IMPACT OF FINANCIAL VARIABLES AND CORPORATE GOVERNANCE VARIABLES ON LOAN LOSS PROVISION IN INDIAN PUBLIC AND PRIVATE SECTOR BANKS

Radhakrishna G.S, PES University
Desti Kannaiah, Graceland University
Senthil B Arasu, National Institute of Technology
Thotapalli Sahithi, PES University
Vahid Biglari, Shepherd University

ABSTRACT

According to the RBI report published in June 2019, loan loss provision rose sharply to 60.6 per cent in March 2019 from 52.4 per cent in September 2018 and 48.3 per cent in March 2018. *This study thus measures the impact of financial and corporate governance variables on loan loss provision in Indian public and private sector banks. We used data from 20 banks which include 10 private and 10 public sector banks for 5 years (20 quarters) from 2015 to 2019. Our findings reveal that financial variables of Market to Book Ratio (MBR) and Shareholders influence have a negative influence on loan loss provision in both yearly and quarterly data. Whereas, paid-up equity capital has positive effect on loan loss provision, current and savings account ratios have a positive influence when quarterly data is considered. Management efficiency has positive influence on loan loss provision (yearly data) but has no significant impact on LLP for quarterly data. The presence of corporate governance variables such as independent directors, board of directors, bank size and non-independent directors have no significant impact on loan loss provision. The results are important for policymakers and users of accounting information.*

Keywords: Loan loss Provision, Financial Variables, Corporate Governance Variables.

INTRODUCTION

Although, corporate governance is critical to any organization, it is more so to the banking industry. According to the Basel Committee on Banking Supervision (BCBS) *"Corporate governance is the application of best management practices, compliance of law in true letter and spirit and adherence to ethical standards for effective management"* (BCBS, 2015). Corporate governance has emerged in India due to the economic deregulation and liberalization of industry and business. This initiative was driven by the confederation of Indian industry. The Basel committee's revised principles provide a framework within which banks and supervisors should operate to achieve robust and transparent risk management and decision-making. Its emphasis on the importance of risk management, as a vital part of corporate governance framework, promotes the value of strong boards and board committees together with effective control functions. In this respect, corporate governance presents as a benchmark for judging corporate excellence, in the context of national and international business practices. It is

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now increasingly being recognized as a paradigm for improving competitiveness and enhancing efficiency thus, improving investors‘ confidence and accessing capital, both domestic as well as foreign (Kota, 2010).

Though there are lots of corporate governance codes recommended by different committees, the below is the prominent governance codes practiced in India:

i. Confederation of Indian Industry code, 1997
ii. Birla Committee (SEBI) Recommendations, 2000,
iii. Naresh Chandra Committee Report, 2002
iv. OECD Principles, 2002
v. Narayana Murthy Committee (SEBI) Recommendations, 2003

This study attempts to find the implementations of some attributes of corporate governance given by the Basel committee's revised principles, such as independent directors, board of directors, bank size and non-independent directors, by Indian Banking sector.

LITERATURE REVIEW

Banks with effective governance structure report loan losses in a suitable manner than those with ineffective governance structures. Bank regulators/supervisors can improve the existing regulatory framework by focusing on accounting conservatism as a complement to corporate governance in mitigating the opaqueness and intense information asymmetry that plague banks (Leventis et al., 2013). Our study advances knowledge by examining the effect of corporate governance variables and financial variables on loan loss provision in the Indian banking sector. Whereas, past studies that have mainly shown linkages between corporate governance and financial ratios and the effect on credit risk and bank performance.

Within the literature, there have been notable highlights of the relationship between corporate governance in banks and their risk management framework, as discussed below.

Particularly in a developing country for instance, examined how board characteristics affect risk management of Tunisian banks using many econometric approaches. The empirical analysis based on a sample of 11 Tunisian conventional banks over the period 2001-2011, reports that small and dual functions boards are associated with more insolvency risk, but have no significant effect on credit and global risks. Also, the presence of independent directors within the board generates an increase in global risk but has no significant effect on insolvency and credit risks. A lower CEO ownership has no significant effect with all measures of risks. Finally, banking capitalisation is associated with more insolvency risk and small size banks assume lower credit risk.

Also, Bourakba & Zerargui (2015) sought to determine the relationship between corporate governance and credit risk in Anglo-Saxon governance system and Islamic governance system banks. An empirical study on a sample of Islamic banks during the period 2005-2012 was used to measure the impact of corporate governance variables on credit risk. The findings of the study affirmed a very strong relationship between governance and credit risk of Islamic banks. A negative relationship is found between non-performing loans ratio and the composition of the board of directors, the size of the board of directors, board committees, concentration of ownership, as well as the size of the Sharia supervisory board, while there is a positive relationship between non-performing loans ratio and the size of the bank.

Schmid et al. (2012) investigated whether risk management-related corporate governance mechanisms, such as the presence of a chief risk officer (CRO) in a bank's executive

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board and whether the CRO reports to the CEO or directly to the board of directors, are associated with a better bank performance during the financial crisis of 2007/2008. They measure bank performance by buy-and-hold returns, return on assets (ROA), and return on equity (ROE) and control for standard corporate governance variables such as CEO ownership, board size, and board independence. Most importantly, their results indicate that banks, in which the CRO directly reports to the board of directors and not to the CEO (or other corporate entities), exhibit significantly higher (i.e., less negative) stock returns, ROA, and ROE during the crisis. In contrast, standard corporate governance variables are mostly insignificantly or even negatively related to the banks' performance during the crisis. The corporate governance mechanisms and their impact on performance of commercial banks in the absence of organised stock exchange in Ethiopia. The study assessed the relationship between selected internal and external corporate governance mechanisms, and bank performance as measured by ROE and ROA, covering a period from 2005 to 2011. The findings indicated that board size and existence of audit committee in the board had statistically significant negative effect on bank performance, whereas, bank size had statistically significant positive effect on bank performance. Similarly, capital adequacy ratio, as a measure of external corporate governance mechanism, had statistically significant positive effect on bank performance. In addition, absence of organised stock exchange; high government intervention; lack of corporate governance awareness, absence of national standards of corporate governance, as well as weak legal framework to protect minority shareholder rights, have adverse impact on corporate governance and bank performance.

