

## ROLE OF CREDIT AND LIQUIDITY RISKS ON DECISION-MAKING OF INDIAN PRIVATE SECTOR BANKS: AN ANALYTICAL STUDY

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**DOI: 10.5958/2319-1422.2026.00005.6**

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### ABSTRACT

*This research work primarily focusses upon examination of how the credit and liquidity risks influence their decision-making quality, which in turn will impact their financial performances in reference to the banking sector. This study uniquely integrates credit risk, liquidity risk, and decision-making quality into a single empirical framework using Indian private banks' panel data (2015–2024). Credit risks are captured via Non-Performing Assets and Total Loans/Total Assets ratio, liquidity risks are captured via variables like Liquid Assets/Total Assets ratio and Total Assets/Total Deposit ratio, while decision-making quality is measured via Capital Adequacy Ratio and Liquidity Coverage Ratio. The previous ten years' performance (2015-2024) of the selected five private sector banking firms was calculated, making a data panel of 50 observations. Adoption of descriptive statistics, correlation, heteroskedasticity and Granger causality tests was done to test econometric models. The work proved that credit and liquidity risk partially negatively influenced financial performances, which in turn, partially impacted only their credit risk-related decisions. By linking risk indicators with regulatory ratios and applying causality analysis, it offers fresh insights into how risk dynamics shape financial performance and strategic banking decisions. Hence, this literature suggests that regulatory bodies consider their performance metrics before making financial decisions.*

**KEYWORDS:** Credit Risk, Decision Making, Financial Performance, Liquidity Risk, Panel Regression.

**JEL Codes:** C23, D81, G21, G28, G33.

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### INTRODUCTION

The banking industry has served as one of the traditional running sectors that has been effectively regulated over the past years in the Indian economy (Ahuja B. R., 2019). The central banks were given the responsibility to manage the flow of money and improve the potential for economic growth, while, since origin, commercial banks have been operating in the economy to earn profits from their customers and ensure sufficient capital resources are available to individuals in times of urgency. As per the SWOT analysis theory, any organization operating in the economy have a set of strengths, weaknesses, opportunities and threats. Threats are external reasons due to which an

organization may face losses in their business. The possibility of occurring losses is termed risk. As per Frank Knight, "Risk is a measurable loss." In simple terms, risk in the banking sector refers to the possibility of incurring loss due to prevailing uncertainties that restrict the performance of banks' operations and profit-earning capacity. Most dominantly, the firm managers are concerned about the rising credits in default, lack of required short-term solvency, ever-changing market conditions and performance linked to them, rise in interest rates, inefficient operation and risks faced due to strategies implemented by the top officials. Hence, regulation was utmost required by the firms' managers to curb the unfavorable impacts, which was done by adopting various risk management measures.

Risk management, in simple words, states the adoption of a series of sequenced steps to warrant that any potential threat in the firms are identified at the earliest, their performance is monitored over the course of time, follows the assessment policies to derive their values and significance and finally curb the risks that influence their operations, financial stability, reputation and profit earning ability. The banking firms aim to mitigate the risks and reduce the impact of such risks. Effective risk management ensures financial stability, public trust, and achieves strategic goals. In the case of banking sectors, default risk is defined as the potential credit from the borrower to repay the loan granted by banking firms to them or in meeting any other contractual liability.(Okpala et al., 2019)Empirical results derived from the study suggests about the strategies adopted by banking firms to regulate the default issued by them were positively related to the short-term solvency risks and, in turn, also impacted their decisions based on liquidity factors. They also concluded that the concerned factor, short-term solvency risk, significantly impacted the profit-earning capability of the banking firms. (Kwashie et al., 2022)Previous research works done by researchers advised the banking firms to employ highly regulated credit policies while granting loans and monitoring default risk, as the ratio of NPA was increasing considerably, which degrades the banks' performance outcomes. (Chowdhury, 2023) Their research revealed that credit and liquidity risks of the banks significantly impacted the efficiency of the Islamic Banks in Bangladesh; however, the size of the banks reduced the efficiency of the banks.

