has to be identified doubtful asset. A one fourth credit to the total advances of public sector banks was in the form of doubtful asset in 1994 - 95 indicating poor quality of credit portfolio investment of public sector banks. Since 1994-95 the amount of gross advances of public sector banks increased many folds due to low rate CRR policy of Reserve Bank of India whereas percentile of non-performing assets shown declining trend (Mukerji2003). It means that public sector banks started to provide credit to the non-priority sector in the form of

personal and consumer loan which directly or indirectly invested in the real estate market and created artificial hike and boom in the prices of housing property. On the other side, the public sector banks adopted strict credit policy for high-risk endowment of priority sectors.

TABLE-1 NON-PERFORMING ASSET OF PUBLIC SECTOR BANKS

Year	Total Advance (Rs. In crore)	Gross NPA (Rs.in crore)	Ratio (%)
1994-95	159781	38385	24.02
1995-96	187311	39584	21.13
1996-97	244214	43577	17.84
1997-98	284971	45653	16.02
1998-99	325328	51710	15.85
1999-00	380077	53294	14.02
2000-01	442134	54774	12.38
2001-02	509369	56567	11.09
2002-03	577813	54090	9.36
2003-04	661975	51541	7.78
2004-05	877825	48399	5.51
2005-06	1134724	48406	4.26

Source: Various publication of RBI

The simple regression function is used to analyze the impact of non-performing assets (NPAs) on the performance and profitability of the public sector banks at the aggregate and sectoral level keeping in mind the multifarious factors are not to be considered and result shown in Table-2 and 3.

TABLE-2 AGGREGATE IMPACT OF NON-PERFORMING ASSETS ON PROFITABILITY

Regression equation	a	b1 Value of NPAs	t-value b1	R^2	D.F
1	2.4271	-0.0494*	0.316	0.50	10

* Significant at 1 percent level.

The gross profit as a percentage of total assets has taken as dependent and non-performing assets as independent variable in the bivariate regression model. The value of factor co-efficient of non-performing assets (NPAs) is (b1=-0.0494) in the linear regression function is negative, less than unity and statistical significant at 1 percent level indicating high degree of riskiness in the assessment of the creditworthiness of the borrower and raising question mark on the credit appraisal of the public sector banks (Sharma2005).

The impact of non- performing asset on the performance of public sector banks at sectoral level

has shown in Table –3.

TABLE-3 IMPACT OF NON-PERFORMING ASSETS IN PRIORITY AND NON-PRIORITY SECTOR

Regression equation	a	b NPA of Priority sector	t- value of b	b1 NPA of non-priority Sector	t-value of b1	R^2	D.F
1	-0.115	0.0398	0.8648			0.74	10
2	-30.32	0.3279*	3.169	0.3298*	3.386	0.56	9

* Significant at 1 percent level.

The value of factor co-efficient of non-performing assets of priority sector is (b1=0.0398) positive and statistically significant. The co-efficient of determination R squared in priority sector is higher than seventy percent, shows high degree of explanation of variability in profitability of public sector banks. It indicates that public sector banks are interested to achieve the goal of target-oriented approach without getting proper information of credit worthiness of the concerned beneficiaries (Sharma 2002). The value of factor co-efficient of non-performing asset in non-priority sector is positive and statistically significant at 1 percent level. The co-efficient of determination R squared in the modified regression function shows more than fifty percent variation in profitability but low as compare to the linearity function of priority sector. It means that the advances to the primary activities is difficult to recover due to political interfere.

IMPACT OF NON-PERFORMING ASSETS ON PROFITABILITY WITH OTHER VARIABLES

The impact of non- performing assets on profitability in totality in simple regression model may not give true result because profitability of public sector banks is affected by many other factors such as credit-deposit ratio, priority sector advances as percentage of total credit, operating expenses as percentage of total asset, the level of spread burden (difference between interest earned and interest expanded) and the burden (difference between non-interest expenditure and non- expenditure income), fixed deposits as percentage of total deposits have been used as a proxy variable to examine their impact on profitability.

Regression equations are estimated stepwise in multiple regression models on aggregate values of all twenty-seven public sector banks and x1 appeared as the first variables, thereafter another variable were added one by one to the modified regression equation shows maximum fit in table-4.

The first regression equation of multiple regression models is used to estimate the aggregate impact of Non-Performing Assets (NPA) on profitability. The value of factor co- efficient of non- performing asset (b1= -0.494) is negative and statistically significant at 1 percent level. The negative relationship indicating that any unit increased in non-performing asset would lead to decline the magnitude of profit of public sector banks (Meena Sharma 2005). Further, it seems that the funds of public sector banks deployed into unproductive asset, which do not yield any income or return and put also adverse impact on the industrial, and agriculture growth (Ram Mohan and Ray 2004).

TABLE-4 AGGREGATE IMPACT OF NON-PERFORMING ASSETS ON PROFITABILITY WITH OTHER BANKING VARIABLES

Regressio Equation	a	b1 Value of NPA	b2 value of spread a burden	b3 Priority sector advances	b4 Credit- Depos ratio	b5 Operatin expenses	b6 Term deposits	b7 Provisions and contingencie	R^2	D.F
1	2.4271* (10.93)**	-0.494* (2.420)							0.50	10
2	-1.0029 (0.537)	1.2428 (1.849)	-0.065* (3.978)						0.63	9
3	-1.4510 (0.473)	0.007 (0.190)	1.3055 (1.666)	-0.066* (3.611)					0.64	8
4	2.140 (0.819)	-0.055 (2.771)	-0.035 (1.131)	1.8958* (3.075)	-0.951 (5.569				0.82	7
5	1.9181 (0.698)	-0.059 (0.652)	-0.053* (2.501)	-0.0264 (0.751)	1.8358 (2.824	-0.089 (4.521)			0.83	6
6	1.3986 (0.474)	-0.012 (0.731)	-0.0452 (0.426)	-0.051* (2.281)	-0.013 (0.328	1.992* (2.805)	-0.084* (3.908)		0.85	5
7	1.3603 (0.425)	0.0021 (0.512)	-0.0166 (0.830)	-0.0244 (0.215)	-0.051 (2.107	-0.0142 (0.321)	2.0881* (2.636)	-0.085* (3.626)	0.86	4

*Significant at 1 percent level. ** Figures in parentheses are t- value.