Amos Layola et al. (2016) examined how corporate governance mechanisms such as the presence of independent directors on the board, dual functions of the board, size of the board, existence of audit committee and the Reserve Bank of India (RBI) regulations affect the credit risk exposure of the Indian public banks. The study also investigated the relationship between the loan loss provisions of the Indian public banks and the financial ratios, using regression analysis (OLS) was used to test the above-mentioned effect. The results show that corporate governance variables and the financial ratios considered in this study have significant impact on the confidence of the bank in maintaining the provisions for the unexpected loss. Hence, it can be said that the banks with good corporate mechanisms tend to value the risk involved in the lending and maintaining an optimal level of provisions for loan loss, which in turn increase the profitability and efficiency of the banks.

Van Greuning & Brajovic-Bratanovic (2009) emphasised establishing a comprehensive framework for the assessment of banks, not only by using financial data, but also by considering corporate governance principles. Their study stressed that key players in the corporate governance process are accountable for managing the different dimensions of banking risk.

Ajanthan & Balaputhiran (2013) focused on four aspects of corporate governance namely: Board Size, Board Diversity, and Outside Directors Percentage & Board Meeting Frequency. Banking performance was measured through Return on Equity (ROE) and Return on Assets (ROA). The results revealed that all variables of corporate governance are positively correlated with ROE in state (public) banks and in private banks. Board diversity (BD) have strong negative relationship with ROA in state banks which is significant at 5 percent level of significance, but in private banks positive relationship is denoted by BD which is not significant. Further, corporate governance has a moderate impact on performance of both private and state banks.

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De Andres & Vallelado (2008) studied a sample of large international commercial banks to test hypotheses on the dual role of boards of directors. Econometric model (two step system estimator) was used to solve the endogeneity problem. The results demonstrate the empirical and theoretical superiority of system estimator over OLS and within estimators. Bank board composition and size are found to be related to directors' ability to monitor and advise management. Larger and not excessively independent boards might prove more efficient in monitoring and advising functions and create more value. The recent financial crisis to the weak and ineffective corporate governance mechanisms in banks. Deep changes in this area are necessary to reinforce the financial sector's stability. The study also points out the significance of banks' stakeholders' accountability. It presents key aspects that need to be reformed: the role, constitution and accountability of board, risk management, management remuneration and transparency, in creating the foundation for a new order of the financial market.

Brezeanu (2011) & Brezeanu et al. (2011) described the relation between financial management and corporate governance with the analytical approach to risk management strategies. The study presents the risk management system of an enterprise from the perspective of the financial leverage. It argues that companies with a strong corporate governance framework are likely to enhance the optimality of their financial structure. The study signifies such empirical approach that brings forth the effect of corporate governance framework on the company financial structure, with specific focus on leverage. The results of the research reflect a strong impact of corporate governance on the company financial structure. From the perspective, the findings provide beneficial effects of an enhanced corporate governance framework which reduces agency costs, conferring more credibility to company's creditors.

The practices of corporate governance attributes in banking sector and how they adhere to corporate governance practices. Banks form a crucial link in a country‘s financial system and hence, imperative for the economy. The significant transformation of the banking industry in India is clearly evident from the changes that have occurred in the financial markets, institutions and products. The developments have facilitated greater choices for discerning and demanding consumers to compel banks to offer a broader range of products through diverse distribution channels. In such scenario, implementation of good corporate governance practices in banks can ensure they cope with the changing environment. In recent times, corporate governance today provides for risk assessment, risk cover, early warning systems against failure as well as prompt corrective action. Whether bank loan loss provisions affect credit fluctuation in China's banking system by dividing loan loss provisions into discretionary and non- discretionary loan loss provisions. The study finds that non-discretionary loan loss provisions result in greater credit fluctuation, whereas discretionary loan loss provisions have no significant impact on credit fluctuation. Further evidence shows that the relation between non-discretionary loan loss provisions and credit fluctuations does not vary among different types of banks. Overall, the study shows that non-discretionary loan loss provisions can increase credit fluctuation and therefore strengthen banks' pro-cyclical behavior. The role of corporate governance on degree of excessive risk-taking and performance of U.S. financial institutions from 2002 to 2009. The results confirmed that better corporate governance reduces excessive risk-taking and improves the performance of U.S. financial institutions. Better governance components reduce non-performing loans and improve Tobin's Q. Better governance increases the provisions and reserves for asset losses, suggesting income smoothing. The study illustrates that the present supervision and regulation of financial institutions has to be supplemented with sound corporate governance mechanisms. The results are important for policymakers and users of accounting

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information. Overall, the findings suggest that corporate governance plays an essential role for the stability and progress of financial institutions. Transparency and disclosure standards which are important for sound corporate governance in co-operative banks. The study reveals non-performing assets (NPA) and return on assets (ROA) as other factors which can affect the corporate governance. Corporate governance in Co-operative banks is about ensuring co-operative relevance and performance by connecting members, management and employees. Corporate governance especially in the co-operative sector has come into focus because more and more co-operative banks in India, both in urban and rural areas, have experienced problems in recent times which have in a way threatened the profile and identity of the entire co-operative system.

