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Ownership Structure and Credit Risk: Evidence from Indian Banks

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Abstract: This paper attempts to empirically examine the effect of ownership concentration and institutional ownership on bank credit risk in India using panel data over twelve years 2011-2022. The sample consists of 13 Indian private-sector banks that have been listed on the Bombay Stock Exchange throughout the study. NPLs are used as a proxy to measure credit risk. The study applies a fixed effects model to estimate the panel data regression. The findings suggest a significant positive effect of ownership concentration on credit risk (NPLs) and a significant negative impact of institutional shareholding on credit risk (NPLs), hence the ownership structure is seen as a key component in explaining bank credit risk.

Keywords: Ownership Structure, Credit Risk, Non-performing Loans, Banks.

1. Introduction

Historically, banks have been the foundation of economies. The banking industry is significant because it stimulates economic growth and encourages investment. These factors make the stability of the banking industry a top priority for governments and central banks. The primary issue threatening the stability of the banking industry and the internationally interconnected economy is banks' credit risk, which is determined by the amount of non-performing loans (NPLs). Several studies have shown that insolvency and credit risk are the main causes of bank failures (Eastburn & Sharland, 2017). Notwithstanding the complexity of these financial institutions, keeping an eye on and reducing the amount of non-performing loans (NPLs) are essential steps to prevent bank failure and preserve a healthy economy. According to Al-Magharem et al. (2019), credit risk is the possibility of loan default, which would necessitate setting aside funds because of non-performing loans. The level of NPLs is determined by several factors, one such important corporate governance factor is ownership structure. Despite the significant number of studies that have explored the determinants of credit risk (Ghosh, 2015; Keeton &Morris, 1987; Shrieves & Dahl, 2003), the banking literature remains relatively silent about the role of ownership structure as a corporate governance mechanism in reducing banks' credit risk.

In the context of banks, the ownership structure determines who holds the majority of the shares and has control over the bank's decisions, policies, and overall direction. It also influences the bank's governance, risk profile, and operational priorities. Two major aspects of ownership structure have been considered for this study: ownership concentration and institutional shareholding. Ownership concentration refers to the extent to which ownership of a company, such as a bank, is concentrated in the hands of a few large shareholders, as opposed to being widely distributed among many smaller shareholders. When ownership is concentrated, a small number of individuals, families, or institutions control a significant proportion of the shares, which can have a major influence on the decision-making and operations of the bank. Moreover, institutional ownership refers to the ownership of a company or bank by large, organized investors such as mutual funds, pension funds, insurance companies, hedge funds, and other financial institutions. These institutional investors typically hold significant stakes in a bank or financial institution and can influence its governance, strategies, and risk management policies. Institutional investors tend to closely monitor the performance and risk exposure of the banks they invest in. Their influence can drive banks to adopt best practices in credit risk assessment and management,

thereby reducing the likelihood of poor lending decisions and defaults. Institutional ownership generally encourages better governance and risk management practices that can reduce credit risk.

The majority of earlier studies primarily examined the performance of banks (Peni & Vahamaa, 2012; Nimtrakoon, 2015; Buallay et al., 2019; Lee et al., 2017; Muhmad & Hashim, 2017; Migliardo & Forgione, 2018; Tuan Ibrahim et al., 2020). However, the relevance of credit risk and the quick rise in credit disclosure have drawn a lot of attention to research on credit risk in recent years (ElBannan, 2015; El-Masry, 2016; Tarchouna et al., 2017). Some empirical literature supports the idea that concentrated ownership lowers credit risk. According to Iannotta et al. (2007), for example, who examined 181 banks from 15 European nations between 1999 and 2004, ownership concentration is positively related to the quality of loans. Large shareholders could mitigate agency issues in firms with concentrated ownership by strengthening internal corporate governance procedures and keeping an eye on managers, according to earlier research (Becht et al., 2007). Large shareholders, as opposed to small individual investors, have the means, know-how, and, most crucially, motivations to keep an eye on managers (Baker & Jabbouri, 2017; Baker et al., 2017). Therefore, concentrated ownership reduces the amount of non-performing loans (NPLs) by strengthening investor protection and supervisory control within banks, which curbs excessive risk-taking (Shehzad et al., 2010). It is anticipated that a significant number of non-performing loans (NPLs) can also result from banks with dispersed ownership making bad lending decisions and having low-risk aversion due to a lack of oversight (Berger et al., 2005; Nguyen, 2011).