Liquidity is a pillar in the banking sector. Banking firms are required to maintain sufficient liquid funds in their reserves to ensure they can sell them easily in the short-term when required. However, when banks fail to meet their short-term obligations without facing losses while selling assets at a fair price, this will result in short-term solvency risk.(Ben-Ahmed et al., 2023)Empirical results derived from the study suggests about insufficient short-term solvency negatively affected the default activity income, reduced the profitability of banks and trusts of customers. The results generated by analysing this study stated that efficiency, asset quality and economic growth of the banking firms were affirmatively linked with the solvency ratios of banks. (Habib et al., 2015) Empirical evidence revealed that effective risk management enhanced organizational performance, but the companies had lacked appropriate infrastructure, which they hesitated to respond, thinking which may reflect inefficiencies of the corporates, while banking sector firms faced risk due to ineffective performance operations management.

Banks' performance outcomes of the firms are observed to determine the choice formulation quality of banking firms for the past years. In this study, the central purpose of this work is to determine the impression of credit risk and liquidity risks on the banks' performance outcomes. The proxies employed in the research work studied banks' performance outcomes, which are measured based on variables- return on assets and return on equity, while choice formulation quality was measured by analysing the performance and returns generated by capital adequacy ratio and liquidity coverage ratios of the firms in past five years. The variable used in the study for measuring banks' performance outcomes indicates the profitability and solvency of banking firms. The quality of the decision made by banking firms is assessed by the profit-earning capability of the banking firms; hence, banks' performance outcomes are related to the capital adequacy ratio and liquidity coverage

ratio to determine the choice formulation quality in terms of credit and liquidity base.(Haq et al., 2025) The findings of the study concludes the policymakers should balance capital regulations and tailor statistics for monitoring specific liquidity components.

Earlier published reports have determined the negative relationship between default and short-term solvency risks with the performance outcomes of the firms established in the banking discipline. The study has covered a novel point for research to study the impact of default and short-term solvency risks on the performance outcomes of banking firms in terms of their profitability, which further impacts the choice formulation quality of banks. The goal of the research work is to determine the impact of credit and short-term solvency risks on the choice formulation quality of the Indian private sector banks. This work aims to learn about the elements of default and liquidity factors that influence the choice formulation quality of banking firms. Hence, this frames the prime objectives of the study as follows:

- 1) To examine the impact of credit and liquidity risk data analytics on performance outcomes of banking firms.
- 2) To study the impact of performance outcomes of firms on the decision-making quality of banks.

## **II. Literature Review**

### ***Credit and Liquidity Risks***

(Matey, 2021)Liquidity risk shared a significantly negative relationship with the stability of banks, while credit risk was observed to share a negative linkage with banks' stability. Hence, the research study advised the banks' managers to invest in interest-earning securities to increase the profitability of banks and improve their stability in the long term. (Oino, 2021) Empirical results derived from the study suggest about short term solvency risk of banks increases when they finance a risky project, as it might increase non-performing loans. The study inferred that the long-term solvency of banks could be positively associated with its performing efficiency, asset quality, and economic growth.(Kingdom et al., 2014) (Oladeji S. O., 2022) study revealed the significant association that could be observed between credit management, short-term solvency of the banks and their profit-earning potential through deposit money held by the banks in Nigeria. The results generated by this study suggested that the banks should set up an efficient system for managing internal autonomy and ensure to abide by the guidelines.(Al-husainy & Jadah, 2021)The authors conducted panel regression for the performance of 18 banks in Iraq for ten years and revealed that short-term solvency risk shared an affirmative relationship with the profitability of the banks, while credit risks shared an adverse linkage with the profit-earning potential of the firms. (Sidhu et al., 2023)Empirical results derived from the study suggests about the liquidity of the banks increases their efficiency up to their optimum level and further declines. (Jari, 2025)The study documented that increased NPA leads to reduced profitability of banks and limited credit availability for productive sectors of the economy.(Das, 2025) The study observed the performance of 44 banks and revealed that the increased NPA ratios are a result of faulty management practices adopted by banks; hence, it is suggested through the work that bank managers should revise their loan distribution policies to prevent faulty loan practices.