Masliza (2011) examined the relationship between earnings management (discretionary accruals), bank risks, loan loss provision and dividend per share. A balanced panel study of 10 banks over the period of 2000-2009 was used to observe the effect of loan loss provision (LLP), risks and dividend per share (DPS) as the potential cause that thrive earnings management. The results revealed that earnings management is significantly affected by the level of LLP, operational risks and systematic risks.

Trinh et al. (2015) investigated the role of corporate governance factors on financial risk in Vietnamese commercial banks. The data corresponds to the 26 commercial banks for the period between 2009 and 2013. The results noted that corporate governance factors like board strengths, foreign capital, information disclosure, and stakeholders' role have statistically significant impacts on financial risk. While the information disclosure variable has highly significant impact on the capital risk, the proportion of capital from foreign investors has a strong impact on the credit risk. In addition, behaviours of stockholders and depositors are highly significant variables in predicting the liquidity risk.Whether board of directors' characteristics have an impact on corporate performance. The author implies that such characteristics do have an impact and may be affected by endogeneity issues in the data, which could lead to biased results. The study responds to this concern by using a generalised method of regression and the results suggest that board structure is partly determined by past corporate performance. Considering this, the results document that there is no relation between characteristics of the board of directors and corporate performance. This is inconsistent with much prior empirical studies and policy recommendations on corporate governance that suggests that corporate governance mechanisms develop corporate performance.

Kota (2010) concluded that banks form a crucial link in a country's financial system; hence it is imperative for the economy. The significant transformation of the banking industry in India is clearly evident from the changes that have occurred in the financial markets, institutions and products. Corporate governance provides for risk assessment, risk cover, early warning systems against failure as well as prompt corrective action.

Based on a survey, carried out by KPMG and the Economist Intelligence Unit, involving more than 400 senior managers involved in risk management from leading banks around the world. The survey suggests that risk managers should play a role in promoting the principles of compensation policy with incentives based on performance and aligned with shareholder interest and long-term, organisation-wide profitability.

The corporate governance practice in banking sector, particularly in the State Bank of India (SBI). The bank conducted different board meetings regularly to provide effective leadership, functional matters and monitors bank's performance. It is found that the SBI

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established clear documentation and transparent management processes for policy development, implementation, decision- making, monitoring, control and reporting.

Zheng et al. (2019) analysed the impact of financial and macro economic variables on loan loss provision (LLP). This study proposes the impact of credit risk model of commercial banks' in Pakistan on managerial policy and decision making. The authors found the use of inflation (INF) as an instrumental variable of LLP are highly dependable with a negative impact on loan loss provision. Lending interest rate (LIR) has a positive and significant relationship with LLP and contribute in the study of macroeconomic variables for bank risk-taking, excessive amount of interest rate was not beneficial for banks to earn profits especially during the economic crises. Return on average equity (ROAE) significantly moderates LLP with a negative interaction and helped the bank with profitable operations and save bank from solvency. Capital adequacy ratio (CAR) and government securities (GOV) are insignificant to LLP.

Ozil (2018) investigated the non-discretionary determinants of bank loan loss provisions in Africa. Using a sample of banks from 19 African countries, the findings indicate that non-performing loans, loan-to-asset ratio and loan growth are significant non-discretionary determinants of bank loan loss provisions in Africa. Additionally, the findings show that increase in loan loss provision is a positive function of non-performing loans up to a threshold beyond which loan loss provisions will no longer increase as non-performing loans increases. Also, bank loan-to-asset ratio is observed to be a more significant driver of bank loan loss provisions when banks have higher loan-to-asset ratios. More so, the study observed that increase in bank lending leads to fewer loan loss provisions in African countries with strong investor protection while higher bank lending is associated with higher bank provisions during economic boom. Furthermore, the study reveals that country-specific differences matter in explaining the non-discretionary determinants of bank loan loss provisions.

Thus, following the above literature review, these objectives have emerged:

i. To study the impact of Financial Ratios on Loan Loss Provisions on yearly data
ii. To study the impact of Financial Ratios on Loan Loss Provisions on quarterly data
iii. To study the impact of Corporate Governance and Financial Ratios on loan loss provisions on Indian Public and Private banks on yearly data
iv. To study the impact of Corporate Governance and Financial Ratios on loan loss provisions on Indian Public and Private banks on quarterly data

RESEARCH METHODOLOGY

Corporate governance being a qualitative variable and it is combined with other financial variables to known the impact of loan loss provision. This research is the causal research because it explains the cause and effect relationship between dependent and independent variable.

Sample Design

Target population

The population targeted is the banking industry: both public and private sector banks in India.

Sample size

This study involved 20 banks which include 10 private and 10 public sector banks. The Private sector banks include HDFC Bank, ICICI Bank, Axis Bank, Yes bank, Kotak Mahindra

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Bank, IndusInd Bank, Federal bank, Bandhan Bank, Karnataka Bank and City Union Bank. The Public sector banks include SBI, PNB, Bank of Baroda, Canara bank, Bank of India, Union Bank, Syndicate Bank, IDBI Bank, Indian Bank and Oriental Bank. This study takes into consideration 5 years and 20 quarters of 20 banks.

Secondary Data

Data collected for the study is secondary data and is collected from capital line plus and reserve bank of India database.

