# OWNERSHIP STRUCTURE & RISK IN INDIAN BANKS: A COMPARISON OF PRIVATE AND PUBLIC BANKS

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## ABSTRACT

Banking sector is one of dominant sector and represents growth and development of the economy. The sector has been one of the top performers in stock market. Indian Stock Market experienced great volatility during the period of 2007-2008. The study is about the ownership structure and risk in Indian banks which they encountered during the period of slow down in India. This paper examines the effect of ownership on performance and risk of commercial banks in India during the period 2000-2009. The study would examine whether there exists any significant difference in the performance and risk among Public and sector banks and effort has been made to evaluate the performance of bank before and after the period of 2007-2008 to evaluate and understand the ground reality in Indian banking sector. The study investigated that whether any significant difference exists in the performance and risk of ownership groups of private & public banks in India. Regression results would be used to examine the association between the size of the banks and non-performing loans, and between demand deposits & risky loans.

**Keywords** Ownership Structure; Bank Risk; independent sample T-test; Private Banks and Public Banks, demand deposits, NPA.

## Introduction

The last three decades have been characterized by repeated banking crises (the current financial crisis of 2008, the US savings and loans debacle of the eighties, the 1994-95 Mexican crisis, the 1997 Asian and 1998 Russian financial crises, etc.). Such episodes emphasize the inherently unstable nature of banking and the propensity that banks have towards excessive risk-taking. The past decade has seen dramatic losses in the banking industry. Firms that had been performing well suddenly announced large losses due to credit exposures that turned sour, interest rate positions taken, or derivative exposures that may or may not have been assumed to hedge balance sheet risk. In response to this, commercial banks have almost universally embarked upon an upgrading of their risk management and control systems.

The banking industry recognizes that an institution need not engage in business in a manner that unnecessarily imposes risk upon it; nor should it absorb risk that can be efficiently transferred to other participants. Rather, it should only manage risks at the firm level that are more efficiently managed there than by the market itself or by their owners in their own portfolios. The banking industry has long viewed the problem of risk management as the need to control four of the above risks which make up most, if not all, of their risk exposure, viz., credit, interest rate, foreign exchange and liquidity risk. While they recognize counterparty and legal risks, they view them as less central to their concerns. Where counterparty risk is significant, it is evaluated using standard credit risk procedures, and often within the credit department itself. Likewise, most bankers would view legal risks as arising from their credit decisions or, more likely, proper process not employed in financial contracting.

The issue of ownership structure is of particular interest for the banking industry as several factors interact and alter governance, such as the quality of bank regulation and supervision and the opacity of bank assets. Risk management is a cornerstone of cautious banking practice. Undoubtedly all banks in the present-day volatile environment are facing a large number of risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others – risks which may threaten a bank's survival and success. In other words, banking is a business of risk. For this reason, efficient risk management is absolutely required. Carey (2001) indicates in this regard that risk management is more important in the financial sector than in other parts of the economy. The purpose of financial institutions is to maximize revenues and offer the most value to shareholders by offering a variety of financial services, and especially by administering risks. Recently many commercial banks have appointed senior managers to oversee a formal risk management function.

## Review of Literature

There have been a large number of studies published about risk management in general. However, the number of the empirical studies on risk management practices in financial institutions was found to be relatively small. The following is an attempt to summarize the main conclusions of some selected studies.

Empirically, **Saunders et al (1990)** were the first to test the relationship between banks' ownership structure and their risk-taking incentives. They found a positive relationship between managerial stock ownership (proportion of stock held by managers) and risk taking. Moreover, they found that banks controlled by shareholders take more risk than banks controlled by managers. **Saunders et al. (1990),** found a significant effect of ownership concentration on risk-taking but without any consensus on the sign of such a relationship. If some studies found a negative relationship, others obtain U-shaped relationships (or inverse U-shaped) between ownership concentration and risk **(Gorton and Rosen, 1995; Chen, et al., 1998; Anderson and Fraser, 2000).** U-shaped relationships between ownership and risk taking could be explained by managers' entrenchment.