### ***Financial Performance***

(Sharma & Mishra, 2023)The researchers investigated the impact of gross NPAs on profitability and solvency ratios of banks, for which they analyzed 30 Indian banks for 8 years' time period, making a panel of 240 observations. The study deduces strong linkage between gross NPA ratios and the profitability and liquidity of the banks. The results observable from this study disclosed a strong association between gross NPA ratio and capital adequacy ratio.(Mohan, 2022) The observable results deduced that by running statistical tests, the performance of these banks' ratios and derived NPA had a significant influence on the profit-earning potential of banks, while non-interest income

shared a directional impact on the profit-earning capability of banks. (Kavita. & Bala, 2025) The study revealed that private sector Indian banks outperformed the public sector banks in terms of asset quality, capital adequacy and profitability. The report deduced that reducing the NPA ratio strengthens the risk management of the bank. (Eyalsalman et al., 2024)The researchers inferred that an affirmative linkage was proved between bank capital and ROA, but with ROE, they established a negative association.

### **Decision Making**

The liquidity coverage ratio was developed by banks to ensure sufficient high-quality assets are available to the banks during a stressful period. ( M. L., Tibbs, C., & Bulla, D., N.D.)The panel regression conducted by the researchers determined that a positive linkage could be derived between liquidity coverage ratio and the technical efficacy of banking firms. The study has highlighted the positive and significant association of capital adequacy ratio on the banks' performance outcomes of the banks listed in the Nairobi Stock Exchange, and the study advised the bank managers should minimize the issue of default lending to accelerate the productivity of capital invested in firms. (Sidhu et al., 2022) documented in their studies that an increase in liquidity coverage ratio reduces the short-term solvency risks while the ratio of non-performing assets increases, hence leading to increased stress on the profit-earning capacity of banks.

### **Research Methodology**

**Research Design** – Descriptive figures obtained from official sources and these figures were significantly analysed to adopt an explanatory research design, and input and outcome variables were studied to continue with the proceedings of the study. The research study has conducted a longitudinal panel study of five banks and analysed the performance of banks over the last ten years to address the concerns of the research work.

**Area of Study** – The research study focuses on studying the impact of financial performance on the choice formulation quality of the banking firms. The study considers a sample of five private sector banking companies – HDFC, Axis, IndusInd, ICICI and Kotak Mahindra Bank.

**Time Period** – The research study is a longitudinal work that collects financial analytics data of the above-mentioned five banks for the past ten years, from 2015 to 2024. This makes the size of the sample for conducting the research work 50 observations. These numbers of observations form a panel for analysis.

**Data Collection** - The data have been collected from secondary sources. The annual reports of the five banks for the previous five years have been studied to determine the ratios of different proxy variables. RBI reports on Financial Stability Reports for the same periods have been studied to prove the hypothesis.

**Sample Size** – the sample size of the study involves 50 observations, as a ratio of five banks were studied for the period of five years, ranging from 2015 to 2024. The size of these observations refers to the sample size for the research study.

**Analytical Tools** – The researcher adopted a correlation test to determine the relation between the variables. Descriptive statistics were used to find the mean, minimum, maximum, and standard deviation. A fixed-effect regression test was employed to study the impact of default and liquidity risk on banks' performance outcomes. The Granger causality test was adopted to study the impact of variables in two ways. The above tests were conducted on the E-Views software to give significant results.

**Hypothesis** - The null hypothesis usually states there is no influence of the predictor factor on the target factor; hence, the researcher aims to rule out the null hypothesis and accept the alternative hypothesis to show the significance. The alternate hypothesizes for this research work are as

follows:

H1: Credit risk of bank significantly impacts their financial performance of the banking firms.

H2: Liquidity risk of bank significantly impacts the financial performance of the banking firms.

H3: Financial performance of the banks significantly impacts their decision-making quality.

**Variables for the Study** – The research work involves the use of ROA and ROE as indicators of the performance outcomes of banks. NPA and TL/TA served as indicators of default risk in the research project, while short-term solvency is measured through variables LA/TA and TA/ TD. CAR and LCR served as indicators for assessing the choice formulation quality of the variables.