Instrument for Data Collection

The bank's Annual Reports, online databases like capital line are major source from which reliable data is available. The RBI website also gives a pool from where information is collated. The list of variables are given in Table 1

Table 1
VARIABLE DESCRIPTION

S.NO	Variable Abbreviation	Variable Type	Description	Authors
1	IND	Independent	Percentage of independent directors on board	De Andres (2008); Amos Layola (2016)
2	NIND	Independent	Percentage of non- independent directors on board	Amos Layola (2016); De Andres (2008)
3	BOS	Independent	Total number of directors on board	Amos Layola (2016); Leeladhar (2004); Ajanthan & Balaputhiran (2013)
4	BAS	Independent	Bank Size, which refers to the total asset of the bank	Amos Layola (2016); El-Faitouri (2014)
5	DTAR	Independent	Deposit to Total Asset Ratio	Amos Layola (2016)
6	SH_IN	Independent	Shareholders' Influence, given by total equity to total loans ratio	Amos Layola (2016)
7	MG_EFF	Independent	Management Efficiency, given by total expense to total income	Amos Layola (2016)
8	CAR	Independent	Capital adequacy ratio	Amos Layola (2016)
9	PES	Independent	Paid up equity share capital ratio	Amos Layola (2016); Kota (2010)
10	CASA	Independent	Current and savings ac deposits by total deposits	Amos Layola (2016)
11	MBR	Independent	Market to book ratio	Amos Layola (2016)
12	LLP	Dependent	Provision coverage ratio	Amos Layola (2016); Zheng et al. (2019); Ozil (2019)

Hypothesis Testing

The following hypothesis has been framed below to test the relationship between financial variables and corporate governance variables on loan loss provision (LLP).

H_0: *There is no relationship between independent directors and loan loss provision.*

H_1: *There is relationship between independent directors and loan loss provision.*

H_0: *There is no relationship between non- independent directors on board and loan loss provision.*

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H_2: *There is a relationship between non- independent directors on board and loan loss provision.*

H_0: *There is no relationship between Total number of directors on board and loan loss provision.*

H_3: *There is a relationship between Total number of directors on board and loan loss provision.*

H_0: *There is no relationship between bank size and loan loss provision.*

H_4; *There is a relationship between bank size and loan loss provision.*

H_0: *There is no relationship between Deposit to Total Asset Ratio and loan loss provision.*

H_5: *There is a relationship between Deposit to Total Asset Ratio and loan loss provision.*

H_0: *There is no relationship between Shareholders' Influence and loan loss provision.*

H_6: *There is a relationship between Shareholders' Influence and loan loss provision.*

H_0: *There is no relationship between Management Efficiency and loan loss provision.*

H_7: *There is a relationship between Management Efficiency and loan loss provision.*

H_0: *There is no relationship between Capital adequacy ratio and loan loss provision.*

H_8: *There is a relationship between Capital adequacy ratio and loan loss provision.*

H_0: *There is no relationship between Paid up equity share capital ratio and loan loss provision.*

H_9: *There is a relationship between Paid up equity share capital ratio and loan loss provision.*

H_0: *There is no relationship between Current and savings account deposits by total deposits ratio and loan loss provision.*

H_{10}: *There is a relationship between Current and savings account deposits by total deposits ratio and loan loss provision.*

H_0: *There is no relationship between Market to book ratio and loan loss provision.*

H_{11}: *There is a relationship between Market to book ratio and loan loss provision.*

Data Analysis Tool

We have used multiple linear regression for analyzing yearly and quarterly data. The multiple linear regression equations were framed for Yearly governance and financial variables (YGFV), yearly financial variables (YFV), quarterly governance and financial variables (QGFV) and yearly quarterly financial variables (YGFV).

Equations on Yearly Data

Corporate governance and financial ratios

$$LLP_{YGFV} = \propto +\beta_1 IND + \beta_2 NIND + \beta_3 BOS + \beta_4 BAS + \beta_5 DTAR + \beta_6 SHIN + \beta_7 MGEFF + \beta_8 CAR + \beta_9 PES + \beta_{10} CASA + \beta_{11} MBR \ldots\ldots \quad (1)$$

Financial Ratios

$$LLP_{YFV} = \propto +_1\beta_1 DTAR + \beta_2 SHIN + \beta_3 MGEFF + \beta_4 CAR + \beta_5 PES + \beta_6 CASA + \beta_7 MBR \ldots\ldots (2)$$

Equations on Quarterly Data

Corporate governance and financial ratios

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$$LLP_{QGFV} = \propto +\beta_1 IND + \beta_2 NIND + \beta_3 BOS + \beta_4 BAS + \beta_5 DTAR + \beta_6 SHIN + \beta_7 MGEFF + \beta_8 CAR + \beta_9 PES + \beta_{10} CASA + \beta_{11} MBR \ldots\ldots \quad (3)$$

Financial Ratios

$$LLP_{QFV} = \propto +_1\beta_1 DTAR + \beta_2 SHIN + \beta_3 MGEFF + \beta_4 CAR + \beta_5 PES + \beta_6 CASA + \beta_7 MBR \ldots\ldots (4)$$

RESULTS AND DISCUSSION

This section of the paper analysed our results and discussion. The Table 2 gives the descriptive statistics which includes the Mean and Standard Deviation of all the Dependent and Non-Independent variables. A greater deviation from the mean value indicates the greater spread of data.

