The Riskiness of Banks: An Empirical Analysis of the Depositor’s Sensitivity

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ABSTRACT

This study focuses on checking for the existence and strength of the market discipline based on different ownership structures of the banks. First, this article determines if depositors react rationally to risk levels depending on the bank's ownership type, and second, if the strength of this responsiveness differs depending on the bank's ownership type. This study is based on 38 banks in the Indian banking sector. Empirical testing is carried out using panel data analysis and various proxies to assess the riskiness of the banks. The analysis shows that market discipline exists regardless of the kind of ownership. However, its strength varies across different ownership structures of the banks. These findings are crucial for the orderly functioning of the banking system so that the bank managers do not take advantage of the market perception based on their state ownership.

Keywords: Market discipline; Riskiness of the banks; Indian banking system; Ownership type of the banks; Deposit growth.

1.0 Introduction

The 2007-08 financial crisis exposed many weaknesses in corporate governance in developed and emerging markets, and bank risk management practices. The global financial crisis demonstrated that banks failed due to two primary factors: insufficient capital to protect against asset risks and poor liquidity management (Bologna, 2015; Imbierowicz & Rauch, 2014). The failure of a bank is linked to the worsening of the economy. Capital is wiped out due to a lack of asset quality.

The rescue of these banks is critical because their failure might harm the entire

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economy due to their prominence in the financial system (Aharony & Swary, 1983; Tussing, 1967; Ramirez & Shively, 2012). As a result, government involvement to make certain monetary changes becomes necessary. However, the government’s intervention has implications in the form of weak market discipline, which will be discussed further in this paper. As a result, it is critical to strengthen banks’ resilience to losses, as the cost of rescuing them in times of trouble is significantly higher, and must be borne by the government and, ultimately, the taxpayers.

Earlier studies have shown that the ownership of banks has played a role in determining their NPA levels, profitability, depositors base and many other aspects of the functioning of the bank (Rajaraman et al., 1999; Rawlin et al., 2012). However, very few studies which study the impact of depositors’ responsiveness towards the risk-taking behaviour of the banks exist. In Basel norms II, a term has been introduced- “Market discipline” which emphasizes the disciplinary actions taken by the stakeholders of the banks themselves and thereby minimizing the regulatory authorities’ interference in the functioning of the banks.

1.1 Government ownership and intervention

With state ownership comes the belief of government support in times of distress (Mondschean & Opiela, 1999; Acharya & Kulkarni, 2012). Due to this implicit guarantee, these banks are indulging themselves in risky investments in order to earn higher returns (Boubakri et al., 2020). One of the many adverse effects of state ownership of these banks is the undue trust of the stakeholders in the bank. Due to the mere belief of implicit guarantee, the stakeholders assume that government support would be provided to the bank in times of distress due to which they take no action to discipline the actions of the bank managers (Mondschean & Opiela, 1999; Schoors et al., 2019). Hence, the responsiveness of the depositors may vary with the ownership type of the bank. Depositors of private banks may charge a higher compensation for the increased risk and may reduce their stake in the bank while the depositors of the PSBs (Public sector banks) may not respond in the same manner or with the same magnitude.

This study firstly, aims at determining if the depositors respond rationally to the increased risk level of the banks and secondly, to check if the magnitude of response to the increased riskiness of the banks differs as per the ownership type of the bank.

1.2 Market discipline

Information disclosure, market influencing and market monitoring are the three components of market discipline as identified by Flannery (2001). The following section delves more into these elements.
1.2.1 Disclosure of information
Depositors must be aware of the bank's critical information, including riskiness and other factors that may affect their ownership in the bank, in order to exercise market discipline. The establishment of pillar 3 (Market Discipline) in Basel norms II, in which numerous rules have been set out to enable stakeholders to make a more informed decision, is one of the actions made by the Basel Committee to strengthen bank disclosures. Several studies have been conducted to assess the impact of improved disclosure norms, one of which was conducted by (Iren et al., 2014), who found that when more information is disclosed, the bank returns first fall and then rise, indicating the importance of more information disclosure.