However, a different school of thought contends that banks with concentrated ownership deal with serious agency issues and have inadequate governance structures. According to this perspective, controlling shareholders exploit the firm's resources and expropriate them to promote their interests at the expense of minority shareholders (Shleifer & Vishny, 1986). For example, controlling shareholders of banks can offer loans to businesses in which they have a significant stake to finance riskier ventures at advantageous interest rates. Bank executives can profit from these linked-party transactions at the expense of minority shareholders (Barry et al., 2011; La Porta et al., 2002). In support of the previous assertions, several researchers have demonstrated that the gap between ownership and control widens as ownership is distributed (Nguyen, 2011). The primary cause of this is the pervasive free-rider issue in widely owned businesses. When all shareholders profit from active monitoring at the expense of a select few who implement expensive monitoring measures but only receive some of the benefits, the free-rider problem arises.

On the other hand, another school of thought contends that ownership concentration and banks' credit risk are positively correlated (Berle & Means, 1933; Haw et al., 2010; Louzis et al., 2012). According to this school of thought, possible conflicts of interest between controlling and minority shareholders make agency issues worse when ownership is concentrated (Al Hares et al., 2018). Furthermore, research indicates that controlling owners might prioritize their interests ahead of those of minority shareholders, leaving banks riskier (Shleifer & Vishny, 1986). The relationship between a bank's ownership structure and its credit risk indeed shows mixed results as the ownership structure influences credit risk in complex and sometimes conflicting ways. Different ownership types such as concentrated ownership, institutional ownership, and dispersed ownership can each have varying effects on how a bank manages credit risk.

2. Literature Review

Numerous studies have been done in the area of ownership structure. These studies typically look at how a bank's ownership structure affects the bank's lending practices, risk-taking choices, and overall credit risk. According to Shehzad et al. (2010), a related study that looked at 500 banks from more than 50 countries between 2005 and 2007 confirmed that concentrated ownership significantly reduces banks' non-performing loans. Likewise, srairi, (2013) confirms a negative association between ownership concentration and credit risk. These results are also in line with the findings of Burkat et al. (1997), Garcia-Marco and Roles-Fernandez (2008), and Iannotta et al. (2007) which found that a higher ownership concentration is associated with better loan quality, lower asset risk, and lower insolvency risk.

Gupta et al. (2022) examined the relationship between ownership concentration and bank performance of 36 banks during 2009–2010 to 2018–2019. And found that the ownership concentration of the largest shareholder and the top two largest shareholders is positive on the NPLR of all the banks. Ownership concentration is negatively associated with the NPLR for private sector banks, whereas in public sector banks, the higher ownership concentration leads to higher NPLR. The negative effect suggests that banks with concentrated ownership are taking lower risks in terms of credit risk and insolvency risk than banks with diffuse ownership. These findings are contrary to the agency theory (Jensen & Meckling, 1976) and the results of several studies (e.g., Saunders et al., 1990) which show that large owners lessen the

conflicts of interests between managers and shareholders and have greater incentives and power to increase bank risk-taking than small shareholders. Liu et al (2019) discovered that ownership concentration as measured by the Herfindahl–Hirchmann Index has a negative and significant effect on both the measures of credit risk used in the study which are non-performing loan ratio (NPLR) and loan loss provision ratio (LLPR) in case of concentration of ownership by government. Whereas private ownership concentration positively impacts credit risk.