Descriptive Statistics, Correlation and Collinearity test

Table 2
DESCRIPTIVE STATISTICS

Variables	Mean	Standard Deviation	N
LLP (In %)	57.66	17.76	100
IND (In %)	35.92	19.88	100
NIND (In %)	4.90	11.07	100
BOS (In Nos.)	11.62	1.825	100
BAS (in Rs. Crores)	509075.62	623228.87	100
DTAR (In Ratio)	0.786	0.0845	100
SH_IN (In Ratio)	.0070	.0149	100
MG_EFF (In Ratio)	20.59	3.90	100
CAR (In Ratio)	13.25	5.61	100
PES (in Rs. Crores)	816.19	887.69	100
CASA (In %)	79.79	10.17	100
MBR (In Ratio)	1.78	1.63	100

Table 3 provided the correlation matrix which was used for checking inter correlation between independent variables. The correlation between independent variables is within 0.8 levels which suggest there is no multicollinearity issue. To further investigate multicollinearity issue, we have calculated variance inflation factor which is shown in Table 4. VIF measures how much of the variance of the estimated regression coefficients are inflated as compared to when the predictor variables are not linearly related. This is in line with the rule that if the VIF is below 10 there is no collinearity between the independent variables (Hair, 2009).

Table 3
CORRELATION MATRIX

	IND	NIND	BOS	BAS	DTAR	SHIN	MGEF	CAR	PES	CASA	MBR
IND	1.00										
NIND	0.379	1.00									
BOS	0.033	0.046	1.00								
BAS	-0.02	0.048	0.359	1.00							
DTAR	0.088	0.075	-0.27	-0.08	1.00						
SH_IN	-0.03	-0.063	0.209	-0.24	-0.298	1.00					
MG_EFF	-0.07	-0.029	0.113	.072	-0.463	0.502	1.00				

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CAR	-0.19	-0.002	0.118	-0.16	-0.376	0.547	0.497	1.00			
PES	-0.06	-0.063	0.193	0.031	-0.204	0.398	0.047	0.057	1.00		
CASA	-0.14	-0.162	0.180	-0.029	-0.747	0.236	0.466	0.373	-0.09	1.00	
MBR	-0.07	-0.075	-0.05	-0.07	-0.496	-0.070	0.445	0.322	-0.09	0.509	1.00

Table 4
COLLINEARITY TEST

Variables	IND	NIND	BOS	BAS	DTAR	SHIN	MGEF	CAR	PES	CASA	MBR
Tolerance level	0.780	0.795	0.723	0.612	0.172	0.299	0.416	0.504	0.533	0.179	0.448
VIF	1.282	1.258	1.384	1.635	5.798	3.348	2.406	1.983	1.875	5.575	2.230

Regression Analysis

We performed multiple linear regression analysis to check the impact of financial and corporate governance variables on loan loss provision by using yearly and quarterly data. Table 5 provides the impact of yearly data of financial variables on LLP.

Table 5
ANALYSIS BASED ON YEARLY DATA OF FINANCIAL RATIOS ON LLP (MODEL 1)

Variables	B	Std Error	Standardized coefficients	t	Significance
CONSTANT	126.223	47.564		2.654	0.009***
DTAR	-52.923	33.025	-0.252	-1.602	0.112
SH_IN	-952.020	133.739	-0.801	-7.118	0.000***
MG_EFF	0.757	0.450	0.166	1.682	0.096*
CAR	-0.300	0.296	-0.095	-1.013	0.314
PES	0.006	0.002	0.283	3.064	0.003**
CASA	-0.395	0.270	-0.226	-1.42	0.147
MBR	-2.761	1.053	-0.254	-2.621	0.010**

Note: ***Indicate 0.01Significance level; **Indicate 0.05 Significance level; *Indicate 0.1 significance level

Table 6
MODEL 1 SUMMARY

R	R Square	Adjusted R Square	Standard Error	Change Statistics				
				R Square Change	F Change	DF1	DF2	Significance F change
0.749	0.562	0.528	12.19877	0.562	16.846	7	92	0.000

Total equity to loan ratio (SH_IN) has a negative but significant influence on loan loss provision because the significance value (0.000 < 0.01) is lesser than the significance level. We can conclude that the shareholders have trust or confidence and they influence the banks. To maintain this trust, the banks have to maintain high loan loss provisions and this can happen when there is more capital or equity in the banks. Paid-up Equity Capital ratio (PES) has a significant and positive influence on loan loss provision because the significance (0.003<0.05) is lesser than the significance level.

Market to Book Ratio (MBR) has a negative influence on loan loss provision because the significance (0.010<0.05) is lesser than the significance level. The bank is less exposed to credit risk if there is high market to book ratio. This means that the stock is overvalued and the investors have confidence on the performance of the stock. Total expense to income ratio (MG_EFF) has a positive influence on loan loss provision because the significance (0.096<0.1) is lesser than the significance level. This means that the management has not been efficient in maintaining the expenses in an efficient manner. Only when cost is controlled can we attain

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management efficiency. Deposit to Total Asset Ratio (DTAR), Capital Adequacy Ratio (CAR) and Current and Savings Ac Deposit to total ratio (CASA) have no significance on the Loan Loss Provision. As per Table 6 model 1 summary we obtained R-square value of 0.562. We can conclude that the independent variables have 56.2% influence over the dependent variables. Since there is little difference between the R-Square and the Adjusted R-Square, we can say that the model is fit and statistically significant for the variables.