1.2.2 Market surveillance
This focuses on how stakeholders react to changes in the bank's riskiness. Depositors are likely to change their ownership in the bank or seek compensation for bank managers' actions if those actions enhance the bank's riskiness. Sironi (2003) evaluated yield spreads on subordinated debt to determine the risk sensitivity of investors, which is one of the studies in this area. The research examined the European banking industry and found that investors are sensitive to a bank's riskiness level and that this sensitivity has been increasing since 1990, particularly for TBTF banks, implying that government support in times of trouble has diminished since 1990.

1.2.3 Influence on the market
This shows how depositors have an impact on the bank managers' decisions. It is a process by which variations in the price of security affect a bank's response to adverse changes in its financial status.

1.2.4 Why ownership and market discipline
Market discipline and bank ownership type are studied together in this study because public ownership may lead to poor market discipline due to the expectation that if the bank fails, the government will bail it out. As a result, the actions taken to monitor the bank's riskiness would be less, as compared to the private sector banks. Hence, it can be seen that state ownership leads to weak market discipline which is further examined in this study.

1.2.5 Pillar III- market discipline
To ensure bank stability, Basel II emphasizes the need to strengthen market discipline (Pillar 3), as well as capital requirements (Pillar 1) and official oversight
(Pillar 2). The goal of introducing market discipline as Pillar 3 is to supplement the Basel rules of minimum capital requirements in Pillar 1 and the supervisory review process in Pillar 2. In pillar 3, a set of disclosure rules have been developed that will allow stakeholders to assess crucial information such as capital application, risk exposure, and bank capital sufficiency. This is done to ensure that the bank’s information disclosure matches how senior management and the board of directors analyze and manage bank risks in order to determine capital requirements under Pillar 1. It is argued that giving out information based on a common framework is an effective way to alert the market to the risks that banks face, as well as to give a uniform and comprehensive information framework, enhancing comparability. It also contributes to the creation of a healthy and secure banking environment. If a bank fails to comply with the required disclosure standards, penalties are imposed. In order to secure market discipline, bank stakeholders might exert pressure on management by withdrawing funds or demanding a higher interest rate from riskier banks. Bank regulators, on the other hand, can impose direct restrictions on the bank’s operations and recommend corrective action if the bank’s stability is compromised in any manner. Only depositors are included in this analysis, out of all the stakeholders targeted by pillar 3, and so market discipline through depositors’ response to bank riskiness is concentrated here, as indicated in later sections of the study.

1.2.6 Why weak market discipline is a problem

Weak market discipline would suggest lax disclosure standards, leaving stakeholders in the dark about the banks’ riskiness. This would result in less transparency, and no efforts by stakeholders to monitor the actions of bank managers to curb excessive risk-taking would be taken. As a result, the riskier bank would not be penalized for taking too much risks, and it would continue to engage in riskier activities. Therefore, it can be concluded that market discipline, as well as RBI regulatory rules, are critical for the financial system’s orderly operation.

2.0 Review of Literature

Prior research has shown that bank performance and risk-taking differ depending on the kind of ownership. Various aspects of a bank’s working, performance and risk-taking is influenced by the ownership type of the banks. A wide range of literature is available that concentrates on the effects of the ownership type of the banks. State banks in 16 Asian nations have poorer profitability, equity capital, managerial efficiency, and credit losses than private banks, according to Cornett et al. (2010). Their research
explores how public ownership affects bank performance. Around the time of the Asian financial crisis, this research finds an intriguing trend of shifting performance discrepancies between public and private sector banks. Prior to 2001, state-owned banks performed worse than privately-owned banks in terms of profitability, core capital, and credit risk, and the discrepancies were much more pronounced in nations with more government participation and political corruption in the banking sector. Furthermore, the deterioration in cash flow rates of return, core capital, and credit quality of public sector banks was substantially larger than that of privately-owned banks from 1997 to 2000. In the post-crisis era of 2001–2004, however, state-owned banks caught up to privately-owned banks in terms of cash flow returns, core capital, and non-performing loans.

