CHAPTER- IV
Profitability of RRB in study Area:
Trend and Determinants

4.1. Introduction

The RRBs were established with more emphasis on social objectives of empowering the rural poor than on the objective of earning profits on commercial lines. As per the mandate, these banks devoted themselves to serve the rural society by the way of providing subsidised credit so as to fulfill their various credit needs and to assist them to come out of poverty and miseries of life. Thus, the social objectives overshadowed their commercial objectives and the inherent inadequacies in their operations, such as, limited area of operation, restricted scope of lending, administered interest rates, high operation cost involved in handling small loans, thin interest spreads, lack of proper infrastructural facilities, low recovery rate, and so on, were either overlooked or ignored. This led to the huge losses of RRBs over the years and drew attention to the policy makers.

With the onset of liberalisation and financial sector reforms in early 1990s, the government initiated steps to make these rural financial institutions vibrant and self-sustaining so as they can serve the rural masses in adequate manner. The introduction of financial sector reform measures, in 1994-95 for RRBs, heralded an era of transformation and created a new operating environment. The aforesaid impediments were consequently nurtured to reduce their intensity but at the same time these banks have been pushed to the market from their protected and regulated framework to face aggressive competition with commercial banks. Under the changed economic scenario, profit is being considered as the sole index to measure bank’s performance, a sign of their vitality and the degree of success.

These banks are now assigned to play a three dimensional role – the traditional functions of commercial banking, with that of social banking and at the same time as the major depository of savings of the rural people to finance the national plans. They are also expected to generate enough surpluses for their survival and growth. Therefore, the success of RRBs, in present day scenario, lies
in achieving a fine blend of commercial banking and social banking. They are to achieve this goal in a situation when increasing competition is squeezing profitability and forcing the banks to work on shrinking spreads.

Under this backdrop, an endeavour is made in the present chapter to analyse the profitability aspects of the RRB under study and to unearth the factors determining the profitability of RRBs in the southern Assam. The study also makes a critical assessment of its profitability performance with a comparison of the same between the pre and post reform period and, highlights the impediments in increasing profitability of these banks in general and more particularly, of the study area.

4.2. Conceptual framework:

4.2.1. Profit and Profitability:

Profit is a reliable guide to the operational performance of a firm or business and indicates whether it is worthwhile doing business in any one period or not. It ensures the survival, prosperity and growth of an organization.

The word ‘Profit’ originates from Latin, means, "to make progress.” In common parlance, we get the following meanings of profit:

- *It is simply the excess of returns over expenditure in a transaction or series of transactions, especially, the excess of the selling price of goods over their cost.*

- *Profit is the surplus of revenue after the deduction of all the expenses incurred on earning it. It is the reward for entrepreneurship.*

- "*Profit is the residual value arrived at after deducting all money costs (from total sales revenue)".*

- *Profit is also seen as the compensation accruing to entrepreneurs for the assumption of risk in business enterprise as distinguished from wages or rent.*

- *To a common person, it simply means the positive financial gain earned by an enterprise from an investment or business operation in course of a*

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145 Merriam Webster dictionary - http://www.merriam-websterunabridged.com
period of time, normally a year, after excluding all relevant expenses from total revenue. Under capitalism, it is a positive return made on an investment by an individual or by business operations. It is another name for "the net economic value added.

From Marxian point of view, it is a mechanism of class exploitation, where capitalists from their workers and suppliers extract surplus value beyond the point where costs are covered.

However, under capitalism, the methods of calculation differ between accountants and economists. There are differences in the definition of accounting profit offered by different authors. For example:

In the **accounting sense** of the term, **net profit** (before tax) is the sales of the firm less costs like as wages, rent, fuel, raw materials, interest on loans and depreciation. Accounting profit is the difference between total revenue received from the sale of the products with reference to a period of time along with the money value of the inventories added during the period, if any, at the current market price and the total costs of production. "A business is said to be making an accounting profit if its revenues exceed the accounting cost what the firm pays for those inputs."  

Accounting profits provide us with an intermediate view of the viability of a business. Although, losses for one or two years may not harm the bank permanently, but, if it is incurred for a longer period, it may jeopardize the bank’s viability.

In economics, profit is the price or reward given to the entrepreneur, an investor or organiser for the services provided by him/her in organising the business / production and accepting the risks and uncertainties involved in production / running the business. A firm is said to be making an **economic profit** when its revenue exceeds the total opportunity cost of all inputs. Thus, Pure or economic profit is the increase in wealth that an investor has made from an investment, taking into consideration all costs associated with that investment.

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146 From Wikipedia, the free encyclopedia: http://en.wikipedia.org/wiki/profit
1 Opportunity cost is the investment returns given up by not rejecting the next best alternative of investment and wages of the entrepreneur given up by not working elsewhere.
including the opportunity cost of capital. It refers to the net value added by a firm or industry after all the factors of production have been credited their full opportunity cost. Hence, economic profit = accounting profit – opportunity cost of capital.\(^{150}\)

Thus, Economic profits provide us with a long-term perspective of a business. Furthermore, Profit can be gross, or net.

**Gross profit** is the difference between sales and the costs of the goods sold. **Net profit**, on the other hand, is the difference between gross profit and operating expenses, including income tax expenses. Therefore, \(\text{Net profit} = \text{Gross profit} - \text{Income tax expenses}\).

Profit is, very often, considered from **Social and Commercial points of view**. The two concepts of profit may not go together as it may be the case that the social profit is much higher but the commercial profit is negative or vice versa.

From the social point of view, it represents the social benefits over social costs. It is very difficult to measure social profit due to the involvement of subjective elements and value judgement in it and also due to the lack of well developed measuring techniques. Commercial profit is the term synonymously used for accounting profit. **Commercial concept of profit** is quantifiable and it is measured simply by the accounting difference between the revenue and cost.

The two terms **profit and profitability** are not synonymous. Profit is an absolute term (volume), whereas profitability is a relative term (ratio). Profitability differs from profit because profitability does not reveal how much profit it earned (gained) rather, how efficiently earning is derived.

**Profitability** is the ability of a given investment to earn return from its use. It is the variant of profit and an operational concept signifying economic efficiency (Solmon, E.; 1996).\(^{151}\) It refers to the profit earning capacity of a product, process or the firm, as the case may be. This indicates the efficiency or otherwise with which a firm is managed (Banerjee Bhabatosh, 2003).\(^{152}\)

Like profit, profitability may also be viewed from two angles - the social profitability and the commercial profitability. It is only through commercial

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\(^{152}\) Banerjee Bhabatosh 'Financial Policy & Management Accounting', Prentice Hall of India, N Delhi, 2003, p-115
profitability, the performance and efficiency of a firm or institution is normally judged.

4.2.2. Profitability of a Bank:

The measurement of profitability of a bank is rather difficult exercise with particular reference to social approach to banking in India. The profitability of a bank arises mainly from lending activities which are cyclic in nature and dependent on the needs and strengths of borrowers. In modern times, though banks have placed more emphasis on transaction fees, primarily loan fees, service charges and other ancillary services*, lending activities still provide the bulk of a commercial bank's income. Therefore, a bank generates a profit mainly from the differential between the level of interest it pays for deposits and other sources of its funds, and the level of interest it charges on its lending activities i.e. the interest spread.

Profit of a bank can be stated as the difference between current operating income and the current operating expenditure. Interest and commissions on bills, loans, advances, balances with RBI and foreign exchange business represent the current operating income. Current operating expenditure, on the other hand, includes interest paid on deposits mobilized and borrowings, salaries and allowances paid to the staffs, other establishment expenses, taxes, etc.

The levels of efficiency, productivity, effectiveness, etc. of a bank are, therefore, reflected through the bank’s profitability. It can therefore be considered as a composite index of the bank’s performance in its various areas of operation.

A bank’s Profitability is measured by relating profit to working fund / total assets / income / volume of business / deposits, etc. [Hussain and Moin Uddin,(1998)]153]. The ratios like: Profit to working fund, Profit to total assets, Profit to income, Profit to volume of business, Profit to deposits, etc are commonly used to measure it.


*other services provided by a modern commercial bank are related to international banking, foreign exchange, insurance, e-banking, wire transfer, etc however, the RRB under study is not engaged in providing any of type of such services.
154 Hester, Donald I Indian Banks Their Portfolio, Profits and Policy, University of Bombay, 1969
Angadi and Devraj (1983)\textsuperscript{157} Akhavein et al. (1997)\textsuperscript{158}, Demirguc-Kunt and Maksimovic (1998)\textsuperscript{159} Short (1979)\textsuperscript{160}, Molyneux and Thornton (1992)\textsuperscript{161} Bikker and Hu (2002)\textsuperscript{162}, Goddard et al. (2004)\textsuperscript{163} and Mishra (2006)\textsuperscript{164} recognises two broad sets of factors - internal and external. The \textit{internal determinants} originate from the financial statements, i.e., the balance sheets and/or profit and loss accounts of the bank. These are often termed as micro or bank-specific determinants of profitability. The \textit{external determinants} are systemic forces that reflect the macro economic environment, which conditions the operation and performance of financial institutions. A number of explanatory variables have been also been suggested in the literature as derivatives for both the internal and external determinants. The typical internal determinants engaged in the aforementioned literature are: size of the bank and its capital base, risk and portfolio management, the credit-deposit ratio, capital and liquidity ratios, loan loss-expenses ratio, recovery rate, etc.

Given the nature of banking business, the \textit{risk management} is of crucial importance for the financial health of a bank. During periods of uncertainty and economic slow down, banks prefer a more diversified portfolio to avoid adversities and raise their liquid holdings in order to reduce risk. Thus, both credit risks and liquidity risks assume crucial importance in determining the profitability of banks. However, the literature provides evidence of a negative and significant relationship between the level of liquidity and profitability (Molyneux and Thornton, 1992).\textsuperscript{165}

Miller and Noulas\textsuperscript{166} found a negative impact of credit risk on profitability. This result may be explained by taking into account the fact that more the financial institutions are exposed to high-risk loans; the higher is the accumulation of

\textsuperscript{157} Angadi, V and Devraj, V John Productivity and Profitability of banks in India, EPW, Vol 18, No 46, 1983, pp 160-170
\textsuperscript{160} Short, B K "The Relation Between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe and Japan", Journal of Banking and Finance, 1979, Vol 3, pp 209-219
\textsuperscript{164} Mishra Biswa Swarup The Performance of Regional Rural Banks (RRBs) in India Has Past Anything (o Suggest for Future? Reserve Bank of India Occasional Papers Vol 27, No 1 and 2, Summer and Monsoon 2006, pp 91-118
\textsuperscript{165} Molyneux and Thornton Ibid, 1992, pp 1173-1178
\textsuperscript{166} Miller, S M, Noulas, A G "Portfolio Mix and Large-bank Profitability in the USA", Applied Economics, 29 (4), 1997, pp 505-512
unpaid loans implying that these loan losses have produced lower returns to many commercial banks (Athanasoglou, Brissimis and Delis, 2005).\textsuperscript{167}

Expense management, a correlate of efficient management is another very important internal determinant of bank’s profitability. An expenses-related variable is to be included in the cost part of a standard microeconomic profit function. In this context, Bourke (1989)\textsuperscript{168} and Molyneux and Thornton (1992)\textsuperscript{169} had empirically shown that better expense management and profitability go hand in hand.

