Research Paper Economics

# A Move Towards Non-Interest Income Diversification: A Comparasion Between Public and Private Sector Banks in India


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**ABSTRACT**

In recent times it has been seen that banks has been largely diversified from its traditional source of earnings to some non -traditional activities such as commission, brokerage, fee based services and other activities. In this paper an attempt has been made to identify the extent to which the banks both public and private sector banks have diversified into non-interest income activities and what is the impact of diversification on bank's risk and return and further a comparison between public and private sector banks have been made. Public sector banks are found more diversified than private sector banks in terms of non-interest income activities but the return are not as high as compare to risk taken by the banks for the diversification and it is making a negative impact on bank's performance.

**KEYWORDS** HHI, ROA, ROE, SHROA & SHROE

**INTRODUCTION:**

Diversification is a business strategy which allows an entity to enter into new field of business with diversified products and services with the underlying objective of reducing risk and improving returns. Diversification is also recognized as a competitive strategy for banking businesses across the world. There are a good number of ways in which a particular bank can diversify its operation. The most popular one is to diversify its streams of income mainly by increasing the proportion of Non-Interest Income to the Total Operating Income thereby increasing the contribution of non-interest earning sources of income. Interest received or earned by way of providing different services such as merchant banking services, consultancy services, insurance services can be defined as non-interest income whereas income earned by way of lending loans both short term and long term can be defined as interest income. Bank can also diversify by way of earmarking credit to different sectors of economy often referred to as Credit/Sectoral Diversification. Lastly, the bank can resort to Financial Service Diversification which means innovations initiated to differentiate the existing products and services by way of introducing new products and services like derivatives, swaps, alternative risk transfer products, asset-backed securities, exchange-traded funds and factoring.

**REVIEW OF LITERATURE:**

The existing literature on diversification can be classified into two categories i.e. the one which ascribes positive effect of diversification on risk and returns and the other which finds little or no such evidence. Stiroh, (2002) found U.S. banking industry is steadily increasing its reliance on non-traditional business activities that generate fee income, trading revenue and other types of noninterest income. Similar study has been conducted by D'Souza & Lai (2004) where they found, as far as returns are concerned, returns are not as high as compared to the risk taken by the banks. Lepetit et.al., (2005) conducted a study in 14 European countries and they found, the banks which have expanded into non-interest income activities has taken a higher level of risks as compared to the banks which are dealing in traditional activities. Another study by Templeto & Severien, (1992) in USA contradicts the above findings. Their study revealed that banks which expanded its financial services such as underwriting and insurance were in better position to reduce its overall risk. Odesanmi & Wolfe, (2007) investigated the impact of revenue diversification on insolvency risk, using a panel dataset of 322 listed banks across 22 countries including India..

**Non-Interest Income**: Income earn by providing variety of services to the different sectors of the economy can be term as Non-interest Income or Other Income .Let us see the different avenues of Non-interest Income or Other Income of banks.

*Commission, exchange and brokerage*: Includes on all remuneration on services such as commission on collections, commission/exchange on remittances and transfers, commission on letter of credit, letting out lockers and guarantee, commission on Government business, commission on other permitted agency business including consultancy and other services, brokerage etc., on securities. But, in does not include foreign exchange income.

*Net Profit on sale of investments*: Net position of gain and losses from sale of securities held on maturity shown under this head.

*Net profit (loss) on revaluation of investments*: The net position of revaluation on investment is shown under this head and if any loss occurs after revaluation of investment it will shown as a deduction.

*Net profit on sale of land, building and Other Assets*: : Net position of gain and losses from sale of furniture, land and building, motor vehicle, gold, silver, etc., shown under this head.

*Net profit (loss) on exchange transactions*: Includes Profit or Loss dealing in foreign exchange ,all income earned by way of foreign exchange, commission and charges on foreign exchange transactions, excluding interest. The income recorded here will be shown after setting off losses on exchange transactions.

*Miscellaneous income*: All residual income arising out of miscellaneous sources such as: income from bank owned property, recoveries from constituents for godown rents, security charges, insurance etc.