According to Saghi-Zedek (2016), it is observed that the influence of non-interest income diversification on bank performance and solvency varies with bank ownership types. They examined whether the existence of certain types of controlling shareholders influences product diversification performance using data on control chains of 710 European banks. They discovered that activity diversification produces diseconomies when banks have no controlling shareholders or just family and state owners. Banks, on the other hand, benefit from diversification economies when the control chain includes banking institutions, institutional investors, industrial companies, or any other combination of these shareholder categories: they have higher profitability, lower earnings volatility, and lower default risk. This might be because such stockholders offer extra abilities to handle a variety of operations. Their findings shed light on why banks suffer as a result of increased activity diversification and have a number of policy implications.

Adding to this, Giannetti & Ongena (2009) concluded that foreign banks in developing economies perform better and have a higher chance of survival. This research analyses the differential effects of international bank lending on business development and finance using a panel of 60,000 firm-year data from public and unlisted enterprises in Eastern European nations. Although the effect is muted for small businesses, foreign funding supports development in company sales, assets, and the usage of financial debt. More notably, a foreign bank presence benefits new enterprises the most, whilst businesses linked to domestic banks or the government lose the most. Overall, their findings imply that foreign banks can aid in the mitigation of connected-lending issues and capital allocation.

Similar results were found by Zhu & Yang (2016) wherein a link between governmental control and bank failure in Western Europe were observed. Foreign banks, as compared to public sector banks, have a significant negative influence on capitalization and liquidity, as well as a positive impact on credit losses. According to
the authors, the difference is due to the international banks' better regulation and market discipline, whereas implicit government assistance encourages state banks to take on more risks. They discovered that state ownership is related to increased risks in general. Furthermore, it was found that the central government-controlled banks have the highest credit risk, while local government-owned banks have the lowest capital adequacy and liquidity ratios. They explore the influence of foreign acquisition on state-owned banks' risk-taking using differences-in-differences and matching estimators after compiling a full list of cross-border acquisitions in China's banking industry. They find that foreign acquisition reduces state-owned banks' risk-taking, with this effect being particularly strong for banks under central or local government control. The agency theory in the literature has shown its relevance in the banking industry as well. According to the agency theory, a firm's risk-taking behaviour is influenced by the ownership structure.

Although there is no agreement on the indicators of this connection, Laeven & Levine (2009); Saunders et al. (1990) confirm the agency's theoretical prediction that significant owners with 65,987 cash flow rights have higher incentives to raise risk than those who do not. The first empirical examination of hypotheses relating to bank risk-taking, ownership type, and national bank regulations is presented in this study. They focus on risk conflicts between bank managers and owners and show that bank risk-taking is positively related to the shareholders' relative power within each bank's corporate governance structure. Furthermore, they show that the relationship between bank risk and capital regulations, deposit insurance policies, and restrictions on bank activities is highly dependent on the ownership structure of each bank, with the actual sign of the marginal effect of regulation on risk changing as ownership concentration increases.

Shehzad et al. (2010) also discovered that concentration of ownership decreases banking risk at lower levels of shareholder protection in worldwide research. The influence of concentrated ownership on two risk indicators, non-performing loans and capital sufficiency, is investigated in their article. They find that concentrated ownership significantly lowers a bank's non-performing loans ratio, conditional on supervisory control and shareholders protection rights, using balance sheet data from around 500 commercial banks from more than 50 countries over the period 2005–2007. Furthermore, if shareholders are protected, ownership concentration has a positive effect on the capital adequacy ratio. Ownership concentration lowers bank risk level when there are few shareholders' protection rights and little supervisory supervision.

Haw et al. (2010) also found that centralized management increases profitability, volatility and the risk of default for banks. Authors examine the relationships between concentrated control, a set of bank operational characteristics, and legal and regulatory
frameworks using a large sample of listed commercial banks in East Asia and Western Europe. In comparison to broadly held banks, they find that those with concentrated control have weaker performance, lower-cost efficiency, more return volatility, and higher bankruptcy risk. They also show that legal institutions and private monitoring efficiently mitigate the negative impacts of concentrated control and that official disciplinary power serves only as a poor governance tool, whereas government involvement exacerbates the negative consequences. According to further research, the relationships between control concentration and bank operational characteristics are curvilinear and vary depending on the types of controlling shareholders.