As far as the external determinants of bank profitability are concerned, the variables that describe the macroeconomic environment, such as inflation, interest rates, growth rates of money supply and variables that represent market characteristics are given importance. The other important external determinants, empirically modeled by different scholars, are government’s regulation [Edwards (1977)]\textsuperscript{170}, competition [Tschoegl (1982, 1983)]\textsuperscript{171}, concentration of banks [Rhoades (1977)]; Schuster (1984)]\textsuperscript{173}, growth in market, capital scarcity in the economy (interest rates have been considered as a proxy for capital scarcity) and government ownership [Short (1979)].\textsuperscript{174}

Revell (1979)\textsuperscript{175} introduced the issue of the relationship between bank profitability and inflation. He interpreted that the effect of inflation on bank profitability depends on whether banks’ wages and other operating expenses increase at a faster pace than inflation. Perry (1992)\textsuperscript{176} in a similar line contends that the extent to which inflation affects bank profitability depends on whether inflation expectations are fully anticipated.

The influence arising from ownership status of a bank on its profitability is another much debated and frequently visited issue in the literature. The proposition that privately owned institutions are more profitable, however, has

\textsuperscript{168} Bourke R. Concentration and other determinants of Bank Profitability in Europe, N America, and Australia Journal of Banking and Finance, 1989, pp 65-79
\textsuperscript{169} Molyneux and Thornton Ibid, 1992, pp 1173-1178
\textsuperscript{171} (i) Tschoegl, Adnan E “Concentration Among International Banks - A Note”, Journal of Banking and Finance, Vol 6, 1982
\textsuperscript{172} (ii) Tschoegl, Adnan E “Size, Growth and Transnationality Among the World’s Largest Banks”, Journal of Business, 56, No 2, 1983
\textsuperscript{174} Schuster, Leo "Profitability and Market Share of Banks", Journal of Bank Research, Sprng, 1984
\textsuperscript{175} Short, B K "The Relation Between Commercial Bank Profit Rates and Banking Concentration in Canada, Western Europe and Japan", Journal of Banking and Finance, Vol 3, 1979, pp 209-219
\textsuperscript{176} Revell, J “Inflation and Financial institutions”, Financial Times, London, 1979
\textsuperscript{177} Perry P “Do Banks Gain or Lose from Inflation”, Journal of Retail Banking, Vol 14, No 2,1992, pp 25-30
mixed empirical evidence in favour of it. For instance, while Short (1979)\textsuperscript{177} provides cross-country evidence of a strong negative relationship between government ownership and bank profitability, Barth et al (2004)\textsuperscript{178} claim that government ownership of banks is indeed negatively correlated with bank’s efficiency. In addition, Bourke (1989), and Molyneux and Thornton (1992)\textsuperscript{179} observed that ownership status is irrelevant in explaining profitability.

However, it is to be pointed out that there is no consensus among the different scholars in adopting the parameters to evaluate profitability of a service industry like bank. Notable studies in the field\textsuperscript{180} have given importance to different aspects while analyzing the profitability of commercial banks. Hester (1964)\textsuperscript{181} has given stress on portfolio adjustment; Angadi and Devraj (1983)\textsuperscript{182}, on the other hand, have given social responsibility as prime importance than on commercial profit earning.

Varde and Singh (1987),\textsuperscript{183} in their study on “Branch Banking and Profitability”, used the following seven determinants of profitability for banks:

i) \[ r = \text{Rate of interest earning on total advances.} \]
\[ = \frac{(R/A) \times 100}{\text{Where,}} \]
\[ R = \text{Total interest earned by the bank on advances, and} \]
\[ A = \text{Total annual advances.} \]

ii) \[ k = \text{average rate of Interest paid by the bank on deposits.} \]
\[ = \frac{(K/D) \times 100}{\text{where,}} \]
\[ K = \text{Interest paid by the bank on deposits, and,} \]
\[ D = \text{Total annual deposits mobilized by the bank.} \]

iii) \[ m = \text{Rate of manpower expenses per employee in relation to the volume of business} \]
\[ = \frac{M/V \times 100}{\text{(%)}} \]

\textsuperscript{177} Short, B K (1979) Ibid
\textsuperscript{179} Ibid. 1992. pp 1173-1178
\textsuperscript{180} i) Hester, Donald D., 1964 Ibid
\textsuperscript{181} ii) Varde, V and Sing Sampat Branch Banking and Profitability Bank Economists, Meet 1987, Aug 7-9, 1987, Proceedings and Papers, Bangalore
\textsuperscript{184} v) Angadi, V B ‘Policy Constraint and Bank’s Profit Viability’ Economic and Political Weekly, Vol 21, No 24, June 1986, pp 1081-1084
\textsuperscript{185} vi) Ghosh Roy, O Bank Branch as Profit Centre (Ten Ways to increase Profits) An asset Liability management Approach, BDP Publications, Pune, 1997
\textsuperscript{186} vii) Haster Donald D., 1964 Ibid,
\textsuperscript{188} ix) Varde, V and Singh, S, 1987 Ibid
\[ M = \text{Total manpower expenses of the bank during the year, and,} \]
\[ V = \text{Sum of annual deposits (D) and annual advances (A), i.e., } V = D + A \]

iv) \[ o = \text{Rate of operational expenses in relation to the volume of business (\%)} \]
\[ = \frac{O}{V} \times 100, \text{ where,} \]
\[ O = \text{Total operating expenses of the bank during the year, and} \]

v) \[ c = \text{Rate of Non-interest income in relation to the volume of business (\%)} \]
\[ = \frac{C}{V} \times 100, \text{ where,} \]
\[ C = \text{Total non-interest income by way of commissions, etc. earned by the bank during the year and} \]
\[ V = \text{Sum of annual deposits (D) and annual advances (A), i.e., } V = D + A \]

vi) \[ m_1 = \text{manpower expenses per employee.} \]
\[ = \frac{M}{N}, \text{ where,} \]
\[ M = \text{Total manpower expenses of the bank during the year, and,} \]
\[ N = \text{Total number of employees in the bank during the year} \]

vii) \[ m_2 = \text{volume of business per employee } = \frac{V}{N}, \text{ where,} \]
\[ V = \text{Sum of annual deposits (D) and annual advances (A), i.e., } V = D + A, \]
\[ \text{and} \]
\[ N = \text{Total number of employees in the bank during the year.} \]

They observed that profitability of a bank is positively related to ‘r’, ‘c’, ‘m_1’ and ‘m_2’ but the relationship is negative with ‘k’, ‘m’, and ‘o’.

**Parulkar and Ullal (1987)** have measured profitability of banks as follows:

\[ \text{Profitability } = \frac{[(\text{Spread } - \text{ operating expenses}) / \text{Average Working Fund}] \times 100; \text{ where,}} \]
\[ \text{Spread } = \text{interest earned on working fund } - \text{interest cost on working fund,} \]
\[ \text{Average Working Fund } = \text{Average deposits } + \text{Average Borrowings from central office or other banks or agencies.} \]

**Padwal and Godse (1987)** have measured **profitability in terms of Spread and Burden** as follows:

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Profit ($P$) = Spread ($S$) – Burden ($B$), where,

\[ S = \text{Total interest income (R)} - \text{Total interest paid (K)} \]
\[ B = [\text{Total manpower expenses (M)} + \text{Total other expenses (O)}] - [\text{Total non interest income (C)}] \]

Thus,

\[ P = S - B = (R-K) - (M + O - C) \] ................. (1)

Dividing throughout by the volume of working fund, equation (1) can be converted into relative measures as

\[ p = (r - k) - [(m + o) - c] \]
\[ = r - k - m - o + c \]
\[ = r + c - k - m - o \] .............................................. (2)

Thus, $p$ would be high if

1) $r$ is higher  
2) $c$ is higher and
3) $k$, $m$, $o$, are low.

Kunt and Huizinga (1998), in their study have shown that the relationship between the differences in interest margins and bank profitability is reflected by various determinants like,

- bank characteristics,
- macroeconomic conditions,
- explicit and implicit bank taxes,
- regulation of deposit insurance,
- general financial structure and
- several underlying legal and institutional indicators.

They formulated profit function for commercial banks as follows:

\[
\text{Profit} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + u,
\]

where,

- $X_1$ = interest spread,
- $X_2$ = pre-emption due to SLR and CRR,
- $X_3$ = rural – semi urban branch ratio,
- $X_4$ = wage rate,
- $X_5$ = average labour productivity,
- $X_6$ = policy of the government,
- $X_7$ = price index,
- $X_8$ = market share,
- $X_9$ = fixed deposit to total deposit ratio,
- $X_{10}$ = priority sector lending to total lending ratio,
- $X_{11}$ = recovery rate and
- $u$ = the random factor.

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They found positive values for coefficients $\beta_1, \beta_2, \beta_6, \beta_8$ and $\beta_{11}$ but negative values for coefficients $\beta_2, \beta_3, \beta_4, \beta_7, \beta_9$ and $\beta_{10}$.

Thus, the important parameters and ratios used by different scholars to measure the profitability of banks can be summarised as under:

a) Interest Spread,

b) SLR +CRR,

c) Credit Deposit Ratio

d) interest paid on deposits / Working fund Ratio

e) Interest income / burden ratio

f) Spread income / working fund ratio

g) Market share in banking business captured by the bank concerned,

h) proportion of fixed deposits in the total deposits,

i) Average labour productivity,

j) A policy variable denoting changes in the government policies, and

k) Proportion of Deposits going to priority sector,

l) Proportion of rural and semi urban branches,

m) Total income / total volume of business Ratio

n) Other income / working fund ratio

o) Changes in the consumer price index, and so on.

4.2.3. Profitability in case of RRBs:

While many of the above factors used by the scholars to explain the profitability problems of a bank would be relevant, we have scanned the literature that has exclusively focused on the RRBs. The literature on RRBs recognises a host of factors affecting their financial health and/or profitability.

However, while analyzing profitability aspects of RRBs, it is to be kept in mind that there are some social obligations to be fulfilled by the RRBs in performing their banking activities. Social obligation include opening up of more branches in the remote areas to facilitate banking facilities to the rural masses, providing credit on easy terms and conditions to the weaker section of the society, and also in concessional rate of interest. The obligation to serve agricultural sector, small-scale industries, and other weaker section of society by providing them loans at concessional rates of interests has also an impact on the profitability of RRBs. The share of lending to such sector seems to be inversely related to the profitability of RRBs as priority sector lending receive lower rates of return compared to the commercial lending.
Kulkarni (1979)\textsuperscript{187} has argued that profit maximization approach is out of place when referred to the profitability of banks as there are several social benefits incurred from a banking operation. Therefore, it is improper to consider bank’s costs and returns on purely monetary terms. Angadi and Devraj (1983)\textsuperscript{188} have also used social responsibility as a variable to explain profitability and found negative coefficient for it. However, Seshadri (1980)\textsuperscript{189} has argued that the burden of social responsibility cannot justify lower profitability of Public sector banks.