However, there is now a growing literature on the reasons for active risk management including the work of **Stulz (1984), Smith, Smithson and Wolford (1990), and**

**Froot, Sharfstein and Stein (1993)** to name but a few of the more outstanding contributions. In fact, the review of risk management reported in **Santomero (1995)** lists dozens of contributions to the area and at least four distinct rationales offered for active risk management. These include managerial self interest, the non-linearity of the tax structure, the costs of financial distress and the existence of capital market imperfections. Any one of these justified the firms' concern over return variability, as the above-cited authors demonstrate.

**Vining and Boardman (1992)** reviewed 54 studies that compared the performance of firms' between private and state ownership and found that 36 studies concluded that private firms perform better; six studies revealed that state-owned banks perform better; and 16 studies did not support either form of ownership.

**Laeven (1999)** considered different forms of bank ownership including state-owned, foreign-owned, company-owned and family-owned banks but not banks owned by institutional investors. Working on a panel of Asian banks before the Asian crisis of 1997, he found that family-owned

banks were among the most risky banks together with company-owned banks whereas foreign-owned banks took little risk relatively to other banks.

**Salas and Saurina (2002)** examined credit risk in Spanish commercial and savings banks; they used panel data to compare the determinants of problem loans of Spanish commercial and savings banks in the period 1985-1997, taking into account both macroeconomic and individual bank-level variables. The GDP growth rate, firms, family indebtedness, rapid past credit or branch expansion, inefficiency, portfolio composition, size, net interest margin, capital ratio and market power were variables that explain credit risk. Their findings raise important bank supervisory policy issues: the use of bank-level variables as early warning indicators, the advantages of mergers of banks from different regions, and the role of banking competition and ownership in determining credit risk.

**Linbo Fan (2004)** examined efficiency versus risk in large domestic USA banks. He found that profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products. **Hahm (2004)** conducted an empirical study on interest rate and exchange rate exposures of banking institutions in pre-crisis Korea. The results indicated that Korean commercial banks and merchant banking corporations had been significantly exposed to both interest rate and exchange rate risks, and that the subsequent profitability of commercial banks was significantly associated with the degree of pre-crisis exposure. The results also indicated that the Korean case highlights the importance of upgrading financial supervision and risk management practices as a precondition for successful financial liberalization. It seems appropriate for any discussion of risk management procedures to begin with why these firms manage risk. According to standard economic theory, managers of value maximizing firms ought to maximize expected profit without regard to the variability around its expected value.

**Iannota et al, (2007)** also highlighted that mutual banks and government owned banks appear as less profitable than private-owned banks. Moreover, they found that government-owned banks have poorer loan quality and higher default risk, while mutual banks have better loan quality and lower asset risk than both private-owned and government-owned banks. In addition, some papers have shown that foreign owned banks exhibit a higher performance than other banks, particularly in developing countries **(Claessens et al., 2001; Bonin et al, 2005; Micco et al., 2007).**

## Methodology

The paper aims to test the risk in the Indian commercial banks through comparison of public and private banks operating in India. For this study, the data of 41 banks both private and public have been taken. The fixed effects model and the random effects model have been employed to test for any significant difference in Indian banks' performance and risk due to the fact that former technique takes into account the firm-specific effect and the latter considers the time effect.

In statistics, a **random effect(s) model**, also called a **variance components model** is a kind of hierarchical linear model. It assumes that the dataset being analyzed consists of a hierarchy of different populations whose differences relate to that hierarchy. In econometrics and statistics, a **fixed effects model** is a statistical model that represents the observed quantities in terms of explanatory variables that are all treated as if those quantities were non-random.

Formally the model is

$$y_{it} = \beta_0 + X_{it}\beta + Z_i\gamma + \alpha_i + u_{it},$$

where $y_{it}$ is the dependent variable observed for individual $i$ at time $t$, $X_{it}$ is the time-variant regressor, $Z_i$ is the time-invariant regressor, $\alpha_i$ is the unobserved individual effect, and $u_{it}$ is the error term. $\alpha_i$ could represent motivation, ability, genetics (micro data) or historical factors and institutional factors (country-level data).