Recent studies include, Trinugarho et al. (2020), in which the influence of macro and micro risk on depositor discipline is disentangled, which adds to the literature on depositor discipline. They also divided their data into distinct deposit size groups in various sorts of institutions (bank ownership structure). Depositors evaluate both macro and micro levels of risk to discipline banks, according to their results, which are based on monthly data from 2005 to 2013. Large uninsured depositors are more powerful in enforcing bank discipline, highlighting the insurance system's reliability. Bank ownership also plays a significant role in understanding depositor market discipline (Cutura, 2021). The introduction of the Banking Recovery and Resolution Directive (BRRD) of the European Union, according to this research, has increased market discipline in the market for unsecured debt. The BRRD's distinct influence on bank bonds creates a quasi-natural experiment that facilitates the use of the difference-in-difference technique to analyse the BRRD's impacts within banks. The fact that (otherwise similar) bonds of a certain bank maturing before 2016 are explicitly shielded from BRRD bail-in is used to identify them.

The empirical findings support the notion that debt holders keep a close eye on banks and that the BRRD reduced rescue expectations after it was passed. Due to insufficient capitalization, bank bonds subject to BRRD bail-in have a 13-basis-point bail-in premium in terms of the yield spread. Banks that de-risk their portfolios in response to the market demand might get cheaper funding for products that are vulnerable to bail-in. Following these studies, it can be fairly said that the ownership of the banks not only affects the working of the banks but also their profitability and riskiness. However, few research gaps are still present in these studies. First, most of the studies done so far focus on the existence of the market discipline through the depositor’s sensitivity. No study has been done which accounts for the degree to which this sensitivity varies with respect to the ownership. In the second set of hypotheses (H5 and H6), this research gap is dealt with. Second, very few studies have been done that make a linear combination of independent variables in order to get the significance of
interaction terms in the case of dummy variables. This study tests for the significance of respective combinations of independent variables and thus gives authentic results of their significance. Moreover, separate models for each risk variable have been computed with control variables in order to avoid the issue of multicollinearity while controlling for macroeconomic variables at the same time.

2.1 Hypothesis development

Among all the stakeholders, the reaction of depositors to the riskiness of banks is used to study market discipline. It is done in two ways: with a price approach and with a quantity approach. The responsiveness of interest rates on deposits to bank riskiness is observed in the Price method. Riskier banks, it is hypothesised, would pay more interest on their deposits and thus face a higher cost to compensate for taking more risks. As a result, a positive relationship between deposit interest rates and bank riskiness would be proof of market discipline. The response of deposit growth to bank riskiness is shown in the Quantity method. Riskier banks, it is hypothesized, would attract fewer deposits, and so a negative relationship between deposit growth and bank riskiness would be evidence of market discipline. The existence of market discipline is examined in this study among banks of varying ownership structures. The following hypotheses are proposed based on the assumption that market discipline exists at both state and private ownership.

Hypothesis: The depositor’s response to increased riskiness of the banks and ownership

H1: As the riskiness of the bank increases the deposit growth falls for public banks.
H2: As the riskiness of the bank increases the cost of deposit rises for public banks.
H3: As the riskiness of the bank increases the deposit growth falls for private banks.
H4: As the riskiness of the bank increases the cost of deposit rises for private banks.

Hypothesis: The degree of responsiveness of depositors to increased riskiness of the banks and ownership

H5: Responsiveness of the level of deposits to the riskiness of the banks is less for Public Sector Banks (PSBs) as compared to Private Banks.
H6: Responsiveness of the cost of deposit to the riskiness of the banks is less for Public Sector Banks (PSBs) as compared to Private Banks.

In order to identify the type of relationship between riskiness and deposit growth, the sign of the coefficient will be observed for the first 2 hypotheses. In the 2nd set of hypotheses (H5 and H6), the strength of responsiveness of the depositors is analysed across different ownership types of the bank. depositors may behave rationally irrespective of the ownership type of the bank but the degree to which depositors respond to the riskiness of the banks may differ according to the ownership type of the
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bank. Thus, the coefficient value itself is observed for the respective independent variable.

The coefficient’s values can’t be compared as they are not dimension free. Hence, $t$ ratio is compared which are nothing but the standardized coefficients. Higher the value of the $t$ ratio, higher would be the response of the dependent variable (deposit growth and cost of deposit) w.r.t independent variables (riskiness of the banks). Hence, the final two hypotheses focus on the degree of responsiveness of the depositors to the riskiness which is checked through $t$ statistics.