However, a real picture of total profitability can only be arrived at only when both the operational or commercial profitability and the social profitability are taken into account. But, unfortunately, there is no properly developed method to quantify the qualitative social benefits generated by RRBs. Further, after the implementation of financial reform measures, the differences between the RRBs and the commercial banks have gradually been wiped out. Because of the above reasons, the profitability analysis of RRB under study has been done only on basis of commercial profit.

According to the Narasimham Committee, RRBs have not been able to earn much profit because of the restrictive policy environment that limited their operation within the target groups only. There are a large number of defaulters and a consequent poor and unsatisfactory recovery performance. Their cost of operation has been high because of:

- the increase in the salary scales of the employees at par with the salary structure of the employees of commercial banks,
- in most cases, the RRBs have followed the same methods of operation and procedures as followed by commercial banks. Therefore, these procedures have not found favour with the rural masses, and
- in many cases, banks were not been located at the right place. For instance, the sponsoring banks are also running their branches in the same areas where RRBs are operating.

The other factors affecting profitability of RRBs are:

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\textsuperscript{187} Kulkarni, L.G - 'Development responsibility and Profitability of Banks'- Economic and Political weekly. Vol. 14, No. 34, August 1979, pp 99-102
\textsuperscript{188} Angadi and Devraj, V. John: 'Productivity and profitability of banks in India' Economic and Political weekly, vol 18, November 1983, pp 160-170
i) Share of financial market captured by the RRB in comparison to the other agencies of financial intermediation functioning in rural areas, such as cooperatives, rural branches of commercial banks, moneylenders and other non-institutional agencies in rural credit.

It can be expected that greater the market share, higher the profitability. Hence there will be a positive coefficient of this variable.

ii) Changes in price indices might also affect the profitability as

a) With the increase in consumer price index, there is an increase in Dearness Allowances paid to the employees and as a result, there is a rise in wage bill of the bank. This would have an adverse effect on profitability, unless the increase in manpower expenses is compensated by an increase in employee productivity.

b) With the rise in price index the cost of living of the rural people also increase and assuming that the income of the rural masses does not increase proportionately (as we know that inflation is generally pro rich and anti poor), they will have less amount of surplus and it would reduce the deposits mobilization by the bank. Thus, it may affect the cost of fund and thereby profitability. Thus, the variable will have a negative coefficient associated with it.

c) The wholesale price index might also have an adverse effect on profitability of RRBs. This is because in a period of high inflation people prefer to invest in real estate rather than to keep their money as bank deposits. Thus with the higher wholesale price index the bank deposits are likely to fall, having an adverse effect on profitability of bank.

iii) The bank deposits have three major components, viz. deposits in current account, deposits in savings account, and term deposits. The first two components denote short term deposits, while the third component represents long term deposits. The bank depends heavily on term deposits for business as it provides security and confidence to the bank managers for diversification of banking activities such as merchant banking, leasing, housing loans, etc. hence greater the proportion of fixed or term deposits, greater is the expected
profitability of banks. Further, one has to view the macro level perspective in
the light of the following factors affecting the operational results of RRBs.

a) A major share of banks' financial resources is pre-empted from their lending
operation, as they are to meet the SLR and CRR requirements. Through
investments in government securities and other approved securities to meet
SLR requirement, the banking system finances the country's plan investments
in a biog way. However, compared to the direct lending, the returns on these
investments are very low.

b) Quantitative targets and the prescribed deployment of credit at concessional
rates to priority sector, weaker section of the society and as per various
government programmes, limit the returns on their credit portfolios.

c) The scope of ancillary business of banks is an important factor determining
profitability in present era of liberalisation. However, the RRBs generate only
a small proportion of their total income from such business and therefore they
have to depend on fund based income to bring about tangible improvement in
profits.

d) The wage structure of the employees is decided upon at the industry level
through the bipartite settlements. Individual bank branches have no control
over this aspect of their operating cost.

e) The items of expenditure like rent, taxes, insurance, post and telegram charges,
stationary, books and forms etc., increase not only in proportion of the volume
of business but due to the increase in the cost of these services/items also.

All these factors considerably limit the maneuverability of an individual bank
branch to increase their income and reduce their operational cost.

Nevertheless, the factors affecting the profitability of a RRB can broadly be
divided into two sets:

1. Factors affecting the income of the RRBs and
2. Factors affecting the expenditure of the RRBs.

➢ The important factors included in the first set are:

• Interest and other income received from the customers.
  This is further, influenced by
• Interest rate structure determined by the RBI (or fixed by the RRB under the interest rate deregulation regime).
• Interest received on funds lent to head office.
• Interest received from RBI on Statutory deposits.
• Interest spread.
• Statutory measures of RBI (SLR and CRR)
• Ceiling on interest rate to be charged on loans and advances set by the RBI
• Proportion of total advances going to the priority sector.
• Proportion of non-agricultural advances to total advances.
• Proportion of rural, semi urban and urban branches.
• Proportion of interest income to total income
• Macroeconomic environment of operational area of the RRB.
• Availability of viable projects to be financed.
• Quality of assets of the RRB
• Size and capital of the RRB
• Loan recovery rate.
• Efficiency of the staffs, and
• Managerial efficiency.

➢ The second set of factors affecting profitability of RRBs through their influences on expenditure side, mainly, includes:

• Interest paid to the customers on their deposits.
• The ratio of fixed deposits to the total deposits
• Interest rate structure on various deposit schemes.
• Interest paid on funds borrowed from its head office,
• Share of head office cost passed on to the branch,
• Proportion of total expenses in establishment expenses incurred at the branch.
• Rate of inflation and consequent hike in salaries and allowances of the staffs.
• Number of business accounts per employee.
• Size of loans and the cost of loan follow-ups, etc.
Again, total volume of profit of a bank depends on the profits earned by its branches. Loss incurred by some branches shall have an adverse impact upon the overall profitability of the bank as a whole. Therefore, to improve profit at corporate level, it is imperative that a proper monitoring and controlling is made of the basic operational units, i.e., branches. Hence, it is important to calculate the absolute profit or losses for the branches. Form the management point of view, its relevance is to use this information for trying to monitor the performance of each branch such that the loss making branches can be converted into a profit making one and the lower profit making branches are changed into higher profit making branches.²

4.3. Analysis of Profitability of RRB in South Assam (CGB): A Critical Assessment

4.3.1. The hypothesis:

With the above background, the present chapter delineates the issues on profitability problems of the bank under study. The hypothesis considered for this part of analysis is:

\[ \text{H}^3_{0}: \quad \text{"The profitability of the bank under study is independent of the +measures implemented by the banking sector reform."} \] [This hypothesis relates to the hypothesis no. 1 of our model]

4.3.2. Variables considered:

To assess the profitability problems of the bank under study, and to test the above hypothesis, we have considered 13 variables (including the volume of profit / loss per branch and per employee) which include profit ratios and the factors affecting volume of profit. The selected variables belong to four broad categories, viz. (i) variables relating to the business, (ii) variables relating to the income, (iii) # However, the real situation may differ from branch to branch. Some branches are deposit oriented without sufficient outlet to lend and some others are advance oriented with any sufficient deposit source potential. The head office acts as the coordinating agent and clearing house between these branches by transferring surplus resources from one set of branches to the other set of branches for lending purpose. As it involves the transfer of funds, and consequently affects the profit in both the branches, the head office acts as a distributor of share of interest to both the ends. This system is known as the transfer price mechanism.

Transfer price is nominally taken as the rate at which the branches of a bank borrow funds from their head office. However in Indian situation with large number of branches with variety of business mix, it is not possible for a bank to work out a uniform transfer price rate which is free from all biases. In fact, in this system most of the loss-making branches can always be converted into profit making branches with a slight change in the transfer price rate and without affecting the total profitability at the corporate level. Therefore, any inter branch comparison made by a bank using profit figures worked out with the help of transfer price mechanism will not give comparable picture of the branches. Ideally, in theory, the net total profits of branches plus and minus revenue expenses and expenses of controlling offices should equal the profit as per the profit and loss account of the bank as a whole. But, in practice, because of the error in fixation of transfer price, methodological margins of errors are too high and as a result the exercise losses credibility for any practical use.
variables relating to expenditure and (iv) variables relating to productivity. The
definitions of the selected variables along with their significance in determining
profitability of the bank are summarised in Table-4.1.

### Table 4.1

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Code</th>
<th>Variables considered for profitability analysis of RRB of South Assam</th>
<th>Definitions</th>
<th>Significance / implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VPB</td>
<td>Volume of Profit / Loss per branch (Rs.000)</td>
<td>(Total volume of surplus over expenses as appeared in the audited balance sheet of the bank for a year) / No. of branches.</td>
<td>To achieve a higher rate of profit, VPB should grow at a positive rate.</td>
</tr>
<tr>
<td>2</td>
<td>VPE</td>
<td>Volume of Profit / Loss per employee (Rs.000)</td>
<td>(Total volume of surplus over expenses as appeared in the audited balance sheet of the bank for a year) / No. of employees</td>
<td>Similar implications as in VPB</td>
</tr>
<tr>
<td>3</td>
<td>VBPB</td>
<td>Volume of business per branch</td>
<td>(Total Volume of Deposits + Loans and advances) / (No. of branches)</td>
<td>A higher VBPB is normally expected to yield higher volume of profit.</td>
</tr>
<tr>
<td>4</td>
<td>CDR</td>
<td>CD Ratio %</td>
<td>[(Total volume of loans and advances outstanding with the bank) / (Total volume of outstanding deposits mobilized by the bank during a year)] * 100</td>
<td>Higher the CDR, higher will be the profitability. A lower CDR implies siphoning of fund from operational area to some other areas.</td>
</tr>
<tr>
<td>5</td>
<td>RR</td>
<td>Recovery rate (%)</td>
<td>[(Total amount of loans and advances recovered by the bank) / (Total amount of outstanding loans and advances)] x 100</td>
<td>Higher the RR, lower will be the NPA and increase the Profitability</td>
</tr>
<tr>
<td>6</td>
<td>AWFPB</td>
<td>Average working fund per branch (Rs.'000)</td>
<td>[(Total volume of working fund of the bank in a year) / (Total number of branches)]</td>
<td>An increase in AWFPB increases the lending capacity and thus increases profitability</td>
</tr>
<tr>
<td>7</td>
<td>SBWF</td>
<td>Share of borrowings to the working fund (%)</td>
<td>(Total amount of borrowings from Sponsor bank, NABARD, RBI or Government during a year) / (Total working fund)</td>
<td>A decline in SBWF is normally associated with higher profitability. 8 with better investment opportunities, the SBWF may have positive correlation.</td>
</tr>
<tr>
<td>8</td>
<td>SPSL</td>
<td>Share of priority sector loans to the total loans.</td>
<td>(Volume of loans and advances to the priority sector) / (Total volume of loans and advances disbursed by the bank during a year)</td>
<td>An increase in SPSL would enhance the rate of economic development of rural economy in the long run. An increase in SPSL, coupled with higher RR and also increase profitability of the bank</td>
</tr>
<tr>
<td>9</td>
<td>IITIR</td>
<td>Interest income to total income ratio</td>
<td>[(Total income earned in the form of interest on its loans and advances outstanding) + (interests on reserves with the sponsor bank and RBI)] / (Total income from all sources)</td>
<td>With the permission to engage in non-traditional banking business, the IITIR is expected to decline. The IITIR is expected to have a positive correlation with profit of the bank.</td>
</tr>
<tr>
<td>10</td>
<td>SWFR</td>
<td>Spread to working fund ratio</td>
<td>(Total interest income – Total interest paid) / (total working fund)</td>
<td>An increase in SWFR increases profitability</td>
</tr>
<tr>
<td>11</td>
<td>TC</td>
<td>Transaction Cost</td>
<td>(operational expenses as percentage share of vol. of business = (Salary + other operating expenses) / vol. of business) x 100</td>
<td>Transaction cost is to be reduced to improve the profitability of the RRB.</td>
</tr>
<tr>
<td>12</td>
<td>BR</td>
<td>Burden ratio</td>
<td>[(Non interest expenditure - Non interest income) / vol. of business] x 100</td>
<td>The BR has a negative relationship with profitability.</td>
</tr>
<tr>
<td>13</td>
<td>METER</td>
<td>Manpower expenses to total expenses ratio</td>
<td>[(Total expenditure on salaries and allowances paid to the employees) / total amount of expenditure on all heads]</td>
<td>A higher METER would reduce the profitability.</td>
</tr>
</tbody>
</table>
4.3.3. **Statistical Tools and techniques used:**