**Table 1: Proxy Variables**

Variables	Proxies	Measurement	Source
<b>Dependent Variable</b>			
Decision-Making Quality	1) Capital Adequacy Ratio (CAR)	Tier1 + Tier2 Capital to Risk Weighted Assets	(Mingdong, 2012)
	2). Liquidity Coverage Ratio (LCR)	High Quality Liquid Assets to Total Cash Net Outflows	(Eyalsalman et al., 2024)
<b>Mediating Variable</b>			
Financial Performance	1) Return on Assets (ROA)	Net Profit to Total Assets	(Malik et al., 2021)
	2). Return on Equity (ROE)	Net Profit to Total Equity	(Mubin et al., 2014)
<b>Independent Variables</b>			
1) Credit Risk	1) Non-Performing Assets (NPA)	Gross NPAs to Total Advances	(Parlakkaya et al., 2020)
	2) Total Loans to Total Assets	Increased ratio, Increased risk	
2). Liquidity Risk	1). Liquid Assets to Total Assets	Increased ratio, Increased risk	(Wolff, 2013)
	2) Total Assets to Total Deposits	Increased ratio, Lower risk	(Yuksel et al., 2015)

**Source: Author Generated**

### Econometric Models

#### Model 1

The research study has employed econometric equations on focusing to examine the linkage between target and predictor factors. This study involves the use of a static method for analysing the impact of default and short-term solvency risk on the performance outcomes of banks. Performance outcomes of the firms employed in the banking discipline are measured by studying the rates of returns earned from investing assets (ROA) (Malik et al., 2021) and the return generated from investing in equity shares (ROE). Non-performing Assets (NPA) and total loans to total assets are proxies for measuring credit risk, while total assets employed by firms, based on total deposits and liquid assets available with the firms, are proxies for measuring short-term solvency risk.  $a_i$  is the bank fixed asset,  $t$  is time period,  $\epsilon_{it}$ , are the error terms of the cross-sectional banks over different time periods.  $\beta_1, \beta_2, \beta_3$ , and  $\beta_4$  are coefficients to investigate the equation further.

$$ROA_{it} = a_i + \beta_1 NPA_{it} + \beta_2 TL\_TA_{it} + \beta_3 LA\_TA_{it} + \beta_4 TA\_TD_{it} + \epsilon_{it}$$

$$ROE_{it} = \alpha_i + \beta_1 NPA_{it} + \beta_2 TL\_TA_{it} + \beta_3 LA\_TA_{it} + \beta_4 TA\_TD_{it} + \epsilon_{it}$$

### **Model 2**

The second model shows the impact of ROA and ROE on CAR and Liquidity Coverage Ratios (LCR). Since there is a weak positive association between ROA and ROE, the risk of multicollinearity is minimised, and both explanatory variables can be included in a single equation for one dependent variable.  $\beta_1, \beta_2$  are the coefficients used for analysing the equations, while  $\alpha_i$  is the intercept value for each cross-section variable, i.e., bank and the symbol ' $\epsilon_{it}$ ' is employed to describe the error term which may influence the relationship between the variables used for research work.

$$CAR_{it} = \alpha_i + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \epsilon_{it}$$

$$LCR_{it} = \alpha_i + \beta_1 ROA_{it} + \beta_2 ROE_{it} + \epsilon_{it}$$

## **Results and Discussion**

### **Descriptive Analytics**

The description statistics determined the distribution of variables employed in the work. The results are derived after studying the 50 observations under each head. NPA ratios had the highest mean values and also the highest standard deviation value, which proved that they may get highly deviated from their mean values. Standard deviation is a measure of dispersion. Since the majority of the ratios of standard deviation are less than 1, it can be derived that the population is normally distributed. The ratios of Capital Adequacy Ratio and Liquid Coverage Ratio had the least values for standard deviation, which were 0.03 and 0.14, respectively. The minimum value was of Return on Equity, with a value of (0.03), and the maximum value was of Non-Performing Assets, calculated from 50 observations for the past five years and five banks.