3.0 Data and Variables

Data is taken for April, 1 2012-March, 31 2020. 2012 is taken as the starting year as the RBI in this year announced stricter measures of Basel III framework to improve the risk management systems. This announcement has significantly impacted the working of various banks in our economy. Prior to this period, Basel Norms were applicable but RBI in this year introduced more stringent norms to deal with the increased risk taking of the banks (Guidelines on Implementation of Basel III Capital Regulations in India by RBI).

The descriptive statistics and correlation matrix is given in Table 1 and Table 2.

**Table 1: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1 ratio</td>
<td>341</td>
<td>10.724</td>
<td>3.599</td>
<td>5.27</td>
<td>55.93</td>
</tr>
<tr>
<td>Gross NPA</td>
<td>342</td>
<td>5.820</td>
<td>5.665</td>
<td>0.200</td>
<td>27.954</td>
</tr>
<tr>
<td>Ratio of burden</td>
<td>342</td>
<td>9.189</td>
<td>5.547</td>
<td>-9.853</td>
<td>40.117</td>
</tr>
<tr>
<td>Deposit growth</td>
<td>340</td>
<td>111.932</td>
<td>13.696</td>
<td>46.291</td>
<td>232.074</td>
</tr>
<tr>
<td>Cost of deposit</td>
<td>340</td>
<td>5.757</td>
<td>2.179</td>
<td>0.043</td>
<td>8.738</td>
</tr>
<tr>
<td>GDP</td>
<td>342</td>
<td>6.338</td>
<td>1.421</td>
<td>4.181</td>
<td>8.256</td>
</tr>
<tr>
<td>CPI</td>
<td>342</td>
<td>6.212</td>
<td>2.524</td>
<td>3.4</td>
<td>10.2</td>
</tr>
<tr>
<td>Ownership</td>
<td>342</td>
<td>0.526</td>
<td>0.500</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

The data set doesn’t go beyond 2020 as the number of banks in the population get further reduced due to merger and acquisitions. This significantly impacts the data size and hypothesis testing. Data about the bank’s fundamentals was gathered from the RBI’s "Database on Indian Economy (DBIE)" database.
Table 2: Correlation among Variables

<table>
<thead>
<tr>
<th></th>
<th>Tier 1 Ratio</th>
<th>Gross NPA</th>
<th>Ratio of Burden</th>
<th>Deposit Growth</th>
<th>Cost of Deposit</th>
<th>GDPR</th>
<th>CPI</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1 ratio</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross NPA</td>
<td>-0.310</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of burden</td>
<td>0.272</td>
<td>-0.007</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposit growth</td>
<td>0.616</td>
<td>-0.447</td>
<td>-0.184</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of deposit</td>
<td>-0.025</td>
<td>0.472</td>
<td>0.091</td>
<td>0.271</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDPR</td>
<td>-0.105</td>
<td>-0.416</td>
<td>-0.145</td>
<td>0.092</td>
<td>0.6115</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPI</td>
<td>0.026</td>
<td>-0.503</td>
<td>0.017</td>
<td>0.326</td>
<td>0.418</td>
<td>0.186</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ownership</td>
<td>-0.554</td>
<td>0.446</td>
<td>-0.132</td>
<td>-0.316</td>
<td>-0.068</td>
<td>0.008</td>
<td>0.003</td>
<td>1</td>
</tr>
</tbody>
</table>

3.1 Ownership (moderating variable)

Depositors have a tendency to react to the riskiness of banks in a certain way. It is expected that people act rationally and take the required steps to mitigate the elevated risk level. However, due to differences in ownership, each bank's reaction to the higher amount of risk may differ. In comparison to private sector banks, PSBs may not face as much pushback. As a result, the bank's ownership type functions as a moderating variable, altering the strength of the relationship between the bank’s riskiness and the depositors’ reactions to it. Dummy banks are used in the process of splitting banks on the basis of ownership.