Furthermore, concentrated ownership influences shareholders' risk-taking and has a major impact on banks' credit risk, according to Jabbouri et al. (2021). At the 5% level, their pre-crisis analysis shows a strong positive correlation between ownership concentration and non-performing loans. Unexpectedly, a strong inverse link between ownership concentration and non-performing loans (NPLs) suggests that this association reverses in the post-crisis era. Findings are in support of the theory that links concentrated ownership to improved governance and efficient management oversight, both of which lower banks' credit risk (Agusman et al., 2014; Iannotta et al., 2007; Shehzad et al., 2010).

Additionally, it was demonstrated by Bouaziz et al. (2012) that the degree of ownership concentration has a negative link with their financial risks, while ownership concentration, state ownership, and institutional ownership are all positively correlated with liquidity risk. However, Riewsathirathorn (2011), discovered that different ownership concentrations can have different effects on credit risk. They found that more concentrated ownership is linked to lower risk-taking, while ownership concentrations of non-financial firms and financial intermediaries result in larger risk changes. Iannotta et al. (2007) show that a high degree of ownership concentration is positively related to less bank risk, which is measured by the ratio of loan loss provision to total loans**.** Laeven and Levine (2009) and Ellul and Yerramilli (2013) find that large shareholders increase the level of bank risk-taking compared to banks with a dispersed ownership structure. Shehzad et al. (2010) do not confirm these findings by showing that an increase in ownership concentration leads to lower bank risk at low levels of supervisory monitoring and shareholder protection rights. These results imply that the relationship between ownership concentration and credit risk is intricate and subject to multiple influences.

Manconi et al. (2016) use a natural experiment based on Hurricane Katrina (August 23–30, 2005) to investigate the connection between bondholder concentration and credit risk. Additionally, a positive correlation between bondholder concentration and corporate bond yields, as well as specific business attributes linked to credit risk, was determined by combining differences-in-differences and IVs estimation. Deng (2013) proposed that big and stable institutional ownership is linked to lower risk in bank holding companies, but Boussaada (2015) observed that highly concentrated ownership is associated with higher credit risk in MENA banks. Additionally, Froneberg (2016) discovered that bigger credit default swap spreads are typically indicative of riskier ownership structures. Zhang (2013), however, discovered a positive correlation between risk disclosures and transient-type institutional block shareholders, but no significant correlation between dedicated-type institutional block shareholders and risk disclosures. On the Contrary, High institutional ownership causes banks to adopt riskier policies and practices, as demonstrated by Barry et al. (2011).

Rastogi et al. (2021) found that NPA levels were significantly (positively) impacted by institutional investors. Similarly, a study by Al-Dhaimesh (2020), shows that institutional ownership significantly reduces credit risk. Additionally, the study discovered that a higher percentage of institutional ownership in a bank result in a higher credit risk; this could be because institutional investors want soft credit practices that increase the number of loans given to maximize their profits. Moreover, Siregar (2017) argued that investment institutions are considered to be one of the main players in the financial markets, through their supervisory influence on the management behavior in trading their shares and their experience and broad knowledge of the markets. A study by Yahaya and Lawal (2018) revealed that institutional ownership has a positive and significant effect on the ROA and ROE of Nigerian Banks. In contrast, the study of Wimelda and Siregars (2017) shows that institutional ownership of banks does not affect the company value, while in non-banking institutions, it has a positive impact on the company's value. Karkowska and Acedański (2019) study found a negative relationship between institutional ownership and U.S. listed shipping companies' financial performance. Moreover, According to Thanatawee 2023, the cost of debt is negatively correlated with institutional ownership. Institutional investors provide effective oversight that reduces disputes between lenders and management, which lowers borrowing rates of listed Thailand companies. Chung et al., 2002; Boone and White, 2015; Vo, 2016; Hong and Linh, 2023 indicate that institutional investors provide several benefits to stock markets, including improved corporate governance, lower information asymmetry, greater management disclosure, more analyst coverage, greater stock liquidity, and reduced stock return volatility. These results imply that the relationship between ownership concentration and institutional shareholding on credit risk is intricate and subject to multiple influences.