In analyzing the stated problems and for testing of null hypothesis, we have used descriptive statistics to study the changes in the variables over the two periods of time. Further, paired sample T-test has been applied to test the level of significance of the changes in the volume of the variables over the two periods (Pre and post reform). Trend lines are also fitted, for both the periods, to examine the impact of changes in policy environment. Besides these, the functional relationship between profit of the RRB and the selected financial variables has been derived by using multiple regression analysis. The following paragraphs are devoted to analyse the influence of each of the selected variables on profitability of the RRB under study.

4.3.4. **Results and interpretations**

4.3.4a Volume of Profit / loss per branch and per employee (Rs. '000):

The results of the statistical analysis for the volume of profit or loss per branch and per employee, presented below, revels the following:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V,</td>
<td>b,</td>
</tr>
<tr>
<td>Profit / Loss per branch (Rs. '000)</td>
<td>-107.62</td>
<td>135.46</td>
<td>-33.706</td>
</tr>
<tr>
<td>Profit or loss per employee (Rs. '000)</td>
<td>-27.12</td>
<td>128.79</td>
<td>-7.963</td>
</tr>
</tbody>
</table>

i) The negative mean values of profit per branch (VPB) [(-) Rs.1.08 lakh] and profit per employee (VPE) [(-) Rs.27.12 thousand] for the pre reform period represent that on average the bank incurred a sizeable amount of net losses during 11 year period from 1983 to 1993-94. On the other hand, the positive mean values [Rs.38020 and Rs.9880 for VPB and VPE respectively] for the next period, delineates that the bank, in the post reform era, has rejuvenated itself into a profitable stage. Thus, the reform measures have brought a paradigm shift in the operational performance of the bank by pushing it into the profit zone from its loss incurring stage.

ii) However, the transformation from loss incurring to a profit earning stage is not significant from statistical point of view as demonstrated by the non-significant t-values for both the cases \[ t=0.78584(p = 0.45018) \text{ and } t = 0.81572 (p = 0.43366) \text{ for per branch and per employee profit respectively}. \] It implies that
in spite of a paradigm shift in operational policies, following implementation of reform measures, (viz., relaxation of service area and target group obligations, allowing RRBs to engage in all types of commercial banking business, dilution of priority sector definitions, etc.), the bank has not been able to overcome the problems associated with its profitability. As a result, the bank has remained unsuccessful in adequate exploitation of the opportunities opened up by banking sector reform measures.

iii) The lower value of C.V. for the pre reform period represents that the losses were more or less steady in nature. Where as, the higher C.V. for the post reform period reflects the instability of volume of profit earned by the bank. The higher degree of variability in the volume of profit was largely due to the transition from its protectionist regime to an era of liberalisation and market competition.

iv) The negative slope of the trend lines for pre reform period (-33.708 for VPB and -7.963 for VPE) reflect the declining trend of profitability during the period. On the other hand, during the post reform period, the upward trend of the variables depict the improvement in the profitability status of the RRB (slopes are +142.27 and 35.109 for VPB and VPE respectively)

The above observations exhibit that there has been a turn around of the bank from loss incurring to profit earning phase, following the implementation of the banking reform measures in RRB

4.3.4b. Volume of Business per Branch (VBPB):

The volume of business per branch is the crucial factor determinant of profitability of a bank. The volume of business being the sum total of the volume of deposits mobilized and the volume of loans and advances disbursed by the bank, it refers to a composite indicator of resource base and business ability of the RRB. Therefore, given the most efficient manpower, managerial efficiency and the highest possible recovery performance or lowest possible NPAs; unless the volume of business of the RRB grows at a higher rate, a higher volume of profit cannot be expected.

However, the volume of business depends on the two sets of factors:

a) the factors affecting the mobilization of deposits,

b) the factors affecting the volume of credit disbursement.
The important factors influencing the volume of business and business potential of different branches of the bank under study are the following:

i) The location of the branch (urban, semi-urban or rural)

ii) The per capita level of income of the people of the area.

iii) Behaviour of the staffs with the clienteles, staff efficiency, time and complexities associated with opening of a new deposit account.

iv) Variety of deposit schemes that suits the variety of savings requirements of different people.

v) Rate of interest on different schemes of deposits.

vi) Volume of working fund available with the RRB branches.

vii) The level of economic activities performed by the people of the operational area.

viii) Number of viable investment schemes/projects approached to the branch for finance.

ix) Loan recovery record of the operational area.

x) Infrastructural facilities like communication facilities available at the branch point, external outlook of the branch, etc.

The analysis of volume of business per branch gives the following results:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V.</td>
<td>b</td>
</tr>
<tr>
<td>VBPB</td>
<td>2249.59</td>
<td>67.06</td>
<td>+434.22</td>
</tr>
</tbody>
</table>

- There is a significant increase in the VBPB in the post reform period. This is depicted by the statistically significant increase in its mean from Rs.22,49,590 in the pre reform period to Rs.268,08,200 for the post reform period ($t = 4.568$, $p = 0.001$).

- The positive slopes of the two trend lines (+434.22 and +5583.87 for the two consecutive periods respectively) show an increasing trend in VBPB for both the periods, the trend higher in the post reform era.

- The C.V. for the post reform period is higher than that during the pre reform period (67.08 and 71.28 respectively). This increase in C.V. along with the higher positive slope of the trend line for the VBPB ($b_1 = +434.22$ and $b_2 =$...
+5583.87) represents the increase in VBPB at a galloping rate during the post reform period.

**Diagram - 4.1**

Trend lines for volume of business per branch during pre and post reform periods

- The higher rate of increase in the VBPB during the post reform is also demonstrated by its higher growth rate of the variable during the same period ($g_1 = 0.2216$ and $g_2 = 0.2402$).

However, while the increase in the volume of business during the pre reform period was mainly due to increase in outreach, the changes in policy parameters have largely contributed to the increase in the volume of business during the post reform period. Thus, the increase in the VBPB during the post reform period is mainly due to the positive implications of the banking sector reform measures implemented in 1994-95 in case of RRBs.

The increase in the volume of business during the post reform period has acted as one of the key factors that contributed to the increase in the volume of net profit of the RRB in South Assam.

**4.3.4c. Credit - Deposit Ratio (CDR):**

i) The detailed analysis on CDR, made in the previous chapter (§ 3.2.9), shows that there has been a significant decline from an average of 79.99% during the pre reform period to 30.72% in the subsequent period ($t=11.044; p=.000$). This reveals that, the RRB under study was engaged in lending, on average, more
than 3/4\(^{th}\) of its mobilized deposits to the people under its operational area during the periods from 1983 to 1993-1994 and against this it has reduced its lending to less than 1/3\(^{rd}\) of the total deposits mobilized during the period 1994-1995 to 2004-2005.

ii) The C.D. Ratio was relatively steadier during the earlier period than the later one, as demonstrated by the increase in C.V. from 16.50 to 31.76 over the two periods.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T- test</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.D. Ratio (%)</td>
<td>Mean, C.V., (b_1), (g_1)</td>
<td>Mean, C.V., (b_2), (g_2)</td>
<td>(t), (p)</td>
</tr>
<tr>
<td>C.D. Ratio (%)</td>
<td>79.99, 16.5, -3.027, -0.0389</td>
<td>30.72, 31.76, -1.526, -0.0409</td>
<td>11.044, .000</td>
</tr>
</tbody>
</table>

iii) Further, there is a falling trend in CDR in both the periods as depicted by the negative slope of the trend lines. \([b_1 = -3.027 \text{ and } b_2 = -1.5265]\)

iv) The declining trend is further confirmed by the negative growth rates of the variable for both the periods \([g_1 = -0.0389 \text{ and } g_2 = -0.0409]\). This demonstrates that during the post reform period, the CDR decreased at an increasing rate as compared to that of the previous period.

The above findings disclose the fact that, the management in their attempt to improve portfolio quality has desperately restricted lending to the rural sector and gradually moving far away from its objective of providing cheaper institutional credit to the weaker sections, in rural areas. The permission to enter into the security market – government securities and bonds as a step to improve the financial health of the RRBs, in particular, has aggravated the decline in the CDR during the post reform period.

The reasons that can be attributed for the rapid decline in CDR are as under:

a) With more stringent provisioning for non-performing loans than earlier and de-recognition of interest on overdue loans, after the implementation of banking sector reform measures, the bank became even more averse to lending to smaller, rural and agricultural borrowers.

b) The RRBs are now less interested to lend their mobilized funds to their rural clienteles, rather, they are more interested to invest in more safe and profitable investment avenues like bonds, mutual funds, company shares, etc. in their advent to reduce NPA and increase profit.
c) With the implementation of banking sector reforms, the RRBs have been allowed to expand their business outside their service area and target groups. Taking this opportunity, the RRBs have now diverted their funds from lending to investment.

d) In the new credit policy of RBI announced in 1994-95, the following new areas have been opened up for the RRBs for investment of non-SLR funds:

- UTI linked schemes and other schemes with repurchase facilities of UTI.
- Fixed deposits schemes of the profit making term lending financial institutions like IDBI, IFCI, ICICI, SIDBI, ETC.
- Bonds of the nationalised banks and profit making public sector institutions with top category rating by credit rating agencies.
- Non-convertible debentures of reputed blue chip companies.

e) Other arguments given by the officials in support of the falling CDR are, however:

- Lack of viable projects to finance in rural areas because of inadequate infrastructural facilities.
- Primitive agricultural practices, etc.

f) With the opening up of new areas of investment of non SLR funds for the RRBs, the study apprehends a further reduction in CDR the basic function of financial intermediation, i.e. mobilization of deposits for loaning is being negated.