3.2 Risk variables

Following risk proxies are used

- Asset Quality- for this, the ratio of gross non-performing loans to net advances (GNPA) is taken as a proxy. A higher GNPA indicates a bad credit decision-making process, which should have a negative relationship with deposit growth and a positive relationship with the cost of deposits.
- Tier 1 capital ratio- This is also known as banks' fixed capital and includes equity, free reserve, innovative debt instruments and many more. This ratio shows the financial strength and feasibility of banks in difficult times. Therefore, the higher this ratio, the better it is for the bank. This variable would have a negative relationship with the cost of deposits and a positive relationship with the growth variables of deposits.
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- Management: it is computed by dividing the difference between the operating income and other income by interest income included to manage this. It covers a variety of operational costs, including salaries, worker allowances, and investment in training, reflecting a management policy perspective. These high levels of spending are not directly assigned to production activities and therefore, reflect poor management. It should have a negative relationship with deposit growth and a positive relationship with deposit costs.

3.3 Dependent variables (measuring market discipline)
This paper looks at the depositors’ reactions to the level of risk facing the bank. The same was conducted taking into account the depositors by studying their sensitivity to the bank’s risk profile. For this, the following proxy variables are being used.
- Deposit growth: this is calculated by dividing the difference between deposits of the current year (CY) and deposits of the previous year (PY) by deposits of the PY. It is a quantitative variable that represents the responsiveness of the depositor. Under disciplined market conditions, the increased risk leads to a decrease in bank deposits and vice versa. Therefore, negative relationships should prevail, explaining the existence of market discipline that discourages depositors from trusting banks for deposits.
- The cost of deposit: this is an implicit measure of the cost of interest on a deposit, measured by dividing the total cost of interest on the deposit by the total amount of deposits. As mentioned above, implicit indicators are used because the interest rates offered by the banks vary according to the nature, the maturity period of different deposits and also vary according to the monetary policy of the RBI. Under disciplined market conditions, the increased risk increases the costs of bank deposits and vice versa. This variable should have a positive relationship with the risk level of the bank.

3.4 Control variables
- Consumer price index (CPI) combined
- Gross Domestic Product growth rate (GDPR)

4.0 Research Methodology

The research is based on panel data from 38 banks, covering the years 2012 to 2020. Fixed effect has been used after conducting the Hausman test. The deferred value is applied to all risk variables because it takes time for depositors to receive information
about the bank’s fundamentals and operations. Each model uses two control variables, the growth rate of gross domestic product (GDPR) and the consumer price index (CPI). A separate model is presented for each risk proxy to obtain the depositors’ sensitivity to bank’s risk.

To account for the fact that critical information is made public with a delay and hence, takes time to reach depositors, lag values are used for all risk variables. Separate models (Model 1-Model 6) are created for each risk proxy in order to determine the depositors’ sensitivity to the riskiness of the banks based on the ownership.

MODEL 1: Deposit growth \( a = \alpha + \beta_1(ownership \ type) + \beta_2(ownership \ type - 1) + \beta_3 \ \text{GDPR} \ _{\text{a, t}} + \beta_4 \ \text{CPI} \ _{\text{a, t}} + \varepsilon \ _{\text{a, t}} \)

where DEPOSIT GROWTH = (deposits of CY-PY) *100/deposits of PY RISK VARIABLES include ratios as mentioned earlier which are asset quality management and tier 1 capital ratio.

Control variables- GDP growth rate and consumer price index
MODEL 2: Cost of deposit \( a = \alpha + \beta_1(ownership \ type) + \beta_2(ownership \ type - 1) + \beta_3 \ \text{GDPR} \ _{\text{a, t}} + \beta_4 \ \text{CPI} \ _{\text{a, t}} + \varepsilon \ _{\text{a, t}} \)

where COST OF DEPOSIT- interest expense on deposits/deposits
RISK VARIABLES include ratios as mentioned earlier which are asset quality, management, tier 1 capital ratio.

Control variables- GDP growth rate and consumer price index.

Market discipline can be traced with the nature of the relationship between the dependent variable (deposit growth and cost of deposit ratio) and the interaction terms as independent variables. This is indicated by the sign of the coefficients in both of these models. However, for the strength of market discipline, t statistics would be considered. Linear combinations of the variables are made and tested for significance due to the presence of interaction terms in the regression models. Based on these results, a new column of adjusted t statistics (adj t stats) has been presented in the tables. It is being hypothesised that the strength of this response would be lower for PSBs than the private sector banks. The significance of the linear combination of these factors has been evaluated and given in the column of adjusted t values since all of the models include interaction terms with dummy variables.