**Table 2: Summary Figures of Variables**

Variables	Mean	Minimum	Maximum	Standard Deviation
Capital Adequacy Ratio	0.169	0.06	0.23	0.03
Liquidity Coverage Ratio	1.187	0.87	1.77	0.14
Return on Assets	1.563	0.04	2.7	0.62
Return on Equity	0.137	(0.03)	0.60	0.60
Non-Performing Assets	2.491	1.00	8	1.41
Total Loans to Total Assets	0.627	0.46	0.83	0.83
Liquid Assets to Total Assets	0.472	0.25	0.91	0.97
Total Assets to Total Deposits	1.452	1.09	1.77	0.16

*Source: Compiled by Author*

### **Correlation Analysis**

The following table shows the results of the Pearson correlation test conducted on the variables. The value of the tests ranges from -1 to +1, depending on the nature of the variables. The results proved an inverse association between ROE and NPA, TL/TA, LA/TA and TA/TD. The test results determined the strength and relationship between the variables. NPA shared an opposite directional impact with ROA and ROE, while TL/TA and LA/TA had a negative relation with ROE, CAR and LCR. The tests confirmed there is an affirmative linkage between ROA and ROE, and CAR and LCR. The values determined from the test are not very strong; hence, the risk of multicollinearity is eliminated.

**Table 3: Pearson Correlation Test**

Variable	NPA	TL/TA	LA/TA	TA/TD	ROA	ROE	CAR	LCR
NPA	1.00000	(0.2637)	(0.1443)	0.06151	(0.5296)	(0.0527)	0.04178	0.16003
TL/TA	(0.2637)	1.00000	0.06375	(0.1047)	0.18778	(0.0321)	(0.0620)	(0.3251)
LA/TA	(0.1443)	0.06375	1.00000	0.09693	0.04154	(0.2238)	(0.4009)	(0.3228)
TA/TD	0.06151	(0.10477)	0.09693	1.00000	0.12588	(0.36178)	0.07874	0.14668
ROA	(0.52963)	0.18778	0.04154	0.12588	1.00000	(0.08813)	0.35660	0.19922
ROE	(0.05270)	(0.03211)	(0.22386)	(0.36178)	(0.36178)	1.00000	0.02206	0.11791
CAR	0.04178	(0.06202)	(0.40097)	0.07874	0.35660	0.02206	1.00000	0.48050
LCR	0.16003	(0.32514)	(0.32288)	0.14668	0.19922	0.11791	0.48050	1.00000

Source: Compiled by Author

**Objective 1: To examine the impact of credit and liquidity risk data analytics on the financial performance of banking firms.**

This work aims to explore the significance of credit and short-term solvency risk on the performance outcomes of banks. The NPA and TL/TA ratio study the default risk, while the LA/TA and TA/TL ratio studies the short-term solvency risks. The performance outcomes of the banks are studied according to their profitability. The ROA and ROE served as the proxy variables to measure banks' performance outcomes.

**Hausman Test**

The Hausman test is adopted by statistical investigators to determine the foundation for framing the choice to employee fixed model or a random model for panel regression of the data. The null hypothesis is formulated that if the estimated coefficient is significant at 5%, then the assumption of no relation between the concerned variables is refuted and the fixed effect model for research analysis. Since both the figures obtained from the test are lower than the standardised p-value, the fixed model is adopted for further analysis. The Hausman test also tests for endogeneity, which determines the correlation between explanatory variables and error terms.

**Table 4: Hausman test for ROA and ROE**

Variable	Chi-sq value	Chi-sq D.o.F.	p-Value
ROA	20.78377	4	0.0003
ROE	26.18947	4	0.0000

Source: Compiled by Author

**Fixed-Effect Regression Model**

The fixed effects model for regression was incorporated in this work, which determined how the variables vary within each group. The results generated by them were prejudiced as the model removes the significance of time-invariant factors. The generalised model of preferences could not be applied in this research work as the sample size for observations is too small to generalise them for large populations. The test conducted determined fixed model would be appropriate for studying the panel regression. The p-value of hausman test of NPA, TA/TD, TL/TA and LA/TA on ROA was 0.0003, while the test resulted in 0.000 for NPA, TA/TD, TL/TA and LA/TA on ROE. Hence, fixed effects regression tests were adopted to study the impact of NPA, TA/TD, TL/TA and LA/TA on the ROA and ROE.