The above analysis exposes the fact that the positive change in profit of the RRB is, largely, due to the decrease in CDR following the changes in the lending policy of the RRB. However, this policy changes in the utilisation of mobilized deposits has helped the RRB to improve its profitability but this has annulled the very concept of opening up of a separate rural financial institution especially for the upliftment of rural poor through the provision of easy finance for rural economic development.

4.3.4d. Recovery Rate (RR) (%):

It has already been observed in earlier chapter (§3.2.10), that there has been an improvement in the recovery performance of the bank during the post reform period. The improvement in profitability of the bank is largely due to the
improvement in its recovery performance. The summary of the findings shown below exhibits the following:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V.</td>
<td>b&lt;sub&gt;1&lt;/sub&gt;</td>
</tr>
<tr>
<td>Recovery Rate (%)</td>
<td>40.69%</td>
<td>50.86</td>
<td>-6.082</td>
</tr>
</tbody>
</table>

i) The recovery rate during the pre reform period was only 40.69% on average (with C.V.<sub>1</sub> = 50.86) and it has increased to 51.49% (with C.V.<sub>2</sub> = 34.91) during the post reform period.

ii) The statistically non-significant ‘t-value’ for the ‘Paired Samples Test’ (t=0.954, p=0.363), suggests that the recovery performance is not sufficient and needs more rigorous steps to improve it.

iii) A higher average recovery rate with lower C.V. reflects a relatively steady growth in recovery rate of the RRB under study, during the post reform period.

iv) A remarkable improvement in recovery performance of the erstwhile CGB is also observed. This is demonstrated by the change in the slope of the trend line from its negative value in pre reform period (b<sub>1</sub>= -6.082) to positive one during the post reform period (b<sub>2</sub>= +4.793).

v) The improvement in recovery front is further reaffirmed by the higher growth rate of recovery rate in the post reform period which was negative in the earlier period (g<sub>1</sub>= -0.1694% and g<sub>2</sub>= +0.1088%).

Thus, a great deal of profitability of the RRB under study, during the post reform period, is due to the improvement in recovery performances.

However, the study observes that the improvement in the recovery performance of the RRB is the result of various initiatives, such as, improved risk management practices and greater recovery efforts driven by, inter alia, the recently enacted Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002.

4.3.4e. The average working fund per branch (AWFPB):

The average working fund per branch (AWFPB) is an important parameter influencing the profit earning capacity of the RRB. This is because the volume of business largely influenced by the size of the working fund available with the bank.
The study observed that there has been a considerable increase in the working fund per branch in the post reform period. This is reflected by statistical measures presented in the table below:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V.</td>
<td>b</td>
</tr>
<tr>
<td>AWFPB (Rs. '000)</td>
<td>1589.9463.07</td>
<td>+275.82</td>
<td>+0.2045</td>
</tr>
</tbody>
</table>

From the above table we find that:

- There has been a significant increase in the AWFPB during the post reform period to Rs.223.76 lakh as against Rs.15.90 lakh during the previous period (t = 4.622, p = .001). A part of this increase is, however, due to the infusion of fresh capital by the stakeholders after 1998-99 and easy borrowing from NABARD under its refinance system. This obviously, has a positive impact on the profitability of the RRB under study. However, the average AWFPB for the nation as a whole being Rs.434.35 lakh, it reveals that the AWFPB of the RRB in study area is less than that of RRBs at national level.

- The compound growth rate of working fund per branch during the 11 years period from 1994-95 to 2004-05 declined to +0.252 per annum as against +0.2045 in the earlier period.

- The study observed a negative and statistically significant correlation coefficient (-0.831; p=.002)* between the average working fund per branch and the net profit / loss per branch during the pre reform period. However, for the post reform period the correlation coefficient found to be positive and statistically significant (0.892; p=0.000)**.

The negative correlation coefficient during the pre reform period reflects the fact that the profitability of the RRB went deteriorating during the period, even with the increase in the average working fund per branch. This negative relationship also illuminates that mere increase in the working fund through capital infusion may not yield an expected result if it is not supported by the other factors like judicious deployment of credit, improvement in recovery performance, better fund management, and improvement in infrastructural facilities in the study area.

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* Please refer to the correlation matrices presented in the appendices
** Please refer to the correlation matrices presented in the appendices.
4.3.4f. The share of borrowing to the working fund (SBWF):

The share of borrowing to the working fund is an index of self-sufficiency of the bank. For higher profitability of the bank, the borrowing to working fund ratio should be at the minimum possible level. This is simply because the cost of fund raised through borrowing is higher than the cost of deposits mobilized. However, the lower share of borrowing to working fund ratio does not necessarily imply higher profitability. In the case of higher yielding rate on lending or investment, the banks can increase their profit through borrowings also, in the event of the short fall of their own accumulated resources from deposits mobilization. Borrowings, thus, can also be the source of profit if they are judiciously invested. A higher share of borrowings to the total working fund, in one hand refers to the scope of higher investment opportunities before the bank; on the other, it reflects the banks inability to meet its own resource requirements through deposits mobilization.

The results of the analyses, presented below, divulge the following:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V</td>
<td>b₁</td>
</tr>
<tr>
<td>SBWF(%)</td>
<td>22.12</td>
<td>39.66</td>
<td>-2.616</td>
</tr>
</tbody>
</table>

- Average SBWF has declined sharply from 22.12% during the pre reform period to only 15.86% in the post reform period (t = 5.70, p = 0.000). This delineates the fact that the RRB under study had relied largely on borrowing from RBI, sponsor bank or NABARD for its working fund in the period before 1994-95. However, during the post reform period the dependence on borrowing has declined. This implies that the RRB has been successful to achieve a relatively stronger position in terms of working fund through deposits mobilization.

- The lower C.V. in the post reform period in comparison to that in pre reform (C.V₁ = 39.66 and C.V₂ = 29.38), represents a higher stability in the working fund for the period 1994-95 to 2004-05.

- The negative and statistically significant correlation coefficient \((r = -0.785, p = 0.004)\) between the SBWF and the total volume of profit/loss in pre reform period represents that the higher losses of the RRB are associated with the higher SBWF. On the other hand, a very weak and statistically insignificant correlation

* Please see the correlation matrices placed in the Appendices.
coefficient \([r = -0.1, p = 0.770]\) for the post reform period represents that share of borrowing has insignificant influence on the total volume of profit of the RRB in the current period.

- The SBWF has exhibited a declining trend \((b_1 = -2.616)\) trend in the pre reform period with gradual strengthening of its position in deposits mobilization in rural areas. But during the post reform period the SBWF is found to follow an increasing trend \((b_2 = +0.0418)\). At the same time the compound growth rate of SBWF was negative \((g_1 = -0.131)\) which turned to be positive \((g_2 = +0.0026)\). These rising tendencies in SBWF (though very marginal) represent relatively more reliance on borrowing. Further, these findings along with a decline in C.D. Ratio reflect greater involvement of the RRB in capital market, mutual funds and government bonds and securities during the post reform period.

**4.3.4g. Share of Priority Sector Lending to the Total Lending (%) (SPSL):**

The SPSL during the pre reform period varied in between 85.30% to 97.56% with an average of 93.13%. The higher mean value during the pre reform era was mainly because of the lack of other alternative lending opportunities due to the obligation to lend to the target group of clientes.

![Diagram-4.2](image)

**Diagram-4.2**

Share of priority sector lending to total lending (pre and post reform period)

But with the reform measures, the RRBs were brought at par with the other commercial banks with regard to priority sector lending norms. The RRBs have been allowed to lend to the non-target group of customers as well as beyond the service area, after 1993-94 following the implementation of banking sector reform measures. Taking opportunity of these relaxations, the RRB under study has also

**Please see the correlation matrices placed in the Appendices.**
engaged itself in lending to non-target group of clienteles. As a result the average share of priority sector lending has declined significantly to the tune of 68.46% in the post reform period from an average of 93.13% in the pre reform era. (t = 6.418, p = 0.000)

The clear downward shift in the trend line of the share of priority sector lending to the total lending during the post reform era (Diagram 4.2) reaffirms the decline in the share of priority sector lending. The negative slope of the two trend lines further demonstrates the declining trend in the share of priority sector lending during both the periods. However, the declining trend is much faster in the post reform era as reflected by the higher negative slope (b₁ = -0.6326, b₂ = -3.5098).

This unveils the fact that after the introduction of banking sector reform measures in RRBs, the bank under study is trying to adjust its portfolio of loans and advances with relatively less importance on priority sector lending. This is the result of deliberately adopted lending strategy of the RRB in order to increase its profitability by lending more to the non target group of borrowers at higher rates of interest. However, this has a serious adverse impact on the lending to the rural poor under the segment of priority sector.*

The results of the statistical analysis for SPSL of the RRB under study are summarised below:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean CV₁ b₁ g₁</td>
<td>Mean CV₂ b₂ g₂</td>
<td>t</td>
</tr>
<tr>
<td>SPSL</td>
<td>93.13 3.35 -0.6326 -0068</td>
<td>68.46 21.54 -3.509 -0.0477</td>
<td>6.418</td>
</tr>
</tbody>
</table>

a) The higher C.V in the post reform period (CV₁ = 3.35, CV₂ = 21.54) reflects that there was a higher rate of fluctuation in the share of priority sector lending to the total lending (%) during this period following the implementation of banking sector reform.

* To combat the situation and with a view to provide more credit to the segments under priority sector, all regional rural banks (RRBs) have been advised by the RBI to achieve a target of 60% of their outstanding advances for priority sector lending as against the earlier target of 40%. Further, RRBs have been advised that out of their total priority sector advances, at least 25 per cent (i.e., 15 per cent of the total outstanding advances) should be advanced to weaker sections. The revised targets have become effective from the year 2003-04.

Further, recognizing the adverse impacts of declining trend in priority sector lending and finding a way out the reluctance of the commercial banks including RRBs to extend credit facilities towards this sector, Rural Infrastructure Development Fund (RIDF) was set up by the Government of India in the National Bank for Agriculture and Rural Development (NABARD) in 1995-96 with an initial corpus of Rs. 2000 crore. The RIDF contribution is received by NABARD from scheduled commercial banks against their shortfall in priority sector/ agricultural lending during the preceding year, had a cumulative corpus of Rs. 28,500 crore as at the end of March 2003. State governments are sanctioned funds from RIDF against their infrastructure development projects at interest rates specified by the Reserve Bank of India. From the VIII tranche of RIDF (effective 2002-03), a part of the fund is earmarked for infrastructure development projects to be implemented by PRIs/SHGs/NGOs (apart from the state governments). Cumulative sanctions and disbursements under various tranches of RIDF worked out to Rs. 29,475 crore and Rs. 17,145 crore as at the end of March 2003 (NABARD 2003).
b) The study found a weak and negative correlation (statistically not significant) between the volume of profit and the SPSL in both the periods \( r = -0.311 \) with \( p = 0.352 \); and \( r = -0.391 \) with \( p = 0.235 \) respectively for the two periods under study.  