Fixed effects (FE) model:

$$y_{it} - \overline{y_i} = \left( X_{it} - \overline{X_i} \right)\beta + \left( u_{it} - \overline{u_i} \right)$$

where

$$\overline{X_i} = \frac{1}{T}\sum_{t=1}^{T} X_{it}$$

and

$$\overline{u_i} = \frac{1}{T}\sum_{t=1}^{T} u_{it}.$$

$$\hat{\beta}_{FE} = \left( \sum_{i,t}^{I} \widehat{x}'_{it}\widehat{x}_{it} \right)^{-1} \sum_{i,t}^{I} \widehat{x}'_{it}\widehat{y}_{it}$$

Where $\widehat{x}_{it} = \left( X_{it} - \overline{X_i} \right)$ and $\widehat{y}_{it} = y_{it} - \overline{y_i}$

In the above specification $y_{it}$ represents the performance measure. Literature provides us various criteria for evaluating the bank's performance.

We used Returns on Assets (ROA), defined as the ratio of profits before tax to total assets, which measures bank's ability to transform the assets into earnings. We considered before-tax profits instead of after-tax profits, because we

**H0:** There is no significant difference in the performance of Public sector banks and Private sector banks India.

**H1:** There is a significant difference in the performance of Public sector banks and Private sector banks in India.

## Assets

Assets are proxies for bank size measured by the log of total assets. As far as the financial scale economies are concerned, larger banks would be able to deal with any unforeseen shocks and have better risk diversification options and thus reduce cost of funding than smaller ones. Big banks would also benefit from invisible assurance of safety that decreases their cost of funding and allows them to invest in riskier portfolios. On the other hand, bank size will also cause increasing costs, as larger size is associated with diseconomies of scale in production process. Here again, the expected sign for the coefficient of this variable is unpredictable.

## Capital

Capital is the ratio of equity capital to total assets. Higher capitalization may reflect the strength and soundness of banks and higher management quality. It is also a sign that well capitalized banks face lower expected bankruptcy costs that lowers the needs to go for external funding, which in turn reduces their cost of funding and increases their profits. Thus, coefficient of capital to assets ratio is expected to be positive.

## Loans

Loans are the ratios of loans to total assets. Conventionally, banks collect deposits and transfer them into loans. It might be more profitable than other types of assets like securities. Other things being equal, the more the deposits are transformed into loans, the higher the interest margin and profits. However, loans might also be more costly to produce as its performance is associated with standard of loan collateral that might result in higher delinquencies and non-performing loans, which result in decreasing interest margins. The net impact of loans is, therefore, uncertain.

## Deposits

Deposits are the ratios of demand deposits to total deposits which capture the bank's relative cost of funds. Demand deposits are relatively inexpensive source of funds because demand deposits, particularly in developing countries, frequently pay less than market interest rates and carry lower interest costs, thus increasing bank profitability. On the other hand, demand deposits are costly in terms of the required branching network which leads to increasing costs. Here again, the net impact of deposits is uncertain.

### Loan Loss

Loan Loss is the ratio of non-performing loans to total loans. It is an indicator of asset quality and proxy for risk that indicates how much of the total portfolio has been provided for but not charged off. The higher the ratio, the

include non-performing loans as a control variable in our regression; profits after tax would incorporate the non-performing loans variable. T – Test has been used to test performance of both the set of banks – Public and Private.

poorer the quality, and as a result the higher is the loan portfolio risk. According to risk-return hypothesis, high risk loans should yield higher returns. On the other hand, poorer asset quality may have a negative impact on bank profitability by reducing interest margins and increasing monitoring costs. Moreover, higher loan quality requires more resources on credit underwriting and loan monitoring, which in turn lead to higher expenses. Therefore, the net impact of Loan Loss is uncertain.