Table 7
ANALYSIS BASED ON QUARTERLY DATA OF FINANCIAL RATIOS ON LLP (MODEL 2)

Variables	B	Std Error	Standardized coefficients	t	Significance
CONSTANT	79.206	23.305		3.399	0.001***
DTAR	-4.595	13.238	-0.023	-0.347	0.729
SH_IN	-548.823	299.850	-0.201	-1.830	0.068*
MG_EFF	-22.340	19.382	-0.089	-1.153	0.250
CAR	-0.752	0.561	-0.125	-1.340	0.181
PES	0.005	0.002	0.225	2.000	0.046**
CASA	0.448	0.125	0.216	3.588	0.000***
MBR	-4.785	0.821	-0.436	-5.825	0.000***

Note: *** Indicate 0.01 Significance level ** Indicate 0.05 Significance level * Indicate 0.1 significance level

The above Table 7 provides the impact of quarterly data of financial variables on LLP. CASA ratio has significant and positive influence on loan loss provision because the significance value (0.000 < 0.01) is lesser than the significance level. A higher CASA ratio is better as it shows a higher interest margin and in turn impact on the operating efficiency. Therefore, there is an impact on Loan Loss Provisions.

Market to Book Ratio (MBR) has a significant but negative influence on loan loss provision because the significance value (0.000<0.01) is lesser than the significance level. The bank is less exposed to less credit risk if there is high market to book ratio. This means that the stock is overvalued and the investors have confidence on the performance of the stock.

Paid-up Equity Capital ratio (PES) has a significant and positive influence on loan loss provision because the significance value (0.046 < 0.05) is lesser than the significance level.

Total equity to loan ratio (SH_IN) has significant but negative influence on loan loss provision because the significance value (0.068 <0.1) is greater than the significance level. We can conclude that the shareholders have no trust or confidence in the banks. To maintain this trust, the banks have to maintain high loan loss provisions and this can happen when there is more capital or equity in the banks.

Total Deposits to total Asset Ratio (DTAR), Total Income to Expense Ratio (MG_EFF) and Capital Adequacy Ratio (CAR) have no impact on loan loss provision. The banks are not in a position to cover their losses due to default of loans and the credit risk is very high. Therefore, the liquidity of the banks is very low. This means that the management has not been efficient in maintaining the expenses in an efficient manner. Only when cost is controlled, we can attain management efficiency.

Table 8
MODEL 2 SUMMARY

R	R Square	Adjusted R Square	Standard Error	Change Statistics				
				R Square Change	F Change	DF1	DF2	Significance F change
0.565	0.320	0.303	15.73388	0.320	19.398	7	289	0.000

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As per Table 8 model 2 summaries we get R-square value of 0.320, we can conclude that the independent variables have 32% influence over the dependent variables. Since there is not much difference from the R-Square and the Adjusted R-Square, we can say that the model is fit and statistically significant for the variables and also the significance value is 0.000 which is clearly less than 0.05.

The below Table 9 shows the results of yearly Data of Financial Ratios and Corporate Governance. The results are explained for significance level 0.05 and 0.01

Table 9
ANALYSIS BASED ON ANNUAL DATA OF FINANCIAL RATIOS AND CORPORATE GOVERNANCE VARIABLES ON LLP (MODEL 3)

Variables	B	Std Error	Standardized coefficients	t	Significance
CONSTANT	123.778	51.820		2.389	0.019**
IND	-0.001	0.003	-0.030	-0.378	0.706
NIND	0.004	0.007	0.040	0.501	0.618
BOS	-0.047	0.807	-0.005	-0.058	0.954
BAS	4.167	0.000	0.015	0.162	0.871
DTAR	-50.296	35.650	-0.239	-1.411	0.162
SH_IN	-929.180	153.225	-0.782	-6.064	0.000***
MG_EFF	0.708	0.497	0.156	1.424	0.158
CAR	-0.337	0.314	-0.107	-1.075	0.285
PES	0.006	0.002	0.282	2.928	0.004***
CASA	-0.372	0.290	-0.213	-1.281	0.204
MBR	-2.643	1.142	-0.243	-2.315	0.023**

Note: *** Indicate 0.01 Significance level ** Indicate 0.05 Significance level * Indicate 0.1 significance level

Total equity to loan ratio (SH_IN) has significant but negative influence on loan loss provision because the significance (0.000<0.01) is lesser than the significance level. We can conclude that the shareholders have trust or confidence in the banks and they have power to influence the decisions of the company. To maintain this trust, the banks have to maintain high loan loss provisions and this can happen when there is more capital or equity in the banks.

Paid-up Equity Capital ratio (PES) has a significant and positive influence on loan loss provision because the significance value (0.004<0.01) is lesser than the significance level.

Market to Book Ratio (MBR) has a significant but negative influence on loan loss provision because the significance value (0.023<0.05) is lesser than the significance level. The bank is less exposed to credit risk if there is high market to book ratio. This means that the stock is overvalued and the investors have confidence on the performance of the stock.

The below Table 10 provides model 3 summary; we get the R-square of 0.563 and can conclude that the independent variables have 56.3% influence over the dependent variables. Since there is not much difference from the R-Square and the Adjusted R-Square we can say that the model is fit and statistically significant for the variables.

The below Table 11 provides the analysis of results based on quarterly data of financial ratios and corporate governance variables.

Market to Book Ratio (MBR) has a significant but negative influence on loan loss provision because the significance value (0.000<0.01) is lesser than the significance level. The bank is less exposed to credit risk if there is high market to book ratio. This means that the stock is overvalued and the investors have confidence on the performance of the stock (Allen, 2012). CASA ratio has significant and positive influence on loan loss provision because the significance value (0.001 < 0.01) is lesser than the significance level. A higher CASA ratio is better as it

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shows a higher interest margin and in turn impact on the operating efficiency. Therefore, there is an impact on Loan Loss Provisions.