**Table 5: Fixed Effects Regression – Panel Regression Test for ROA, ROE**

Variables	ROA				ROE			
	Coefficient	t-statistic	p-Value	Significance	Coefficient	t-statistic	p-Value	Significance
<i>C</i>	1.28110	1.17795	0.2456	Insignificant	12.1249	2.11507	0.0405	Significant
<i>NPA</i>	(0.1582)	0.05039	0.0031	Negative (Significant)	0.04313	0.16238	0.8718	Insignificant
<i>TL/TA</i>	1.38935	1.24641	0.2715	Insignificant	(2.9540)	(0.4496)	0.6553	Negative (Insignificant)
<i>LA/TA</i>	(0.7611)	0.38176	0.0529	Negative (Significant)	(5.0691)	(2.5190)	0.0158	Negative (Significant)
<i>TA/TD</i>	0.11360	0.44709	0.8007	Insignificant	(4.7573)	(2.0187)	0.0501	Negative (Significant)

*Source: Compiled by Author*

The above table concludes that NPA shared an inverse linkage with ROA, which indicates that an increase in NPA ratio reduces the profitability of banks, inferring to higher default paved for reduced profitability earned by the firms engaged in the banking sector. Total Assets/Total Deposits have a positive, insignificant relationship impact on ROA, determining a lower impact on profitability, while LA/TA has a negative, substantial association with ROE. TA/TD had a non-trivial relationship with ROA, which proves that it has a positive but lower impact on the profit-earning potential of banking firms.

The above model indicates an adverse but strong relationship between ROE and NPA, i.e., higher NPA reduces the ROE ratio, while TA/TD shares a negative, weak relationship with ROE. TL/TA has a significant impact on ROE, which determines a strong contribution to the commercial success of banks, and LA/TA has an insignificant and positive impact on ROE, i.e., the profitability of the banks.

**Heteroskedasticity Test**

The heteroskedasticity test is adopted in this research study to determine if the value derived from the variance of the error term is constant over the course of time in the panel study or not. If the heteroskedasticity is absent in the study, standard errors of the test become consistent over the time periods of the study, resulting in false t-tests and other statistical values. Hence, attendance at this is essential for significant outcomes for tests performed. To test the occupancy of this element in the panel data, the null hypothesis is framed that “Residuals are homoscedastic”.

**Table 6: Heteroskedasticity Test for ROA, ROE**

Variable	Value	df	p-value
ROA	19.10509	5	0.0018
ROE	206.1299	5	0.0000

*Source: Compiled by Author*

The above table is drawn by conducting the heteroskedasticity test, which shows that the estimated coefficient is significant at 5%, which statistically invalidates the null hypothesis and affirms that the panel data comprises heteroskedasticity in their data. The test includes analysis of NPA, TL/TD, LA/TA and TA/TD on the ROA and ROE. And since the results derived are less than 0.05, the occupancy of heteroskedasticity is confirmed, which states that the error term is inconsistent over the years.

**Objective 2: To study the impact of the financial performance of bank firms on the decision-making quality of banks.**

This statistical study aims to study the weight of performance outcomes of firms in their choice

formulation quality. The bank's performance outcomes are studied using ROA and ROE variables, which study the economic viability of firms over the years. The research work examines the precision of the profit-earning capability on financial decisions based on default and short-term solvency risks attached to banking firms.

**Hausman Test**

The test was conducted on this panel data of 50 observations to determine which of the two regression models should be employed, fixed or random. Since the p-value of the CAR and LCR ratios is more than the standardised limit of the estimated coefficient at 5%, the assumption of a relationship between the variables of adopting a random model for further analysis of the panel data. The p-value of CAR was 0.6695, and the LCR ratio was 0.4087, hence, conforming to adopt random-effect model.

**Table 7: Hausman Test for CAR and LCR**

Variable	Chi-sq value	Chi-sqD.o.F.	p-Value
CAR	0.80230	2	0.6695
LCR	1.78978	2	0.4087

*Source: Compiled by Author*

**Random Effects Model**

The model is harnessed by researchers to investigate the clarity of determining variables on outcome variables by determining a more generalizable precision on the outcome variables and estimating the impression of input variables over the course of time. This test was employed to determine the overall impact of return ratios of the choice formulation quality of banking firms.