5.0 Empirical Results

This section examines whether depositors punish riskier banks by withdrawing funds or demanding a higher interest rate on their deposits, based on the ownership of the banks. This section also looks at differences in the depositors’ reactivity to the
riskiness of banks based on their ownership type. In other words, proof of the presence of the depositor’s rationality and strength is examined in this section.

Following the Hausman test, the fixed effect is applied. Because all of the models incorporate interaction variables, each t statistic is generated and reported under the adjusted t statistic column in Table 3-4. The following findings are drawn solely on the basis of these corrected t statics.

- Gross Non-Performing Assets- The existence of market discipline can be seen in the negative association between deposit growth and the interest rate on deposits ratio, as well as the positive relationship between deposit growth and the interest rate on deposits ratio. The magnitude of coefficient strength varies as well. In both models of deposit growth and interest rate on deposits, the adjusted t data for private sector banks are higher than for PSBs. As a result, this validates the theory that depositor sensitivity to bank risk varies depending on the bank’s ownership structure.

- Burden to interest income: (Operating Expenses-Other Income) *100/interest earned. This ratio has a positive relationship with deposit growth, which is contrary to expectations. This could be because a lower non-interest expense ratio is associated with reduced overhead costs (wage bill, printing and advertisement cost, etc).

As a result, the bank’s prospects of acquiring new clients are reduced, and existing customers are frequently lost as a result of poor service. The interest rate on deposits, on the other hand, has no significant correlation with this ratio.

However, when comparing private sector banks to public sector banks, the coefficients of this regression are larger, indicating a lack of market discipline, which validates the theory. This suggests that, in comparison to private sector banks, the depositors of PSBs are not as affected by the bank’s services.

- Tier 1 capital ratio: The existence of market discipline in the deposit growth model is clear due to the positive link between the deposit growth and tier 1 capital. This means that as tier 1 capital is depleted (risk increases), the bank is penalised by having its deposits reduced. The interest rate on deposits ratio and the tier 1 ratio has a negative relationship, suggesting that as the tier 1 ratio falls, the banks’ interest rate on deposits rises.

The regression results are presented in Tables 3 and 4. The degree to which market discipline exists varies as well. In both models, the value of the t statistics is higher for private sector banks. As a result, the prediction that depositor sensitivity to the bank risk varies depending on the bank’s ownership structure is supported.
Table 3: Regression results

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Model 1</th>
<th></th>
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Table 4: Deposit Growth -Dependent Variable

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6.0 Conclusion

This analysis is based on 38 banks in the Indian banking industry, both public and private, from 2012 to 2020, to examine the existence of market discipline, and to see
if the strength of the market discipline varies by ownership type. To this goal, several risk proxies are used as independent variables, with their interaction with ownership as a dependent variable.

This study shows that depositors respond to a bank’s riskiness regardless of the bank’s ownership structure. Depositors can either lower their stake in banks by withdrawing deposits (quantity method) or by receiving a higher interest rate for their deposits as compensation for increased risk from the banks. As a result, depositors punish riskier banks irrespective of ownership. However, risk sensitivity differs depending on the bank’s ownership structure.

Depositor responsiveness is found to be lower for PSBs (public sector banks) than private sector banks in terms of deposit growth and the cost of deposit. As previously indicated, this could be owing to the expectation that as a PSB, the bank would be bailed out in times of trouble. As a result, depositors have a higher level of trust in these institutions than in other banks. Hence, they do not penalise PSBs for taking more risks. Thus, it is clear that the ownership types of banks play a role in the strength of the depositors’ reactivity to the riskiness of the banks. These findings are empirical in the context of the orderly functioning of the banks. If, like the depositors, other stakeholders continue to trust the banks merely on the basis of their state ownership, then the managers of such banks may indulge in riskier activities without considering their tolerance level. Moreover, this type of implicit guarantee available with the banks hampers the competitive strength of the other banks. Hence, the regulatory authorities must take into account if their actions are somehow providing an implicit guarantee to these banks and take actions accordingly.

References