Table: 1

Summary of Related Literature

Author/ Year	Country	Period	Methodology	Empirical Result
Liu et al, / 2020	China	2003-2018	GMM	Government ownership concentration significantly reduces credit risk, while private ownership concentration increases credit risk.
Samir Srairi / 2013	MENA countries	2005-2009	pooled regression, random effects	negative association between ownership concentration and risk.
Iannotta et al, /2007	Europe	1999-2004	OLS	a higher ownership concentration leads to lower insolvency risk.
Gupta et al, / 2022	India	2010-2019.	fixed effects estimation	in public sector banks, the higher ownership concentration leads to higher NPLR. Whereas, the impact of the higher ownership concentration is negative on the NPLR of private sector banks.
Jabbouri et al, / 2021	MENA	2003-2016	System GMM	precrisis analysis documents a significant positive relationship between ownership concentration and NPLs at the 5% level. Post-crisis there was a significant negative relationship between ownership concentration and NPLs.
Bouaziz et. al., / 2012	Tunisian	2000-2008	multi-regression models	Liquidity risk and ownership concentration are positively correlated, and ownership concentration lowers operational risk.
Riewsathirathorn et. al., / 2011	East Asia	2004-2008	multivariate regression analysis	Concentrated ownership is linked to lower risk-taking, increased operating expenses, and worse bank performance.
Lui et. al., / 2018	multi-country data	2000-2006	OLS with robust standard errors	acquirer banks with a concentration of shares owned by financial intermediaries and non-financial firms experience larger risk changes during acquisition years. In contrast, the risk changes of acquirer banks with a concentration of capital investors and state ownership are lower.
Shehzad et. al., / 2010	50 countries.	2005-2007	country random effects model	Due to shareholder protection rights and supervisory oversight, concentrated ownership significantly decreases a bank's non-performing loan ratio.
Manconi et. al., / 2016	US and Europe	1998-2007.	differences-in-differences and two-stage least squares	greater bondholder concentration is associated with higher bond yield spreads, as well as with firm characteristics associated with credit risk.
Jabbouri et. al., / 2019	Middle East and North Africa, Morocco	2004-2016	fixed effects model	A significant inverse relationship between ownership concentration and non-performing loans before the financial crisis. Ownership concentration has a positive and significant effect on NPL according to the post-crisis analysis.
Thanatawee / 2023	Thailand	2011-2020.	pooled ordinary least squares and fixed effects models	institutional ownership has a negative relationship with the cost of debt.
Boussaada / 2015	MENA region	2004- 2011	econometric method that deals with the endogeneity problems	ownership concentration is significant in explaining credit risk differences between MENA banks. Banks with highly concentrated ownership have a higher credit risk.
Deng et. at., / 2013	Carbondale	1994- 2009	3 SLS	Large and stable institutional ownership is associated with a higher level of geographic, revenue, and nontraditional banking diversification and lower risk.
Froneberg / 2016	23 countries	2005-2008	random effects model	Banks that have a more concentrated ownership structure are typically riskier.
Zhang / 2013	66 Australian listed firms	2009	Poisson regression	no significant relationship between dedicated-type institutional block shareholders and risk disclosure, positive

				relationship between transient-type institutional block shareholders and risk disclosures
Barry et. al., / 2011	16 Western European countries	1999 to 2005	OLS regression	shift in equity from institutional investors to either individuals/families or banking institutions results in a decrease in asset risk and default risk, but no change in profitability.
Rastogi et. al., / 2021	India	2016 to 2019.	Dynamic panel data regression	institutional investors significantly (positively) impacted NPA levels
Liu et al., / 2019	China	2003-2018	GMM	ownership concentration in the hands of the government has a negative and significant effect on credit risk while private ownership concentration positively impacts credit risk.