**Table 8: Random Effects Model for CAR and LCR**

Variable	CAR				LCR			
	Coefficient	t-statistic	p-Value	Significance	Coefficient	t-statistic	p-Value	Significance
<i>C</i>	0.14202	10.1590	0.0000	Significant	1.10099	18.8076	0.0000	Significant
<i>ROA</i>	0.01615	2.27351	0.0276	Significant	1.48097	1.48097	0.1453	Insignificant
<i>ROE</i>	0.00158	1.11425	0.2708	Insignificant	0.95715	0.95715	0.3434	Insignificant

*Source: Compiled by Author*

The random effects regression model determined the nature and strength of relationships between the variables of profitability of banks and the choice formulation quality of concerned entities engaged in banking discipline. This research work unveiled that only ROA shared a strong affirmative relationship with CAR but a weak positive correlation with LCR, which indicates a rise in CAR and LCR values due to a rise in the ROA ratio. While the results concluded that ROE showed a positive but faint linkage with CAR and LCR, indicating that an increase in ROE will lead to a small but positive increase in CAR and LCR.

**Heteroskedasticity Test**

The presence of heteroskedasticity test enables the researchers to confirm that the error term is not constant; hence, the chance for bias in the study is eliminated. Hence, the null hypothesis for this test is formulated as, "There is no heteroskedasticity."

**Table 9: Heteroskedasticity Test for CAR and LCR**

Variable	Value	df	p-value
CAR	30.30816	5	0.0000
LCR	20.66124	5	0.0009

*Source: Compiled by Author*

The tests conducted above determine that the statistical value is below 0.05, which confirms the

acceptance of occupancy of heteroskedasticity element in the panel data for ROA and ROE, proving that the error term of the panel set is not constant over the years. Hence, the results stemming from the tests are unprejudiced and show significant linkage with the variables, CAR and LCR.

**Granger Causality Tests**

The pair wise GC testis employed by the researchers to study whether one variable predicted the performance of another variable over a defined time period. The statistical investigation is conducted to study the direction of causality shared among the variables. This test is adopted by researchers to test whether the past variables affect the performance of other variables. The tests are adopted in this case to determine if the performance of CAR and LCR is predicted by the variables measuring banks' performance outcomes in the concerned study, i.e., ROA and ROE.

**Table 10: Pair wise Granger Causality Tests (Lags = 2)**

Dependent Variable	Independent Variable	F-Statistic	p-Value	Causality Direction	Significance(at 5%)
CAR	ROA	1.24605	0.3001	ROA → CAR	Not Significant
CAR	ROE	0.05020	0.9511	ROE → CAR	Not Significant
ROA	CAR	0.47058	0.6285	CAR → ROA	Not Significant
ROE	CAR	0.10066	0.9045	CAR → ROE	Not Significant
LCR	ROA	1.50740	0.2355	ROA → LCR	Not Significant
LCR	ROE	0.01102	0.9890	ROE → LCR	Not Significant
ROA	LCR	0.73603	0.4873	LCR → ROA	Not Significant
ROE	LCR	0.03983	0.9610	LCR → ROE	Not Significant

*Source: Compiled by Author*

The results of these tests determine if there is a temporal influence between banks' performance outcomes and CAR and LCR. The test results showed there is insignificant causality relation between vulnerable indicators and the profitability of banking firms. Granger causality tests the predictive causality of the variables over time periods of years. The absence of strong causality among the variables may indicate that the presence of regulatory standards influenced the CAR and LCR ratios of the banks, but for the short term only.

**Discussion**

The purpose of this research work was to determine how the credit and short-term solvency risks influence performance outcomes of the banking firms and how this, in turn, impacts the choice formulation quality of banking firms in terms of default and liquid base. The summary statistics conducted on the concerned variables employed for analysing the study proved that the population marked for the study are normally distributed, hence, parametric tests were exercised for continuing further research. The Pearson correlation test conducted on the variables operated in research work proved that NPA had an inverse association with ROA and ROE, while TL/TA, LA/TA and TA/TD had a positive relationship with ROA but a relationship with ROE. However, the test concluded that ROA and ROE ratio positively related to CAR and LCR.