This apparently represents an inverse association between the volume of profit earned by the RRB and the SPSL in both the periods but the degree of association is not acceptable statistically. This is because of the fact that the higher percentage share of priority sector lending to the total lending, alone, is not a major contributing factor affecting the volume of profit / loss of the RRB. The other factors such as, the faulty selection of projects, lack of infrastructure and marketing facilities available to the borrowers, lack of follow-up and resultant large-scale loan defaults, etc. under priority sector lending are playing a major role in determining the volume of profit / loss of the RRB under study.

Further, this negative correlation among the volume of profit and percentage share of priority sector lending to the total loans and advances also implies that the two objectives – objective of social and rural development through priority sector lending and the objective of attaining commercial profitability of the RRB, between themselves are not complementary to each other. Thus, the RRB is to make a perfect blend of the two with proper selection of beneficiaries and efficient loan follow up.

**4.3.4h. Interest income to total income ratio (IITIR):**

The IITIR is an index of business quality and efficiency in portfolio management of the bank. With the permission to engage in other non-fund business in the post reform period as a measure to improve their profitability, the ratio is expected to decline with an increase in non-interest income. However, the finding of the study (presented in the table below) in respect of interest income to total income ratio depicts the following:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V.,</td>
<td>b₁</td>
</tr>
<tr>
<td>IITIR</td>
<td>0.936</td>
<td>2.009</td>
<td>0.0167</td>
</tr>
</tbody>
</table>

- The average of the ratio of interest income to total income has declined only marginally from 0.936 to 0.929 during the pre and post reform periods respectively \( (t=0.379, \ p = 0.713) \). This implies that the RRB under

*Please see the correlation matrices placed in the Appendices.*
consideration has failed to achieve any remarkable increment in the share of non-interest income in its total income during the period under consideration. In other words, the implementation of reform measures and permission to RRBs to engage in non-conventional banking business has negligible impact on the income structure of the RRB in the study area.

- It further suggests that the RRB has intensified its conventional banking business in terms of loans and investments, rather than in non-traditional banking business, which has hitherto been highly advocated by the Narashimham Committee on ‘Financial System’ (1991) as a means to improve the profitability conditions of the RRBs of the country.

- The lower value of the C.V. for the post reform period compared to that in the earlier period (2.009 and 1.398 for the two periods respectively) reflects a greater stability in interest income to total income ratio. This further implies that the RRB has achieved a more stable position in the post reform period in respect of portfolio distribution of its loan assets.

- The slopes of the trend lines are positive but their magnitudes are almost zero for both the periods ($b_1 = 0.0167$ and $b_2 = 0.002$). In other words, the trend lines are almost parallel to the horizontal axis and thereby, signify that there is negligible change in the variable over the two periods.

- Further, the growth rate of the said ratio, instead of rising, has come down to 0.0025 in the post reform period from 0.0182 during the earlier period. Thus, in spite of interest rate deregulation, allowance to lend and invest in non-target groups and non-conventional areas of banking business, the reform measures have failed to exert any significant impact on the pattern of income distribution of the RRB under study.

- The factors accountable for the insignificant change in the interest income to total income ratio over the period, even under liberalized regime, are:
  
a) The RRB of the region, largely, does not have the strength to compete with the other financial institutions including the scheduled commercial banks in order to exploit the market opportunities for non-fund banking business.
b) Due to the economic backwardness of the region under study along with the locational and infrastructural disadvantages in the operational areas of the branches, the RRB has very little scope to expand its non-traditional banking business like insurance, agency house, mutual fund, etc.

c) The RRB under study lacks competitive strength in the areas of non-fund business in comparison with the other players in the same field because of their large branch network, huge capital base, brand name, introduction of new and innovative products, application of modern information technology, expensive classified ads in electronic media etc.

4.3.4i. Spread to working fund ratio (SWFR):

Spread to working fund ratio is considered as one of the important parameters determining profit and profitability of a bank. Spread is defined as the difference between the interest income and interest expenditure. Interest is the major source of earning for financial intermediaries like RRBs. Like other banks, RRBs earn interest from loans and advances as well as from the reserves kept with the RBI and the sponsor bank. Similarly, the RRBs spend a major part of their total expenses on paying interest to the depositors and on their borrowings from RBI, NABARD, sponsor banks and the state government. Spread to working fund ratio (SWFR) reflects the net earning capacity of the RRB out of its working fund in the form of interest income.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T- test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean C.V b1 g1</td>
<td>Mean C.V b2 g2</td>
<td>t p</td>
</tr>
<tr>
<td>SWFR</td>
<td>0.04 82.49 -0.005 -0.0049</td>
<td>0.025 60.76 +0.0048 +0.0025</td>
<td>0.889 0.395</td>
</tr>
</tbody>
</table>

The above table shows that

- There has been a decline in the average of this ratio from 0.038 during the earlier period to 0.025 in the current reformed era. However, this difference in the spread ratio is not statistically significant (t=0.889, p=.395). The decline in the spread to the working fund ratio in the post reform period is mainly because of the following important factors:
  a) The RRB is to work at a shrinking spread under the deregulated interest rates regime, as well as, due to intense competition with other commercial banks.
b) There has been an increase in the volume of working fund over the period in comparison to the increase in net interest income earning. Thus, the reform measures seemed to have an adverse effect on the spread to volume of business ratio of the RRB, though it is not be statistically significant.

- The decline in C.V. (from 82.49 to 60.76 in the pre and post reform periods respectively) represents the relative stability of the spread to working fund ratio during the post reform period.
- This also implies a relatively stable lending and borrowing interest rates of the RRB during the post reform period.
- However, the slope of the trend line has turned to be positive (+0.0048) from its negative one in the pre reform period (-0.005). Thus, the spread to working fund ratio has recovered from its falling trend to an increasing trend during the post reform period. This is positive indication towards the long run profitability of the RRB.
- A similar supporting evidence to the above finding is that the growth rate of the ratio is positive (+0.0025) for the post reform period, where as, it was negative during the earlier one (-0.0049).

4.3.4j. Transaction cost (TC) (%):

Transaction cost is negatively related with the volume of net profit of a bank (r = -0.601 with p=0.05 in the pre reform period and r = -0.873 with p = 0.000 in the post reform period)\(^2\). A reduction in the transaction cost has a positive impact on the profitability of a bank and vice-versa. On the basis of the results of econometric analysis on transaction cost (presented in the table below), the study reveals that:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>CV (_1)</td>
<td>b(_1)</td>
</tr>
<tr>
<td>TC (%)</td>
<td>8.81</td>
<td>31.767</td>
<td>0.1044</td>
</tr>
</tbody>
</table>

- Average transaction cost has decreased from 8.81% during the pre reform period to 5.63% in the post reform era. The statistically significant decline in transaction cost (t = 2.446, p = 0.034), implies that the implementation of banking reform measures have a significant impact in improving the

\(^{2}\) Transaction cost has been defined as the as percentage share of working fund used for operational expenses \
\[\text{TC} = \frac{\text{total operational expenses incurred by the RRB during the year}}{\text{volume of working fund for the year}} \times 100\] 
\(^{192}\) Please see correlation matrices in Appendices 7.3 and 7.4
operational efficiency of the RRB under study. This improvement in the operational efficiency, in the form of reduction in transaction cost, has a positive effect on the profitability of the RRB under study.

- The above decline in the average transaction cost, along with the increase in C.V. (from 31.77 to 75.66 for the pre and post reform period respectively), represents a higher fluctuation in transaction cost as a process of adjustment with the new economic environment of the post reform era.

- Further, the steeper negative slope of the trend line for the post reform period \( b_2 = -1.096 \) in comparison to that in the pre reform period \( b_1 = -0.1044 \) represents that the falling trend of transaction cost is much faster in the later period.

The reduction in the transaction cost has become possible through the introduction of new technology in some of the branches along with the improved efficiency of the employees through training. Nevertheless, the other key factors contributed to the decline in the transaction cost during the post reform period are:

i) The liberalization of the service area approach, allowance to lend to the non-target group of borrowers, relocation of branches into potential and better communicable areas, etc. have increased the volume of business of the RRB.

ii) There was no further branch expansion after 1994-95, and therefore, there was no sudden jump in operational cost for establishing and maintaining a new branch.

iii) There has been no fresh recruitment by the bank after 1991-92; rather, there is a reduction in the number of employees during the period following superannuation or death of the staffs. As a result, there has been a less than proportionate increase in the manpower expenses of the RRB.

4.3.4k. **Burden Ratio (BR)(%)**

The results of the analysis on the burden to the volume of business ratio (%), summarised in tabular form, hereafter, reveals the following:

---

\[ \text{Burden refers to the difference between the non-interest expenses and non-interest income. It is an index of self-sufficiency of the bank to meet non-interest expenses out of its non-interest income, leaving the interest income untouched to meet interest expenses only. The burden ratio is measured as ratio between the non-interest burden of the RRB and the total volume of business, and expressed in percentage terms. Thus, burden ratio} \] \[ = \frac{\text{volume of burden during the year}}{\text{the volume of business of the year}} \times 100 \] \[ = \frac{\text{(net non-interest expenses during the year over net non-interest income) /}}{\text{(Total volume of business during the year)}} \times 100 \]
### 4.3.41. Manpower expenses to total expenses ratio:

This is another key variable determining profitability of a financial institution like RRB. It is an index of efficiency in human resource management of an institution. The result summary of the analysis of manpower expenses to the total expenses ratio is presented in the accompanying table.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre reform period</th>
<th>Post reform period</th>
<th>Paired sample T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>C.V₁</td>
<td>b₁</td>
</tr>
<tr>
<td>METER</td>
<td>0.38</td>
<td>14.86</td>
<td>-0.0051</td>
</tr>
</tbody>
</table>

The results demonstrate the following:

i) The burden to the volume of business ratio of the RRB has reduced from 5.87% during the pre reform period, to 3.86% in the post reform period. This reflects that the RRB under study has adopted a rational approach towards the non-interest expenses. The huge loss in the RRBs prior to the reform era was, also to a considerable extent, due to the higher burden ratio.

ii) The higher values of C.V during the post reform period (80.50) in comparison to that in the earlier period (31.88); explains the greater variability in the parameter due to the falling trend of the same in the post reform period.

iii) The falling trend of the burden ratio in the post reform period is depicted by the negative slope of the trend line (+0.072 and -0.783 for the pre and post reform periods respectively) for the period after 1994-95. This observation is further supplemented by the negative rate of growth of the parameter during the post reform period (g₂=-0.1824).

iv) The above observations suggest that the RRB has been able to cut down its non-interest expenses more aggressively after the implementation of banking sector reform measures. This improvement in the burden to the volume of business ratio has a favourable impact on the profitability of the RRB under study.
• There has been an improvement in respect of METER as revealed by the decrease in its average value 0.38 to 0.27 form pre reform to post reform period. In percentage terms, the above result reflects that during the pre reform period, on average, the RRB had been spending 38% of its total expenditure as manpower expenses, but after 1994-95, this has come down to 27%. Thus, there has been an improvement in human resource management in the RRB during the period following the reform process started in 1994-95. Further, this improvement in the parameter influencing profitability of the RRB is statistically significant.

• The marginal increase in the C.V. (from 14.86432 to 15.43483 respectively for the two consecutive periods) represents a greater variability of the ratio during the post reform period.