**OBJECTIVE, DATA & METHODOLOGY:**

The main objective of the study is to identify the potential diversification benefit arising out of non-traditional (Non-interest Income) activities of Public and Private sector banks operating in India and what is the impact of this diversification on bank's risk and return.

The study analyses the diversification benefits at aggregated level. Data for a period of 20 years covering 40 commercial banks including 25 public sector banks and 15 Indian private sector banks are taken into consideration. The entire period of 20 years is classified into four periods of five years each, P1 includes the years from 1995-1999, P2 includes 2000-2004, P3 2005-2009 and P4 2010-2014. The relevant data are obtained mainly from the Reserve Bank of India publications, i.e., Report on Trends and Progress of Banks in India, Statistical Tables Relating to Banks in India etc and so collected has been deflated with help of GPD deflator Index. For the purpose of the analysis we have Taken Non-Interest Income which is computed as a summation of Commission Income(COM) and Net results from Financial Operations(OPFIN) which is the combination of *Net Profit on sale of investments, Net profit (loss) on revaluation of investments, Net profit (loss) on exchange transactions & Miscellaneous income* excluding *Net profit on sale of land, building and Other Assets.*

**DIVERSIFICATION, RISK & RETURNS:**

**Diversification:**

The degree of Non-Interest Income (NON) diversification is estimated through the Herfindahl Hirschmann Index (HHI). HHI is computed as sum of squared of income (Commission income and Net results from Financial Operations) share in the Total Non-interest Income which is then subtracted from one to get the diversification result.

**Diversification of Non-interest income will be calculated in the following manner:**

$$DIV - NON = 1 - \left\{ \sum_{i=1}^{n} \mathrm{Ri}^2 + \sum_{i=1}^{n} \mathrm{Si}^2 \right\}$$

Where, DIV-NON= Diversification of Non-Interest Income, "i" stands for bank and "n" indicates number of banks.

$$\mathrm{Ri} = \left(\frac{COM}{NON}\right) \quad \& \quad \mathrm{Si} = \left(\frac{OPFIN}{NON}\right)$$

COM= Commission and fee income.

NON= It is equal to the sum of COM and absolute value of OPFIN.

OPFIN= It is the absolute value of Net Results from financial operations including results.

**Measurement Of Risk And Returns:**

For the purpose of measuring profitability we have consider Return on Assets (ROA) &Return on Equity (ROE) and for measuring overall risk and returns Risk Adjusted ROA and Risk Adjuted ROE has been taken into consideration. ROA, ROE, SHROA and SHROA has been calculated in the following manner

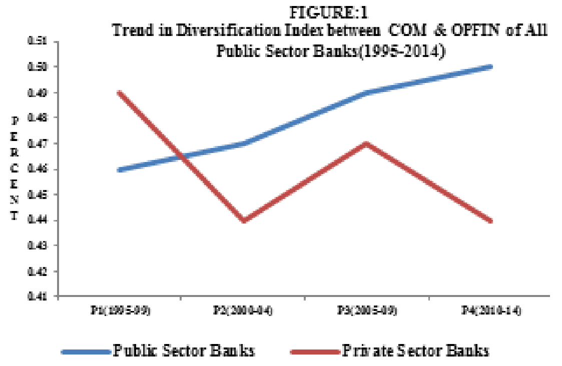
$$\text{Return on Assets:} = \frac{\text{NET PROFIT AFTER TAX}}{\text{TOTAL ASSETS}}; \quad \text{Return on Equity (ROE):} = \frac{\text{NET PROFIT AFTER TAX}}{\text{TOTAL EQUITY}}$$

$$\text{Risk Adjusted ROA} = \frac{ROA}{\sigma\mathrm{ROA}}; \quad \text{Risk Adjusted ROE} = \frac{ROE}{\sigma\mathrm{ROE}}$$

**Impact of Diversification on Bank's Performance**: In order to measure the impact of diversification on bank's risk and return a Regression model has been used in which ROA, ROE, SHEOA, SHROE has been considered as a dependent variable and Non-interest Diversification result Index, Speared to Total Assets, Operating Expenses to Total Assets, Investment to Total Assets, Non-interest income to Total Assets and Non-performing Assets to Total Assets has been considered as a independent variables.