3. Methodology

3.1 Sample Selection

This quantitative study examines the direct effects of ownership concentration and institutional ownership on the credit risk (NPLs) of Indian private listed banks using regression analysis. The secondary data included in this study spans 12 years, from 2011 to 2022. This study's data comes from the listed banks' published annual reports. The data used were manually gathered from the websites of the selected banks, the Reserve Bank of India, and the National Stock Exchange (NSE), as well as from the banks' published annual reports.

3.2 Variable Description

The dependent variable credit risk is measured with the NPLs ratio. This ratio is defined as non-performing loans to total loans, as in much of the literature on credit risk (see, for example, Salas and Saurina, 2002; Das and Ghosh, 2007; Barth et al., 2004; Jabbouri & Naili, 2019a; Shehzad et al., 2010).

Independent variables include ownership concentration (OC) and institutional ownership (INSTOWN). Following Cheung et al. (2015); Earle et al. (2005); and Rogers et al. (2008), this study uses the percentage of ownership by the largest shareholder as the proxy of ownership concentration. The fraction of shares held by the largest shareholder has been employed in most research to determine ownership concentration. Moreover, following McConnell and Servaes (1990) and Del Guercio (1996), institutional shareholding has been defined as the aggregate shareholding proportion of all institutional investors. Mindful of the impact bank-specific factors can have on banks' credit risk. This study includes several control variables such as bank profitability (ROA), Bank Size (SIZE), Capital Adequacy Ratio (CAR), Bank Age (AGE), Bank Efficiency (Efficiency) and Income Diversification (ID).

3.2 Variables Description

Table: 2

Operational Variables and Measurements

Variable	Notation	Measurement	References
Dependent Variable			
Non-performing Loan	NPLs	$\frac{Non-performing\ loans}{Total\ Loans} * 100$	Jabbouri & Naili, (2019); Liu et al., (2019) Al-Qudah et al. (2022), Naili and Lahrichi (2022), and Wang et al. (2021)
Independent Variables			
Ownership concentration	CONC	percentage share of the largest shareholder to the total equity	Gupta et al. (2022), Louzis et al. (2012), Jabbouri et al. (2021)

Institutional Shareholding	INSTOWN	Percentage of shares held by institutional investors	Otero et al. (2019) and Alomari et al. (2018) Dhaimesh (2020)
Return on Asset	ROA	$\frac{Net\ Profit}{Total\ Assets} * 100$	Saghi-Zedek (2016).
Bank Size	SIZE	Natural log of total assets	Kayani et al. (2021) Jabbouri & Almustafa, (2021)
Capital adequacy ratio	CAR	$\frac{Tier\ 1\ Capital + Tier\ 2\ Capital}{Risk - Weighted\ assets} * 100$	Khedira et al. (2015) Louzis et al., (2012) (Rime, 2001)
Bank Age	AGE	Years	Boulanouar et al. (2021), Misman and Bhatti (2020)
Efficiency	EFFICIENCY	$\frac{operating\ expense}{Total\ income} * 100$	Saghi-Zedek, N., & Tarazi, A. (2015). Gil-Alana et al., (2017)
Income Diversification	ID	$\frac{total\ non\ interest\ income}{Total\ income} * 100$	Niraj Gupta et al. (2022)

3.3 Model Specification

To examine the effects of ownership concentration and institutional shareholding on credit risk, a panel data analysis is employed. The most widely utilized panel data models are fixed effect and random effect models (Adams & Mehran, 2008). Panel data with cluster standard robust error is used to control for heteroscedasticity and autocorrelation. Moreover, the Sargan-Hansen test was used to select the most appropriate model. Based on its results, the fixed effects model appeared to be the most appropriate.