• This is due to the increase in salaries and allowances of the employees over time and on the other hand, there has been a decrease in the other operating expenses (as depicted by the decline in burden ratio).

• The b-values of the trend lines are -0.0051 and -0.0084 for the pre and post reform periods respectively. Thus, there has been a falling trend in the METER for both the periods.

• The falling trend in the manpower expenses to the total expenses over the periods are further supported by the negative growth rates in the respective periods (g₁ = -0.013 and g₂ = -0.0316).

Hence, the RRB has reorganized its manpower in order to contain the manpower expenses during the periods following the years after the implementation of reform measures. This is an indication of efficient human power management by the RRB and has a complimentary effect in increasing the profitability of the RRB under study.

4.4. Derivatives of profitability and Their Influences (Regression Analysis):

From the foregoing analysis, we find that profitability (in relation to the financial institutions) is related to the three categories of variables related to income, expenditure, and volume of business.
The bank’s income comprises - interest income and non-interest income. Similarly, expenditures can be divided into two categories - interest expenses and non-interest expenses. Interest expenses are incurred for the payment of interest on the deposits mobilized, on the borrowings by the RRB from sponsor bank and NABARD. Non-interest expenses, on the other hand, include all the operational expenses. The volume of business depends on the volume of loans and advances and volume of deposits. Further, the volume of profit largely depends on the total volume of borrowings, and recovery performances. The composition of loans and advances also play a major role in determining the volume of profit of a bank. Therefore, the share of priority sector lending to the total loans and advances is also an important parameter influencing profitability of a RRB.

Keeping in view all the above aspects, we have taken into account the following eight explanatory variables (these eight variables have been taken as the representatives of the already analysed 13 variables) for the profitability analysis of the bank under study:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$X_1$</td>
<td>Volume of deposits (Rs.'000)</td>
</tr>
<tr>
<td>2</td>
<td>$X_2$</td>
<td>Volume of outstanding loans and advances (Rs.'000)</td>
</tr>
<tr>
<td>3</td>
<td>$X_3$</td>
<td>Share of priority sector lending to the total loans and advances (%)</td>
</tr>
<tr>
<td>4</td>
<td>$X_4$</td>
<td>Recovery rate (%)</td>
</tr>
<tr>
<td>5</td>
<td>$X_5$</td>
<td>Interest income to non-interest income ratio (%)</td>
</tr>
<tr>
<td>6</td>
<td>$X_6$</td>
<td>Total expenditure to volume of business ratio (%)</td>
</tr>
<tr>
<td>7</td>
<td>$X_7$</td>
<td>Volume of interest expenses (Rs.'000)</td>
</tr>
<tr>
<td>8</td>
<td>$X_8$</td>
<td>Volume of operational expenses (Rs.'000)</td>
</tr>
</tbody>
</table>

In order to formulate profit function for the RRB in south Assam we have used linear specifications explaining profitability as a function of variables affecting revenues considering policy parameters and structural factors as exogenous to the model.

Model Summary for profit functions for pre and post reform periods are as follows:

Regression equations:

\[ \pi_t = \alpha + \sum \beta_i X_{it} + u_{it} \] \hspace{1cm} (1), and

\[ \pi'_t = \alpha' + \sum \beta'_i X'_{it} + u'_{it} \] \hspace{1cm} (2) are the two regression equations representing the profitability of RRB for the pre and post reform period respectively, where

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# Non-interest expenses include the expenditures on director's fees & allowances, Rent, tax, insurance & lighting, etc., law charges, postage telegram, telephone, stamp, Audit fee, depreciation & repair to bank property, printing, stationery and advertisement, Provisions and contingencies, advertisement and publicity, other expenses, salary & allowances.
• $\pi_t$ and $\pi'_t$ are the volume of profit / loss per branch in the $t^{th}$ year of pre and post reform periods respectively,

• $\alpha$ and $\alpha'$ are the constant terms representing the intercept of the regression equation for the two respective periods of study,

• $\beta_i$ and $\beta_i'$ are the coefficient of the parameter $X_{it}$ and $X'_{it}$, ($i = 1$ to 8);

• $X_{it}$ and $X'_{it}$ are the values of the variables under pre and post reform periods respectively,

• $U_{it}$ and $U'_{it}$ are the corresponding random terms,

• $t=1, 2 \ldots 11$; representing the 1st, 2nd.....11th year in pre and post reform periods respectively.

The econometric analyses of the modeled functional relationship are presented in Table-4.2.

Table: 4.2
Regression Summary: ANOVA

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Coefficients ($\beta$)</th>
<th>Sig</th>
<th>Coefficients ($\beta'$)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept ((\alpha))</td>
<td>-2.658</td>
<td>-4.776</td>
<td>0.131</td>
<td>-24.27</td>
</tr>
<tr>
<td>Volume of Deposits per branch (Rs '000) (X1)</td>
<td>-0.041</td>
<td>-1.266</td>
<td>0.327</td>
<td>0.026</td>
</tr>
<tr>
<td>Volume of outstanding Loans / Adv per Branch (Rs '000) (X2)</td>
<td>-0.268</td>
<td>-1.559</td>
<td>0.259</td>
<td>0.139</td>
</tr>
<tr>
<td>Share of priority sector lending to total loans and advances (%) (X3)</td>
<td>-0.166</td>
<td>-5.007</td>
<td>0.038</td>
<td>-0.143</td>
</tr>
<tr>
<td>Recovery rate (%) (X4)</td>
<td>0.462</td>
<td>3.649</td>
<td>0.061</td>
<td>0.588</td>
</tr>
<tr>
<td>Volume of interest income per branch (Rs '000) (X5)</td>
<td>-0.307</td>
<td>3.606</td>
<td>0.069</td>
<td>0.241</td>
</tr>
<tr>
<td>Volume of non-interest income per branch (Rs '000) (X6)</td>
<td>-0.026</td>
<td>-1.286</td>
<td>0.327</td>
<td>0.154</td>
</tr>
<tr>
<td>Volume of Interest expenses per branch (Rs '000) (X7)</td>
<td>-0.386</td>
<td>-2.541</td>
<td>0.126</td>
<td>0.067</td>
</tr>
<tr>
<td>Volume of operating expenses per branch (X8)</td>
<td>-0.273</td>
<td>-10.890</td>
<td>0.008</td>
<td>-0.111</td>
</tr>
</tbody>
</table>

R^2 | 0.887 | 0.844

$F_{(8,2)}$ | 40.042 ($p = 0.025$) | 54.929 ($p = 0.018$)

Dependent Variable: Profit / Loss per branch (Rs '000) ($\pi$)
The results of the econometric analysis (Table-7.2) reveal the following:

1. The $R^2$ for the two regression lines are 0.887 and 0.844 for the pre and post reform periods respectively. This represents that the explanatory variables included in the model, taken together, explain 88.7% and 84.4% of the variations in the volume of profit of the RRB under study, for the pre and post reform periods respectively. Thus, the $R^2$ figures justify the selection of the parameters for regression analysis and reflect that the variations in the dependent variable (the volume of net profit) are well explained by selected regressors.

2. The goodness of fit of the model is further confirmed by the statistically significant values of the F-statistic $[F=40.042 \ (p=0.025) \ and \ F' = 54.929 \ (p' = 0.018)]$.

3. The negative value of the constant term i.e., the intercepts of the regression lines (-2.658 and -24.271, for the 2 respective periods) represent that the RRB under study experienced losses during the initial periods of the two distinct era under consideration.

4. One of the important observations of the above regression equations is that, except for the recovery rate ($X_4$), all the coefficients are negative during the pre reform period. This implies that the variables $X_1, X_2, X_3, X_5, X_6, X_7$ and $X_8$ have a negative impact on the profitability of the bank under study for the pre reform period. In other words, an increase in the value of the variables, led to a decrease in the volume of profit (or increased losses) of the RRB under study.

5. On the contrary, for the post reform period, all the coefficients are positive, except for the $X_3$ (the share of priority sector lending to the total lending) and $X_8$ (volume of operational expenses). This implies that with the policy changes brought down by the implementation of banking reform measures, the RRB under study has restructured its functioning in such a way that most of the parameters have yielded positive impact on its profitability.

4.4a. Interpretation of Regression Coefficients:

1. The coefficient of $X_1$ (volume of deposits mobilized by the RRB) is negative for pre reform period but statistically not significant ($\beta_1 = -0.041, \ p = 0.327$). It

---

* The accumulated loss of the RRB increased to Rs 4,80,63,100 in 1993-94 from Rs 3,85,570 in 1983 and further to Rs 14,89,94,920 in 1997-98. However, the RRB started profit earning from 1998-99 and onwards and the accumulated losses started reducing since then. But in spite of profit earning, the RRB could not erase the accumulated losses till 2004-05. The accumulated loss for the year 2004-05 was Rs. 4,29,07,000.
represents a negative impact on the volume of profit earned by the RRB. In other words, an increase in volume of deposits mobilized led to a decrease in profit (or an increase in losses) of the RRB under study. The reasons behind such a typical result might be:

i) The restrictive policy conditions have prevented the bank to invest its working fund in profitable investment avenues other than in the rural areas and target group of clientele.

ii) The RRB failed to use the mobilized deposits in profitable way.

iii) Under the policy of lending with a view to increase social welfare, the RRB was denied to adopt its banking operation from commercial point of view.

iv) The mobilized funds had been used mostly for lending to the priority sectors at subsidised rates of interests, as per the directives of the government.

v) The fund management practices were inefficient.

vi) Low recovery rate led to a high rate of loan defaults.

II. The positive and statistically significant value of the coefficient of $X_1$ for the post reform period ($\beta'_1 = +0.012, p' = 0.007$) represents that under the liberalized regime, the volume of deposits mobilized has emerged as a growth propellant for profitability of the RRB.

The most likely reasons responsible for the positive and statistically significant value of the co-efficient for the post reform period are:

i) In the liberalized macro economic environment, the implementation of financial sector reform measures has opened up more opportunities for investments in profitable lines for RRBs.

ii) Better recovery performance of the RRB and a lower rate of loan defaults during the post reform period in comparison to that in the earlier period.

iii) Comparatively less attention was paid to the priority sector as the RRBs were rejuvenated by the commercial motive during this period.

III. The volume of gross loans and advances outstanding (Rs.'000) ($X_2$) had a negative impact on the volume of profit of the RRB for the pre reform period ($\beta_2 = -0.268, p = 0.259$). On the contrary, it became positive and statistically significant during the post reform period ($\beta'_2 = +0.139, p' = 0.002$).
The factors acted behind this radical transformation of the coefficient of loans and advances during the post reform period, perhaps, are:

i) Widening up of operational area as a result of the relaxation in target group obligations in the post reform period.

ii) A relaxation in the priority sector lending obligations to the RRB after the implementation of banking sector reforms and an overhauling of directed lending by the RRB.

iii) A subsequent shift in objective of RRBs from maximization of social welfare of rural poor to the objective of profit maximization.