Our panel data set consists of 41 banks in India for the period 2000-2009. Due to non-availability of data for all the years for all the banks, we finally made an unbalanced panel. All the necessary statistical information was obtained from various reports and publications of Reserve Bank of India and *CAPITALINE* database.

## Results

The mean value (From Appendix I) of ROA says that Indian commercial banks have improved their profitability over the period of time. We can also say that on the basis of analysis that the private banks are more profitable than public sector banks on the basis of our analysis. It has also been observed that the NPA's to total assets has been reduced over a period of time and this is a positive sign for the Indian commercial banks. Public sector banks are more efficient in controlling their NPA's as compared to private sector banks. It has also been observed that the total equity capital to total assets has been reducing over the period of time, which means that the banks are also using other sources of capital in their capital structure. But the private banks are using more equity in their capital structure as compared to public sector banks in their capital structure.

The results of *t*-tests for equality of variable means of two panels of Public sector and Private sector banks are in Table 1.

The table1 is checked at 5% level of significance. It is clear from the above table that in the comparison between the panel of both public and private sector banks both have same performance in Return of Asset (ROA), Demand deposits to total deposit (DD), Equity capital to total assets (EQC), in other words there is a no significant difference in the performance of Public sector and private sector banks on the basis of above said variables. Whereas the performance of both Public sector and private sector banks differ on the basis of Advance deposit to total deposit (ADTA), Non performing asset to total asset (NPATA) & Natural log of asset (LOGA).

From Table 2 it is clear that the variable that are considered in the performance of the banks are Log of asset, demand deposit to total deposit, Advances to total deposit and Non performing asset to total deposit. The ideal value of Adjusted R square should be greater than .7 and the value of adjusted R square here is .794 which above the ideal value of .7. It shows that model reveals 79.4% of variance in the criterion variables.

From Table3 **F ratio** (in the Analysis of Variance Table) is 31.916 and sig at P=0.000 this shows that there exist the linear relationship between the variables taken into

consideration. We may wish to know whether there is a relationship between the response variable and other variable that can be tested with the help of t-ratio computed in the next table. These two values viz. **F ratio** and **t-ratio** tell us respectively whether there is a linear relationship between the response and explanatory variables taken together, and whether any given explanatory variable has an influence on the response variable over and above that of the other explanatory variables.

**Table 1 Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| ROA | Equal variances assumed | 9.117 | .004 | -2.257 | 39 | .030 | -.58439 | .25891 | -1.10808 | -.06069 |
| | Equal variances not assumed | | | -1.888 | 17.382 | .076 | -.58439 | .30953 | -1.23634 | .06757 |
| DD | Equal variances assumed | 28.664 | .000 | -2.947 | 39 | .005 | -8.42068 | 2.85755 | -14.20061 | -2.64075 |
| | Equal variances not assumed | | | -2.368 | 15.490 | .031 | -8.42068 | 3.55551 | -15.97825 | -.86312 |
| EQC | Equal variances assumed | 5.974 | .019 | -1.562 | 39 | .126 | -4.01211 | 2.56897 | -9.20835 | 1.18412 |
| | Equal variances not assumed | | | -1.248 | 15.263 | .231 | -4.01211 | 3.21379 | -10.85189 | 2.82767 |
| ADTA | Equal variances assumed | 2.263 | .141 | 1.670 | 39 | .103 | 8.21996 | 4.92287 | -1.73749 | 18.17740 |
| | Equal variances not assumed | | | 1.598 | 27.517 | .122 | 8.21996 | 5.14460 | -2.32663 | 18.76654 |
| NPATA | Equal variances assumed | 1.098 | .301 | -.267 | 39 | .791 | -.32209 | 1.20476 | -2.75895 | 2.11477 |
| | Equal variances not assumed | | | -.232 | 19.453 | .819 | -.32209 | 1.38965 | -3.22609 | 2.58190 |
| LOGA | Equal variances assumed | .338 | .564 | 3.414 | 39 | .002 | .58915 | .17256 | .24011 | .93820 |
| | Equal variances not assumed | | | 3.205 | 25.654 | .004 | .58915 | .18385 | .21100 | .96731 |