The effect of ownership concentration and institutional ownership on a bank's credit risk is investigated using the fixed effects regression approach. The following two models have been introduced to investigate the effect of ownership structure on credit risk.

$$NPLs_{it} = \alpha + \beta 1CONC_{it} + \beta 2ROA_{it} + \beta 3BSIZE_{it} + \beta 4BCAR_{it} + \beta 5AGE_{it} + \beta 6EFFICIENCY_{it} + \beta 7ID_{it} + \varepsilon_{it} \ldots (1)$$

$$NPLs_{it} = \alpha + \beta 1\ INSTOWN_{it} + \beta 2ROA_{it} + \beta 3BSIZE_{it} + \beta 4BCAR_{it} + \beta 5AGE_{it} + \beta 6EFFICIENCY_{it} + \beta 7ID_{it} + \varepsilon_{it} \ldots (2)$$

Where,

α = intercept
ε_{it} = error term
β = beta
$NPLs_{it}$ = Non-Preforming Loans
$CONC_{it}$ = Ownership Concentration
INSTOWN = Institutional shareholding
ROAit = Return on Asset
$SIZE_{it}$ = Bank Size
CAR_{it} = Capital Adequacy Ratio
Age_{it} = Bank Age
$EFFICIENCY_{it}$ = Operating Efficiency
ID_{it} = Income Diversification

4. Analysis and Empirical Result

4.1 Descriptive Statistics

Table:3

Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.
Dependent variable:				
NPL	3.21	2.71	0.05	16.8
Independent Variables				
CONC	13.25	9.94	3.79	48.21
INSTOWN	46.70	16.00	10.2	75.79
SIZE	0.13	0.09	-.390	0 .60
ID	0.13	2.84	-16.98	17.85
ROA	1.04	0.90	-5.39	2.03
AGE	3.84	0.83	1.79	4.77
EFFICIENCY	50.21	13.31	34.7	125
CAR	15.39	2.59	7.51	22.7

4.2 Test of Multicollinearity

The inflation factor variance (VIF) and tolerance value are two tests that can be used to evaluate the presence of multicollinearity. The variance of the specified independent variable that cannot be explained by altering the other variables in the model is shown by the tolerance value. Hills (2011) states that if the tolerance value is less than 0.10, it indicates the presence of multicollinearity (many relations with other variables may be high). Conversely, the VIF is the opposite of the tolerance value, and multicollinearity is indicated by VIF values greater than 10. Since there is no multicollinearity, all of the variables can be included in the final estimation, according to the results in Table 4 Results show that VIF values don't exceed 10.

Table:4

Variance Inflation Factor and Tolerance

Variable	***VIF***	***1/VIF***
CONC	3.00	0.333623
INSTOWN	1.86	0.536423
ROA	2.81	0.355305
SIZE	2.14	0.467682
CAR	2.17	0.460752
AGE	3.42	0.292193
EFFICIENCY	2.28	0.438735
ID	1.30	0.771229
Mean VIF	2.37	

4.3 Test of Stationarity

Table: 5

Results of Levin-Lin-Chu Test of Stationarity – Unit Root Test

Variables	Level I (0)		First Difference I (1)		Remarks
CONC	-5.3784	0.0000	n.a.	n.a.	Stationary at I(0)
INSTOWN	-3.1410	0.0008	n.a.	n.a.	Stationary at I(0)
ROA	-4.9607	0.0000	n.a.	n.a.	Stationary at I(0)
SIZE	-1.1172	0.1319	-3.5344	0.0002	Stationary at I(1)
Age	-1.7887	0.0368	n.a.	n.a.	Stationary at I(0)
CAR	-8.0127	0.0000	n.a.	n.a.	Stationary at I(0)
EFFICIENCY	-3.0651	0.0011	n.a.	n.a.	Stationary at I(0)
NPLs	-3.8439	0.0001	n.a.	n.a.	Stationary at I(0)
ID	-1.3477	0.0889	-4.9723	0.0000	Stationary at I(1)