The Hausman test, FE regression test, and heteroskedasticity test are adopted for proving the first objective that credit and short-term solvency risks impacted the performance outcomes of the banks. The Hausman test derived the estimated coefficient value at less than 5%, which promoted the ideology of employing the FE regression model for further analysis of the study. The regression test resulted in the finding that short-term solvency risks significantly impacted the ROE, but default

risks insignificantly impacted the ROE. The short-term solvency and credit risks showed a weak impact on ROA. The FE regression model proves the impact of explanatory variables on dependent variables, showing contemporaneous effects on the banking firms over the same years. The heteroskedasticity tests conducted on the variables proved that the error term involved in the equations was present in the variables, hence proving that the error terms were not constant over the years, which may give accurate t-values and other statistical values.

The succeeding intent of research work was to determine if the performance metrics of banks significantly influenced the choice formulation quality of the banking firms. The Hausman test was conducted over the variables, which showed that p-values were greater than 0.05; hence, the test concluded that the random effect regression model is suggested to be adopted in this discipline. The RE regression conducted over the variables proved that ROA significantly influenced the CAR ratio of banks, but was insignificant to the LCR ratio. The regression tests revealed that ROE tests were insignificant to CAR and LCR ratios. The heteroskedasticity tests revealed the presence of heteroskedasticity in the variables, proving that the error term was dynamic over the years of the banking firms.

The FE panel regression model revealed that NPA shared an inverse association relationship with ROA and ROE, which inferred that inclination in credit risk leads to reduced profitability of banking firms. TA/TD have a positive but insignificant relationship impact on ROA, while showing an insignificant inverse association with ROE. TL/TA had an insignificant but affirmative linkage with ROA and ROE. The LA/TA ratio showed a strong affinity with ROA but a weak, insignificant relationship with ROE. Hence, the regression test proved that credit risks strongly impacted the banks performance outcomes, while short-term solvency risks weakly impacted the banks performance outcomes of the corporates engaging in banking disciplines.

The results generated by GC Tests opened about ROA and ROE insignificantly predicted the performance of CAR and the LCR ratio of the banking firms over the years. The causality tests are adopted to prove that the variables were significant over the years. However, the regression tests proved they impacted the economic viability of the banks in the corresponding years, hinting at no positive results over the years, as the Granger causality tests resulted in insignificant results.

## **V. Conclusion and Implication**

This paper endeavours to discover how the credit and short-term solvency risks affect the choice formulation quality of Indian firms engaged in banking disciplines ranging from 20215 to 2024. Through the tests conducted, it can be proved that short-term solvency risks strongly impacted the ROE, as it showed inverse linkage with LA/TA and TA/TD, which indicated that an increase in short-term solvency risk ratios weakens the profitability. Liquidity Risks also influenced ROA, though weakly, indicating increase in such risks reduced the economic viability of firms. However, the default risk does not signify the ROE but impacts the ROA, as it showed a negative relationship with NPA, hence proving that higher NPA ratios weakened the profitability of companies. Hence, this proved the alternate hypothesis to be true.

The second intent of the phenomenon was to discover how the banks' performance outcomes of the banking firms are impacted by the choice formulation quality on them related to credit and short-term solvency basis. The regression test conducted proved that the default risk-related decision is significantly impacted by the profitability of the companies, but is not influenced by the returns earned by the equity shareholders. The tests also showed that the short-term solvency risk-related decisions are not influenced by the profitability of the firms; hence, it suggests that decisions regarding short-term solvency risks are based on the regulatory framework and taken based on the decisions of the management boards.

The results generated by GC Tests revealed that ROA and ROE did not predict the metric analysis

of CAR and LCR ratios of the banking firms over the years. In simple words, the test proved that past values of the performance outcomes of the firms employed in the banking sector did not predict the future efficiency indicators of the CAR and LCR ratios for the banks. Hence, the study partially supports the second objective as bank performance outcomes impacted the credit risk-related choice formulation in the static period but not in the dynamic period.

The finding of the study provides important implications from the study which can be adopted by banking firms. The research work suggests that regulatory bodies should study the performance metrics in capital and short-term solvency risk related dimensions before making financial decisions to maximize financial stability of the firms. The stability of the bank's performance outcomes is important for the banking firms to ensure profit earning capability and short term solvency of the banks. Hence, the banking firms are advised to adopt stringent default policies to avoid credit and short-term solvency risks of the banking firms. The top-management officials should make provisions to improve the training of the banking professionals who are involved in making default decisions to ensure the avoidance of non-performing assets.

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