**Empirical Results & Analysis**

Figure:1 represents the trend line of the main stream of Non-interest income of Public and Private banks over the 20 years. As refelcted in Figure:1 an incressing trend can be observe for the public sector banks where a mixed trend is reflected by Private sector banks and coming at the end of P4(2010-14) a decling trend can be seen in Non-interest diversification for private sector banks, which is clear indication that private sector banks are concentrating more on tradational source of earnings for diversification i.e. Income diversification.




In order to identify how non-interest income diversification improves the performance of a bank, Diversification Index (DI) is computed for both Public and Private sector banks. Table:1 presents the degree of Non-interest income diversification of All Categories of Public& Private Sector Banks. The mean Diversification Index (non-interest income) of Public sector banks are higher than the private sector banks. Decrease in diversification index for Private sector banks is an indicative of growing diversification of interest income sources and reduced concentration for the non-interest activities. Figure:1 clarifies the same thing. It can be seen that DI showed an upward for the Public sector banks for the whole period and a volatile trend for Private sector banks.

**Table:1**

*Descriptive Statistics of All public& Private Sector Banks(1995-2014)*

| | All Public Sector Banks | | All Private Sector Banks | |
|---|---|---|---|---|
| Variables | Mean | SD | Mean | SD |
| DIV_NON(DI) | 0.48 | 0.03 | 0.46 | 0.03 |
| ROA | 0.81 | 0.18 | 1.10 | 0.15 |
| ROE | 15.57 | 3.18 | 16.21 | 2.25 |
| TA | 7.75 | 0.09 | 7.29 | 0.16 |
| EQUITY | 4.80 | 0.50 | 3.73 | 0.51 |
| SHROA | 2.03 | 0.46 | 2.64 | 0.35 |
| SHROE | 2.51 | 0.45 | 2.56 | 0.23 |
| SPRD_TA | 0.03 | 0.02 | 0.04 | 0.03 |
| NPA_TA | 0.16 | 0.15 | 0.13 | 0.14 |
| OPRTXP_TA | 0.28 | 0.08 | 0.26 | 0.05 |
| CRD_DPT | 11.17 | 1.17 | 10.91 | 1.03 |
| IVST_DPT | 39.98 | 3.08 | 35.02 | 2.07 |
| NON_TA | 0.01 | 0.00 | 0.01 | 0.00 |

*Source: Statistical table relating to banks in India: www.rbi.org.in*

In order to identify the manner in which income diversification impacts bank performance it is first necessary to identify the relationship between the dependent and explanatory variables. The dependent variable so selected is ROA, ROE, Risk Adjusted ROA(SHROA), Risk Adjusted ROE(SHROE). The explanatory variables are Non-interest income Diversification Index (DI), Natural log of Total Assets (SIZE) taken as a proxy for size of a bank, Equity, Spread as a percentage of Total Assets, Non-performing Assets as a percentage of Total Assets, Operating Expenses as percentage of Total Assets, Investment as percentage of TA and Non-interest income as a percentage of Total Assets. Table: 2, presents the results of Correlation Analysis between these variables.

It can be seen that Diversification bears a positive relationship with the returns of the bank except with SHROE though it is not found statistically significant with ROA, SHROA, ROE and SHROE. It is also observed that as the size (TA) of the business expands, there is a tendency towards concentration as indicated by the negative correlation between Total Assets and Div_Non. A diversified bank in Non-interest activities also exposes itself to a greater fragility in terms Speared to TA, Operating expenses to TA, Investment to TA, Non-interest to TA and Non-performing Assets to TA where it was found significant as evidenced by a negative correlation between them.