IV. The share of priority sector lending ($X_3$) is found to have a negative impact on the volume of profit of the RRB under study, in both the periods, as demonstrated by the negative value of the coefficient [$\beta_3 = -0.166 (0.038)$ and $\beta'_3 = -0.143 (0.414)$].

i) The negative and statistically significant value of the coefficients for the pre reform period refers to the fact that higher share of priority sector lending acted as an important factor for the losses of the bank under study, during the pre reform period. This was mainly because of the directed lending policies guided by the objective of rural development during the pre reform period, which compelled the RRBs to lend even non-viable investment projects to fulfill the targets of priority sector lending.

ii) The above values of the coefficient imply that with an increase in the share of priority sector lending to the total loans and advances by 1%, the losses incurred by the RRB has increased by 0.166% and 0.043% in pre and post reform periods respectively.

The factors accountable for the negative impact of the share of priority sector lending to the total lending on the profit and profitability of the RRB under study are:

a) The priority sector lending, in most of the cases lacked commercial route. Rather, the political or social welfare objectives were accorded top priority for such lending. This trend is however, still in vogue despite implementation of banking sector reform.
b) As these lendings were because of an obligation to follow the directives from the RBI and the government, the RRB, in most of the cases, took less interest to follow the proper procedures in selecting the beneficiaries. Rather, the RRB officials were more enthusiastic to fulfill the targets of priority sector lendings set before them.

c) In most of the cases the priority sector loans were given without considering the commercial viability of the projects for which the loans were sanctioned.

d) As a combined effect of the above factors, there was a large-scale loan defaults in case of these loans and the losses of the RRB increased over the years.

iii) The magnitude of the coefficients for the two periods show that the negative impact of priority sector lending on the volume of profit is low in the post reform period as compared to that of the pre reform period. The lower impact of the share of priority sector lending to the total lending in the current period is due to the following reasons:

a) With the implementation of banking sector reform measures, the priority sector lending obligations of the RRB has been reduced to 40% of the total loans. This reduction in the share of priority sector lending, as an obligation, has helped the RRB to select the borrowers with more commercial motive.

b) The RRB has become more cautious in selecting the schemes for lending under priority sector. The skill and capabilities of the borrower to run the project along with the commercial viability of the project are now the two prime factors considered before lending. But, these aspects were not given adequate priority in the earlier phase.

c) The implementation of banking reform measures in RRBs has created an atmosphere that led the employees to believe that unless the RRB becomes profitable, it will be closed down or merged with the sponsor bank. This apprehension also increased the consciousness among the employees and motivated them to work with a commercial motive.

d) The implementation of prudential norms for income recognition, asset classification measures and provisioning helped the RRB to become conscious about their loan assets and to reduce the NPAs under priority sector.
V. The positive values of the coefficient of “Recovery rate” \((X_4)\) for both the periods \((\beta_4=+0.462 \text { with } p=0.061 \text { and } \beta'_4=+0.588 \text { with } p=0.013)\) demonstrate its positive impact on volume of profit and profitability of the RRB in both the periods.

The magnitude of the coefficient in the pre reform period is higher than that of the post reform period. This implies that the recovery rate has increased over years. This is confirmed by positive and statistically significant value of the coefficient for the post reform period.

The factors attributed for the increase in recovery rate are:

a) The RRBs are now functioning with the same commercial objectives as in the case of scheduled commercial banks.

b) The bank under study has now adopted more stringent measures for improving the recovery performance.

The factors attributed for the increase in recovery rate are:

c) Adoption of adequate loan follow-up and supervision on loan utilisation.

VI. The study finds a negative impact of the volume of interest income \((X_5)\) earned by the RRB on its volume of profit for the pre reform period but it is just reverse for the post reform period. \((\beta_5 = -0.307 \text { and } \beta'_5 = +0.241 \text { with } p = 0.069 \text { and } p' = 0.032)\).

a) The negative impact of the parameter during the pre reform period may be, because of the lower recovery percentage, lending at subsidised rates of interest under the government sponsored welfare schemes, higher rate of priority sector lending to total lending\(^\#\), and so on.

b) However, the changes in operational policies and objectives from social welfare to profit maximization, from directed lending to commercial lending, emphasis on selection of commercially viable projects and so on enabled the RRB to yield a proportionally higher interest income during the post reform period. These resulted in a change in the magnitude and direction of the coefficient from its negative value to a statistically significant and positive one in the post reform period.

VII. As in the case of interest-income \((X_5)\), the coefficient of non-interest income \((X_6)\) is also negative in the pre reform period while the same is

\(^\#\) The share of lending to the priority sector during the pre and post reform periods was, on average, 93.13% and 68.46% respectively.
positive in the later period. However, the coefficients are not statistically significant ($\beta_6 = -0.026$ and $\beta'_6 = +0.154$ with $p = 0.327$ and $p' = 0.061$).

a) The negative impact of the variable during the pre reform period was mainly because of the fact that:

- The bank under study paid little attention on increasing non-interest income.
- The services yielding non-interest income were not cost effective for the RRB.
- The employees were not efficient enough to provide non-fund banking services to their clientele.
- The scope of non-interest income generation in the operational area was limited.
- The clientele under the operational area were not aware about the other services provided by the RRB.
- The people were not willing to enjoy such services from the RRB under study because of the inferior service quality.
- The quantum of such services was meager to yield any economies of scale to the RRB.

b) The positive coefficient for volume of non-interest income, on the other hand, implies that the RRB is now equipped to increase its volume of profit through the non-interest income by engaging itself in diversified non-traditional banking services. This has become possible due to:

- The widening of activities of the RRB with the implementation of banking sector reforms, which allowed the RRB to engage in non-fund business also.
- The RRB has become more conscious about its commercial objectives and trying its best to exploit the earning opportunities from non-fund business.

However, the statistically non-significant value of the coefficient in the post reform period implies that the RRB has further potential to enhance its income from non-interest income sources.

VIII. The coefficient of interest expenses ($X_7$) shows that it has negative impact on profitability during the pre reform period but a positive impact during the post reform period ($\beta_7 = -0.386$ and $\beta'_7 = +0.067$ with $p = 0.126$ and $p' = 0.033$). In other words, during pre reform period an increase in interest expenses by
1% led to an increase in losses by 0.386% but during the post reform period it is associated to an increase in profit by 0.067%

a) The negative impact of interest expenses on the profitability of the bank during the pre reform period simply reveals that the bank has incurred interest expenses on the mobilized deposits but the deposits were not profitably utilised for lending or investments. In other words, the negative impact was the consequence of inefficient fund management. The possible reasons behind this are:

- There was limited opportunity of investing the funds because of restrictive policy framework under which the RRB had to operate,
- Interest expenses on deposits and borrowings could not be covered up from the interest income generated from loans and investment of these funds,
- The loans and investments were not properly supervised and consequently the recovery performance was very poor,
- The loans and advances under priority sector, in most of the cases turned to be non performing assets.

b) On the other hand the positive and significant value of the coefficient for the post reform period is probably due to:

- Rationalized use of mobilized funds with the objective of profit maximization,
- More avenues of banking business opened up by the banking reform measures,
- Proper loan follow-up and increase in recovery rate,
- Low C.D ratio and siphoning of funds from rural areas to the corporate sector.

IX. The coefficient of operational expenses\(\*\) \((X_{8})\) is negative and statistically significant for the pre reform period while it is positive but not statistically significant in the post reform period \([\beta_{8} = -0.273 \ (0.008)\] and \(\beta'_{8} = -0.111(0.815)\].

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\* Operational expenses include the expenses on manpower, rent of the building, maintenance cost, repairing charges, electricity expenses, expenses on office stationery, telephone bill, postage charges, etc.
a) The negative and statistically significant coefficient implies that the operational expenses have moved has moved in reverse direction of the growth of profit. The possible reasons are:

- The branch expansion during the pre reform period led to increase in operational expenses of the RRB at a higher rate but the branches performed inefficiently.
- The branch expansion by the RRB was too much enthusiastic than the reality and shows the lack of foresight on the part of the management.
- The pay parity of the employees with that of the sponsor bank in 1991-92 has led to an overwhelming increase in operational cost but the efficiency of the staffs did not increased proportionately,

b) The positive but statistically not significant coefficient for operational expenses during the post reform period demonstrates that

- The RRB under study has rationalised its operational expenses and hence, it is contributing positively to the profitability of the RRB.
- The ban on fresh recruitment since 1991 has reduced the operational expenses per unit of business.

Thus, the bank under study has further scopes of reducing the operational expenses of the RRB (i.e. AGVB, erstwhile CGB). However, the RRB has more potential to reduce the operational expenses by increasing the volume of business.

4.5. Major findings and testing of hypothesis:

From the foregoing analysis, we find that:

- There has not been any significant improvement in the profitability of the bank during the post reform over that of the earlier period as depicted by the statistically insignificant t-values for VPB (t = 0.78584, p = 0.450179) and VPE (t = 0.81572, p = 0.43366).

- However, there is a turn around in the bank with its entry into an era of earning profit from loss incurring stage, as demonstrated by the changes in the slopes of the trend lines from negative to positive values for both VPB (b₁ = -33.708, b₂ = 142.27) and the VPE (b₁ = -7.963, b₂ = 35.019).
• The turn around in the bank in respect of its profitability has been made possible with the
  (i) significant increase in the volume of business per branch \((t = 4.568, p = 0.001)\),
  (ii) improvement in recovery performance \((b_1 = -6.082, b_2 = +4.793)\),
  (iii) significant increase in the average working funds per branch \((t = 4.622, p = .001)\), in one hand, and on the other, with the
  (iv) reduction in the share of borrowings to the working fund \((t = 5.70, p = 0.000)\),
  (v) reduction in the C.D. Ratio from an average of 79.99\% to 30.72\% \((t = 11.044, p = 0.000)\),
  (vi) a drastic cut in the share of priority sector lending to the total lending from an average of 93.13\% to 68.46\% over the periods. \((t = 6.418, p = 0.000)\),
  (vii) decline in transaction cost \((t = 2.446, p = 0.034)\) by moving towards the relatively big borrowers and big depositors, and
  (viii) reduction in manpower expenses to total expense ratio in the post reform period by increasing employee productivity through training of staffs and postponing new recruitment since 1991 \((t = -5.684, p = 0.000)\).

• Further, no statistically significant improvement was found in respect of
  i) Share of non-interest income in total income \((t=0.379, p = 0.713)\).
  ii) Spread to volume of business ratio \((t=0.889, p=.395)\).
  iii) Recovery rate \((t=0.954, p=0.363)\), and in
  iv) The burden ratio \((t = 2.176, p = 0.055)\).

Thus, based on the above findings we partially accept our null hypothesis

\(H_0^3:\) "The profitability of the bank under study is independent of the measures implemented by the banking sector reform" and conclude that the reform measures have influenced the profitability of the RRB to some extent. However, the bank could not exploit its profit potentiality fully because of the inefficiencies, mainly, in the field of credit deployment, recovery performance and product innovation.

The statistically non-significant values of the coefficients \((\beta_3, \beta_6 \text{ and } \beta_8)\) of the post reform period profit function further support our partial acceptance of hypothesis \(H_0^3\) and propelled us to investigate the operational efficiency aspect of the bank, discussed in Chapter V.