4.4 Regression Analysis

The research mainly focuses on the impact of ownership concentration and institutional shareholding on the credit risk of 13 private banks in India. The results of regression analysis using fixed effect estimation for the impact of ownership concentration and institutional shareholding on bank credit risk (NPL) are presented in Table 6. The p-value of F-statistics is significant at the 1% percent level, and thus indicates the fitness of the models. Additionally, the adjusted R^2 provides the percentage of variation reported by the explanatory variables having an impact on the dependent variable. Concerning the impact of ownership concentration on bank credit risk (NPLs) in model I the result shows a significant positive effect of ownership concentration (CONC) on credit risk (NPLs) at a 1% level of significance. The positive effect suggests that banks with concentrated ownership are taking higher risks in terms of credit risk. Additionally, it demonstrates how large shareholders can affect management's choice to make loan disbursements, which leads to an increase in banks' problematic loans. The result is consistent with the findings of Gupta et al., (2022); Jabbouri & Jabbouri, (2021); Martinez & Ramirez, (2011); Berle & Means, (1933); Louzis et al., (2012); Jabbouri & Naili, (2019); Liu et al., (2018). Coffee (2001), Tipurić et al. (2014), Berger et al. (2009), and Agusman et al. (2014). Dong et al. 92014). Al Hares et al., (2018).

According to the findings, agency issues become more severe when ownership is concentrated because controlling and minority shareholders may have conflicting interests. Our finding supports the notion that concentrated ownership is linked to weak monitoring or favoring the personal interests of its dominant shareholders over those of minority shareholders and creditors, which would make banks riskier. Controlling shareholders are tempted to engage in expropriation, tunneling, and the transfer of bank resources for their gain because of the power disparity (Shleifer & Vishny, 1986). These possible illicit activities raise bank credit risk and account for the positive correlation between credit risk and ownership concentration. Large shareholders have the power to influence bank risk-taking by coercing bank managers to undertake risky investments with high expected returns therefore the managers are inclined to meet controlling shareholders' requests, protect their positions, and secure their compensation (Jensen &Meckling, 1976). This finding is in contrast with Gomes, (2000); La Porta et al., (1999); Burkart et al., (2003); Shehzad, De Haan, and Scholtens (2010); Iannotta et al. (2007) and Garcia-Marco and Roles-Fernandez (2008) who found that if ownership concentration increases, the credit risk decreases.

Concerning the influence of institutional ownership, we find statistically significant negative results. Table 6 depicts that an increase in Institutional shareholding in banks leads to lower credit risk (NPLs). Institutional investors use efficient monitoring to enhance the credit risk profile. Their existence serves as an efficient corporate governance instrument that restrains bank management and reduces issues with information asymmetry. This finding is compatible with earlier research such as Bhojraj & Sengupta, (2003); Jabbouri and Naili, (2020); Tee, (2018). Furthermore, banks with a higher percentage of institutional investors tend to have lower non-performing loans (NPLs) because institutional investors encourage banks to make more conservative financing decisions, which can lead to better loan monitoring. As opposed to individual investors, institutions like banks and investment funds usually have more robust risk management procedures. When these organizations own a significant share of the bank, they could encourage more responsible lending practices, which would reduce the chance of loan defaults. These investors usually support improved financial discipline and internal controls, which can help lower credit risk and, consequently, non-performing loans.

Table: 6

Regression Analysis

Model (1) NPLs (Fixed Effect Estimation)

Variables	coefficient	St. Error	T-statistics	Prob
CONC	0.176	0.049	3.57	0.004
ROA	-1.691	0.569	-2.97	0.012
AGELOG	5.577	2.339	2.38	0.034
CAR	0.280	0.113	2.48	0.029
EFFICIENCY	0.005	0.0598	0.09	0.931
SIZE	-1.654	1.745	-0.95	0.362
ID	-0.065	0.0328	-2.00	0.069
Constant	-23.154	10.818	-2.14	0.054
Prob (F statistic)	0.0000			
R^2 Within	0.6985			
Sargan-Hansen statistic (P value)	0.0000			

Model (2) NPLs (Fixed Effect Estimation)

Variables	coefficient	St. Error	T-statistics	Prob
INSTOWN	-0.084	0.033	-2.55	0.025
ROA	-2.327	0.246	-9.45	0.000
AGELOG	4.604	1.894	2.43	0.032
CAR	0.339	0.120	2.82	0.015
EFFICIENCY	-0.004	0.055	-0.09	0.932
SIZE	-2.615	1.380	-1.89	0.083
ID	-0.257	0.031	-0.82	0.430
Constant	-12.74	8.627	-1.48	0.166
Prob (F statistic)	0.0000			
R^2 Within	0.7003			
Sargan-Hansen statistic (P value)	0.0000			