**Table : 2**
**Correlation Matrix of Dependent and Explanatory Variables**

| Variables | Div_Non | ROA | ROE | TA | Equity | SHROA | SHROE | Sprd_TA | Npa_TA | Oxp_TA | CRD_TA | Ivst_TA | Non_TA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Din_Non | 1 | 0.17 | 0.39 | -0.11 | -0.26 | 0.08 | -0.02 | -0.33 | -.45* | -0.31 | 0.17 | -0.28 | -0.17 |
| ROA | 0.17 | 1 | .81** | 0.08 | -0.28 | .79** | .55** | -.47* | 0.09 | 0.06 | 0.24 | -0.16 | 0.13 |
| ROE | 0.39 | .81** | 1 | -0.1 | -.54** | .76** | .70** | -.44* | 0.2 | 0.13 | 0.28 | -0.11 | 0.24 |
| TA | -0.11 | 0.08 | -0.1 | 1 | .80** | 0.11 | 0.18 | -0.19 | -0.21 | -0.32 | 0.1 | 0.24 | 0.16 |
| Equity | -0.25 | -0.28 | -.54** | .80** | 1 | -0.29 | -0.27 | 0.02 | -0.39 | -0.29 | -0.1 | 0.1 | -0.06 |
| SHROA | 0.07 | .79** | .76** | 0.11 | -0.29 | 1 | .85** | -0.4 | 0.21 | 0.21 | 0.06 | 0.24 | 0.23 |
| SHROE | -0.01 | .55** | .70** | 0.18 | -0.27 | .85** | 1 | -0.27 | 0.28 | 0.25 | 0.16 | 0.35 | 0.39 |
| SPRD_TA | -0.33 | -.47* | -.44* | -0.19 | 0.01 | -0.4 | -0.27 | 1 | 0.38 | 0.35 | -0.14 | 0.24 | 0.18 |
| Npa_Ta | -.45* | 0.09 | 0.2 | -0.21 | -0.39 | 0.21 | 0.28 | 0.38 | 1 | .69** | 0.19 | 0.1 | .56** |
| Oprtxp_Ta | -0.31 | 0.06 | 0.13 | -0.32 | -0.29 | 0.21 | 0.25 | 0.36 | .69** | 1 | 0.01 | 0.07 | .51* |
| Ivst_Ta | -0.28 | -0.16 | -0.11 | 0.24 | 0.1 | 0.24 | 0.35 | 0.25 | 0.1 | 0.06 | -.56** | 1 | -0.03 |
| **- significant at 0.01 per cent level of significance | | | | | | | | | | | | | |

The regression analysis results are presented in Table:3. It is evident from the table that taking all the measures of returns viz; ROA, ROE, SHROA, SHROE, Non-interest income diversification has a negative impact on banks' performance. Thus posing greater reliance on its non-traditional activities is risky for the banks.

**Table:3; Regression Results**

| Independent Variables | Dependent Variables | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ROA | | ROE | | SHROA | | SHROE | |
| | Sig | Beta | Sig | Beta | Sig | Beta | Sig | Beta |
| DIV_NON | .41 | -.23 | .51 | .15 | .68 | -.11 | .27 | -.24 |
| TA | .02 | 1.48 | .06 | .92 | .11 | .93 | .07 | .89 |
| EQUITY | .02 | -1.50 | .02 | -1.17 | .07 | -1.04 | .02 | -1.10 |
| SPRD_TA | .59 | -.14 | .23 | -.25 | .15 | -.36 | .24 | -.24 |
| NPA_TA | .42 | -.33 | .90 | -.04 | .60 | -.20 | .19 | -.43 |
| OPRTXP_TA | .16 | .46 | .29 | .26 | .14 | .45 | .10 | .42 |
| IVST_DPT | .15 | -.50 | .53 | -.16 | .62 | .15 | .13 | .39 |
| NON_TA | .42 | -.23 | .98 | -.00 | .88 | -.03 | .53 | .13 |
| Model $R^2$ | 0.58 | | 0.75 | | 0.63 | | 0.75 | |

**Summary of Findings and Conclusion:**
This study is primarily concerned with Non- interest Income Diversification activities of public and private sector banks operating in India and tries to investigate the manner in which diversifying into Non-Interest earning sources can impact risk and returns of a bank. While examining the manner in which diversification impacts bank performance, it was found that Non-interest income diversification has a negative significant impact on returns of banks. Thus the paper identifies the potential diversification benefits arising out of non-traditional activities but the returns are not very high as compare to risk taken by the banks. From the above analysis it can be said form past few years bank have largely diversified in to Non-traditional activities both Public and private sector banks in which Public banks have more diversified in recent years.

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