The value of spread and burden (x2) variables is added in modified regression equation and its value (b2 = -0.065) is negative and less than unity but statistically significant at 1 percent level. The co-efficient of determination (R^2) in the changed linear regression is more than sixty percent shows high degree of explanation of variability in the dependent variable and squeezing interest spread income of public banks (Sharma 2005).

The outstanding credit on the priority sector in the form of (x3) variable is added in another modified regression equation of multiple regression models. The value of factor co-efficient of priority sector advances (b3=-0.0664) is negative and less than unity but statistically significant at 1 percent level. The co-efficient of determination (R^2) is 64 percent shows high degree of explanation of variability in the profitability of the public sector banks. The study found that public sector bank extended their branches in the rural areas and provided credit to the marginal and small farmers and traders according to the welfare policy of the government and unable to recover the advances or loan due to political interfere and social unrest (Bhattacaryae and Sivasubramainan2003). It seems that inadequate recovery of loan from priority sector is blot on the credit policy of public sector banks and also adverse impact to get finance from the apex body of capital market for agriculture development.

The amount of credit-deposit ratio (x4) is also added to another regression equation and the value of factor co-efficient of credit- deposit ratio (b4=-0.9512) is negative and less than unity The co- efficient of determination (R^2) in the transformed regression equation is more than eighty percent shows high degree of explanation of variability in the dependent variable. It seems that the high level of non-performing assets (NPAs) made

bank's credit policy shy and non-viable which blot the primary and secondary economic activities despite enough liquidity is available in the banks (Ravishanker 1997).
The value of operating expenses as percentage of total asset (x5) and term deposits (x6) variable as percentage of total deposits are added in another two modified regression of multiple regressions model and their factor co-efficient are negative and less than unity but statistically significant at 1 percent level.
In the last regression equation, the provision and contingencies variable as percentage of total asset (x7) is added and all the seven variables collectively explain more than eighty percent variation in profitability of public sector banks and significant in explaining the relationship. Statistically result reveals that the present level of non-performing asset in public sector banks affects fifty percent profitability of the banks and its impact has gone to increased at very large extent when works with the other strategic banking variables.

IMPACT OF NON –PERFORMING ASSET (NPAs) ON PRODUCTIVITY

The high level non-performing assets not only increasing the working cost of banking sector (Das1999) but also affects productivity and efficiency (Rudra Sensarma2005). The understandings behind that banking staffs are primarily engaged in preparing papers for filing suits to recover loan and over dues on the borrower instead of devoting time for planning to mobilization of funds.
Simple regression model is used to measure the degree of relationship between non-performing asset (NPAs) and productivity. Business per employee (BPE) and operating profit per employee (OPE) variables are used as dependent variable for measuring productivity and efficiency and non –performing assets (NPAs) as percentage of total asset as independent variable.
Statistically results in table-5 revealed that non-performing assets (NPAs) have negative relationship with business per employee (BPE) and magnitude of relationship is statistically significant at 1 percent level. The value of co- efficient of determination (R^2) is approximately equal to unity and shows high degree of explanation of variability in the productivity and efficiency of public banks in terms of business per employee. The seems that there is inefficiency and mismanagement in assessment and dispersing the advances in public sector banks but a number of studies found that business per employee is affected by many other factors like automation, computerization, and establishments of branches in unbanked areas
(Sharma 2005).

TABLE-5 NON-PERFORMING ASSETS AND PRODUCTVITY

Regression equation	a	b1 Value of Non-performing assets	t-value of b1	R^2	D.F
1	19.907	-0.047*	2.420	0.98	7

*Significant at 1 percent level

Another indicator of productivity measurement is operating profit per employee (OPE) shown in table-6. The value of factor co-efficient (b1=0.450) is less than unity and statistically significant at 1percent level of significance. The factor co- efficient of

determination (R^2) is approximately seventy percent and shows high degree of explanation of variability in the productivity

TABLE- 6 NON-PERFORMING ASSETS AND PRODUCTVITY

Regression equation	a	b1 Value of Non-performing assets	t-value of b1	R^2	D.F
1	10.135	0.450*	7.227	0.69	7

*Significant at 1 percent level

It indicates that the increase in the level of non-performing assets leads to fall in the profit per employee of public banks at very large extent.

CONCLUSION

The gross non-performing assets of public sector banks in absolute terms has shown increasing trend till 2001 and declined later on, whereas its percentage shown declining trend. One fourth amount of total advances of public sector banks was in the form of doubtful or non-performing assets in the initial year of nineties, which raising question mark on the credit appraisal performance of the public sector banks in India.

Statistically result revealed that the present level of non-performing assets in public sector banks affects fifty percent profitability of the banks and its impact has gone to increase at very large extent when it works with other strategic banking variables.

The high value of co-efficient of determination shown high degree of explanation of variability in the productivity and efficiency of public sector banks in terms of business per employee and operating profit per employee.

POLICY IMPLICATION

Public sector banks must follow the banking norms and rules at the time of acceptance of credit proposals and such projects having inherited weakness must be rejected at the first instance. The management of public banks should also upgrade the credit approval skills of the staff.

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