**Table 2. Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .906[a] | .820 | .794 | .38497 | .820 | 31.916 | 5 | 35 | .000 |

a. Predictors: (Constant), LOGA, DD, ADTA, NPATA, EQC

**Table 2. Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .906[a] | .820 | .794 | .38497 | .820 | 31.916 | 5 | 35 | .000 |

b. Dependent Variable: ROA

**Table 3. ANOVA[b]**

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 23.650 | 5 | 4.730 | 31.916 | .000[a] |
| Residual | 5.187 | 35 | .148 | | |
| Total | 28.837 | 40 | | | |

a. Predictors: (Constant), LOGA, DD, ADTA, NPATA, EQC

b. Dependent Variable: ROA

**Table 4. Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.355 | .916 | | 1.479 | .148 |
| | DD | .065 | .007 | .751 | 9.136 | .000 |
| | EQC | -.015 | .018 | -.147 | -.873 | .388 |
| | ADTA | .012 | .005 | .215 | 2.299 | .028 |
| | NPATA | -.043 | .034 | -.190 | -1.291 | .205 |
| | LOGA | -.277 | .154 | -.198 | -1.801 | .080 |

a. Dependent Variable: ROA

Table 4 shows the value of the coefficients for the variables that are been taken under consideration for study. This table shows the relationship between the variables taken in to consideration and bank's performance.

The regression equation is as follows:

**Performance of bank = .751 Demand Deposit to total deposits – .147 Equity capital to total assets + .251 Advance deposit to total deposit – .190 Nonperforming assets to total loans - .198 Natural log of Assets.**

From the above equation we can judge that the performance of the bank largely depends on its demand deposits and advance deposits. They are the major predictor of the bank's performance.

The scatter plots shows the plots for the between the ROA and independent variables of the regression equation. Plot is in the favor of the performance of the banks.

**Chart 1**

Scatterplot
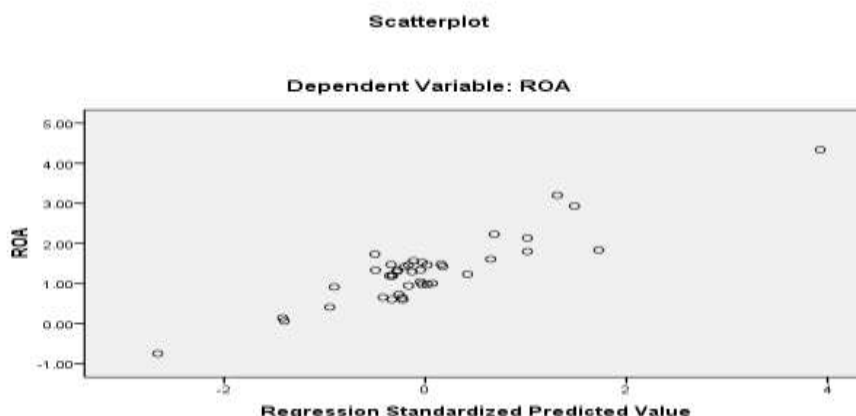


## CONCLUSION:

Our result reveals that there exist a significant difference in the performance of Public sector banks and private sector banks basis of Advance deposit to total deposit (ADTA), Nonperforming asset to total asset (NPATA) & Natural log of asset (LOGA). More over Private sector banks are more profitable than Public sector bank. The study also reveals that demand deposit and advances are positive correlated with ROA whereas NPA, Log of total assets and equity capital are negatively correlated. As far as risk is concerned Private sector banks have NPA's as compared to Public sector banks.

As per RBI the global economic outlook deteriorated sharply over the last quarter but Indian banking industry has no direct exposure to subprime mortgage assets. Banks in India continued to remain safe and healthy. The fall of Lehman Brothers and Quick succession by several other financial institutions made financial markets around the world uncertain and unsettled, and India too. But fiscal stimulus and comprised monetary policy helped in counter.

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