Table 10
MODEL 3 SUMMARY

R	R Square	Adjusted R Square	Standard Error	Change Statistics				
				R Square Change	F Change	DF1	DF2	Significance F change
0.751	0.563	0.509	12.45000	0.563	10.322	11	88	0.000

Table 11
ANALYSIS BASED ON QUARTERLY DATA OF FINANCIAL RATIOS AND CORPORATE GOVERNANCE VARIABLES ON LLP (MODEL 4)

Variables	B	Std Error	Standardized coefficients	t	Significance
CONSTANT	78.231	25.554		3.061	0.002***
IND	0.001	0.002	0.017	0.305	0.761
NIND	0.594	0.478	0.071	1.243	0.215
BOS	0.194	0.558	0.019	0.330	0.741
BAS	-5.099	0.000	-0.021	-0.347	0.729
DTAR	-10.857	14.712	-0.054	-0.738	0.461
SH_IN	-541.732	323.468	-0.199	-1.675	0.095*
MG_EFF	-17.206	19.756	-0.069	-0.871	0.385
CAR	-0.783	0.569	-0.130	-1.376	0.170
PES	0.005	0.002	0.217	1.840	0.067*
CASA	0.453	0.131	0.218	3.443	0.001***
MBR	-4.728	0.851	-0.431	-5.556	0.000***

Note: *** Indicate 0.01 Significance level ** Indicate 0.05 Significance level * Indicate 0.1 significance level

Paid-up Equity Capital ratio (PES) has a significant and positive influence on loan loss provision because the significance value (0.067<0.1) is lesser than the significance level.
Total equity to loan ratio (SH_IN) has significant but negative influence on loan loss provision because the significance (0.095<0.1) is lesser than the significance level. We can conclude that the shareholders have trust or confidence in the banks and they have power to influence the decisions of the company. To maintain this trust, the banks have to maintain high loan loss provisions and this can happen when there is more capital or equity in the banks.

Table 12
MODEL 4 SUMMARY

R	R Square	Adjusted R Square	Standard Error	Change Statistics				
				R Square Change	F Change	DF1	DF2	Significance F change
0.571	0.326	0.300	15.77181	0.326	12.522	11	285	0.000

The Table 12 gives model summary by using quarterly data of financial ratios and corporate governance variables. We get the R-square value of 0.326, we can conclude that the independent variables have 32.6% influence over the dependent variables. Since there is not much difference from the R-Square and the Adjusted R-Square we can say that the model is fit and statistically significant for the variables and also the significance value is 0.000 which is clearly less than 0.05.

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We concluded our study in form of summarised findings where we have compared the yearly and quarterly data of financial ratios impact on LLP (Table 13); compared the yearly and quarterly data of financial ratios and corporate governance impact on LLP (Table 14).

Table 13
SUMMARY OF FINDINGS: COMPARISON OF YEARLY AND QUARTERLY DATA OF FINANCIAL RATIOS IMPACT ON LLP

S.NO	Variable Name	Yearly Data	Quarterly Data
1	DTAR	Nil	Nil
2	SH_IN	-	-
3	MG_EFF	+	Nil
4	CAR	Nil	Nil
5	PES	+	+
6	CASA	Nil	+
7	MBR	-	-

Note: '+' Indicates Positive Impact, '-' Indicates Negative Impact and 'Nil' Indicates No Impact

The above Table 13 shows that Deposit to total asset ratio (DTAR) and Capital Adequacy Ratio (CAR) have no impact or influence on loan loss provision. Shareholders influence has an impact on Loan Loss Provision but the influence is negative in both cases. The conclusion drawn is that there are more loans than equity share capital or equity share capital is not used to cover the loan losses. This is because Paid-up Equity capital has a positive impact on loan loss provisions. Market to Book Ratio (MBR) has a negative influence in both the cases.

The CASA ratio has a positive influence when quarterly data is considered. Therefore, we can say that there might be an increase in the interest rate which led to an increase in the number of deposits. Management efficiency has positive influence on LLP (yearly data) but has no significant impact on LLP for quarterly data.

Table 14
COMPARISON OF YEARLY AND QUARTERLY DATA OF FINANCIAL RATIOS IMPACT AND CORPORATE GOVERNANCE ON LLP

S.NO	Variable Name	Yearly Data	Quarterly Data
1	IND	Nil	Nil
2	NIND	Nil	Nil
3	BOS	Nil	Nil
4	BAS	Nil	Nil
5	DTAR	Nil	Nil
6	SH_IN	-	-
7	MG_EFF	Nil	Nil
8	CAR	Nil	Nil
9	PES	+	+
10	CASA	Nil	+
11	MBR	-	-

Note: '+' Indicates Positive Impact, '-' Indicates Negative Impact and 'Nil' Indicates No Impact

From the above Table 14 we can conclude that it is only the market to book ratio that has a significant but negative influence on loan loss provision in both cases. This means that the stock is overvalued and the investors have confidence in the performance of the stock.

Shareholders have a greater and significant influence on loan loss provisions as equity in the banks is used to cover the defaulted loans. This implies that the greater the equity in the

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banks the less they are exposed to credit risk. The presence of corporate governance variables such as Independent Directors, Board of Directors bank size and Non-Independent directors has no significant impact on loan loss provision.