Furthermore, the coefficients on other bank characteristics offer some important insights. Our findings reveal that NPLs are largely explained by variations in bank-specific factors. Bank size shows a negative effect on credit risk in both the models, However, the results are significant only in model 1 at a 10% level of significance, the results are in support with the findings of Ben Jabra et al. (2017) and Alzoubi and Obeidat (2020) John et al., 2008; Paligorova, 2010; Sullivan & Spong, 2007, sariri, 2013; Salas & Saurina (2002); Alhassan et al. (2014) which report a negative impact of bank size on NPLs.

Second, we document that return on asset displays a strong negative association with credit risk (NPL) at 5% and 1% levels of significance in both models. A higher ROA indicates better profit prospects for growth and resilience to shocks, and should thus be associated with lower credit risk. The result is consistent with (Srairi, 2013; Ghosh, 2015). Bank Age shows a significant positive effect on NPL at a 5% level of significance in model 1. Older banks have the experience to manage risk and the resources to weather economic fluctuations, but on the other hand, their legacy portfolios, established lending practices, and exposure to outdated regulatory standards could lead to higher NPLs. Findings are in line with Tisa Maria Antony & Suresh G (2023).

The study's findings also suggest that Income Diversification has a significant negative effect on credit risk (NPL) in model 1 meaning that more diversified banks have lower credit risk (NPL) than less diversified banks. Prior researchers such as Louzis et al. (2012); Alhassan et al. (2014); Chaibi &Ftiti (2015) and Ghosh (2015) conclude the same. Capital adequacy Ratio shows a significant positive effect on credit risk (NPL) at a 5% level of significance in both models. The result is consistent with the findings of Calomiris and Mason, 2003a; Calomiris and Powell, 2001; Kim et al., 2005; Altunbas et al., 2007; Laeven and Levine, 2009; Lin et al., 2005; Rime, 2001) These results support the premise that banks with higher capital have greater incentives to attract more potential customers and investors and banks with higher

capital adequacy will also have power to undertake higher risk. Moreover, these results are in contrast with the findings of (Berger and DeYoung, 1997; Ho and Hsu, 2010; Lee and Hsieh, 2013; Lee and Chih, 2013; Zhang et al., 2008) who concluded an inverse relationship between capital and risk.

Conclusion

This present study examines the relationship between ownership concentration and institutional shareholding on credit risk (NPLs) in a sample of 13 private banks operating in the Indian banking sector for twelve year period from 2012-2022 To achieve this objective, we estimate models using the fixed effects estimation technique. In general, we found that changes in ownership concentration and institutional shareholding are significant in explaining the credit risk (NPLs) of listed private banks in India. Indeed, the results highlight the fact that banks with concentrated ownership face more credit risk due to a combination of governance issues, risk-taking behavior, and weak monitoring. Our findings also emphasize that institutional shareholding has a significant negative effect on Credit risk (NPLs) meaning that shareholdings by institutions in banks lead to lower credit risk (NPLs). Institutional investors tend to demand better risk management practices, as they are more focused on long-term stability and profitability. They are also more likely to push for accountability and transparency, which can mitigate poor risk-taking behaviors that could contribute to credit risk.

The present study aims to contribute to the literature on credit risk as it adds to the scant literature on ownership structure and credit risk in banks operating in developing and emerging economies. Our results have important theoretical and practical contributions. On the one hand, our study makes contributions to the banking and finance literature. Besides, this study highlights the significant role that ownership concentration and Institutional shareholders play in shaping banks' credit risk-taking. Our findings and analysis would allow investors and financial analysts to understand how ownership structure plays a key role in managing the credit risk (NPLs) of private banks in India.

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