To maximize the wealth of the shareholders, the banks are willing to take any level of risk. To reduce this risk, many banks have resorted to effective corporate governance which will impact the loan loss provision. There are many studies like Zagorchev (2015) which have given evidence that corporate governance has an impact on the overall performance of banks. But against the evidence, corporate governance has impact on the overall performance of banks but not on loan loss provision. Zongrun (2019) has proved that corporate governance has no impact on loan loss provision which is in accordance the current study. The study also mentions that many loan loss provisions will reduce a bank's net profit and core capital, making banks hit the redline of capital regulation. Thus, a large number of loan loss provisions forces banks to tighten their monetary policy.

Masliza (2011) has concluded that loan loss provisions have no impact on earnings management. On the contrary, this study shows that there is a positive influence of paid-up capital on the loan loss provision which implies that there is sufficient capital in the banks. This indirectly connects shareholders influence and paid-up capital.

CONCLUSION

In conclusion, as opposed to many research, corporate governance variable does not affect the loan loss provision but the financial ratios such as Market to Book Ratio (MBR), Equity to Loan ratio (SH_IN) and Paid-up Equity Share Capital.

Suggestions and Future Research

The study illustrates that the present supervision and regulation of financial institutions has to be supplemented with sound corporate governance mechanisms. As proved and supported by other research, it is necessary to have as much capital introduced into the banks in the form of equity, as it will help in recovering the default loans or increasing the loan loss provision coverage ratio. Most especially, it is very essential to maintain the Market to Book ratio which indirectly affects the trust and confidence of the shareholders or the investors which is major variable of loan loss provision. Our results are important for policymakers and users of accounting information. Bank administration takes into consideration policy impact on banks according to their structure of operation. The regulatory bodies should focus on management performance to identify potential LLP requirements. Moreover, regulations should call attention to a risk management system and methods used by commercial banks of India to avoid future instability in the financial sector. Overall, our position supports other research that, if corporate governance variables are given prime importance, there would be chances that it will reduce the default of loans.

Future studies can use many more important variables such as: CEO duality and audit committee for corporate governance variables, while considering longer sample period. We would also recommend that future investigation include macroeconomic variables, such as: unemployment rate, inflation rate, exchange rate, change in GDP, as control variables along with corporate governance and financial variables to provide additional insights on the link between bank loan loss provisions. Furthermore, while we used loan loss provision as the proxy for credit

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risk, impaired loan could be used as an alternative proxy to measure bank risk-taking, in further studies.

REFERENCES

Ajanthan, A., & Balaputhiran, S. (2013). Corporate governance and banking performance : A comparative study between private and state banking sector in sri lanka. *European Journal of Business and Management*, *5*(20), 92-101.

Allen, L. (2012). Corporate governance and impact on bank performance. *The Oxford Handbook of Banking*, 1(1), 92-103.

Amos Layola, M., Sophia, S., & Anita, M. (2016). Effect of corporate governance on loan loss provision in indian public banks. *Amity Journal of Corporate Governance*, *1*(1), 1-15.

Basel Committee on Banking Supervision. (2015). *Guidelines: Corporate governance principles for banks*. *Bank for International Settlements*.

Bourakba, C., & Zerargui, H. (2015). The relationship between credit risk and corporate governance in Islamic Banking : An empirical study. *Issues in Business Management and Economics*, *3*(4), 67-73.

Brezeanu, P. (2011). The relation between financial management and corporate governance: Analytical approach at the level of the risk management strategies. *Bucharest Academy of Economic Studies,* 6(1), 151-162.

Brezeanu, P., Essawi Al, M.S., Poanta, D., & Badea, L. (2011). does corporate governance impact risk management system? *Theoretical and Applied Economics*, *18*(04), 49-64.

De Andres, P., & Vallelado, E. (2008). Corporate governance in banking: The role of the board of directors. *Journal of Banking & Finance*, *32*(12), 2570-2580.

El-Faitouri, R. (2014). Board of directors and Tobin's Q: Evidence from U.K. firms. *Journal of Finance and Accounting*,2(4), 82-99.

Hair, J.F. (2009). Multivariate data analysis.

Kota, H.B. (2010). Corporate governance practices in Indian firms. *Journal of Management and Organization*, 16(2), 266-279.

Leeladhar, V. (2004). Corporate governance in banks. *Reserve Bank of India* , 1101-1105.

Leventis, S., Dimitropoulos, P., & Owusu-Ansah, S. (2013). Corporate governance and accounting conservatism: Evidence from the banking industry. *Corporate Governance: An International Review*, *21*(3), 264-286.

Masliza, W. (2011). Panel data analysis of the relationship between earnings management, Bank Risks , Loan loss Provision and Dividend per Share. *Journal of Business and Policy Research*, *1*(6), 46-56.

Ozil, K.P. (2018). Bank loan loss provisions, investor protection and the macroeconomy. *International Journal of Emerging Markets*, *13*(1), 45-65.

Schmid, M.M. (2012). Risk management, corporate governance, and bank performance in the financial crisis. *SRN Electronic Journal*, 1-45.

Trinh, T.H. (2015). The impact of corporate governance on financial risk in Vietnamese commercial banks. *International Journal of Economics and Finance*, 7(7).

Van Greuning, H., & Brajovic-Bratanovic, S. (2009). *Analyzing banking risk (3rd Edition): A framework for assessing corporate governance and financial risk*. *Default Book Series*.

Zagorchev, A. (2015). Corporate governance and performance of financial institutions. *Jounal of Economics and Business* 16(12), 266-279.

Zheng, C., Perhiar, S.M., Gilal, N.G., & Gilal, F.G. (2019). Loan loss provision and risk-taking behavior of commercial banks in Pakistan: A dynamic GMM approach. *Sustainability (Switzerland)*, *11*(19), 1-17.

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