S J B I R

ISSN (online) : 2319-1422

SAARJ Journal on Banking & Insurance Research (SJBIR)

Published by
South Asian Academic Research Journals
A Publication of CDL College of Education, Jagadhri
(Affiliated to Kurukshetra University, Kurukshetra, India)

SJBIR ISSN (online) : 2319-1422

Editor-in-Chief : Dr. Priti Pandey

Impact Factor : SJIF 2022 = **7.852**

Frequency : Bi-Monthly

Country : India

Language : English

Start Year : 2012

Indexed/ Abstracted : Scientific Journal Impact Factor (SJIF 2022 - **7.852**), Google Scholar, CNKI Scholar, EBSCO Discovery, Summon(ProQuest), ISC IRAN, Primo and Primo Central, I2OR, ESJI, Indian Science, IIJIF, ISRA-JIF and Global Impact Factor (2015 - 0.578)

E-mail id: saarjjournal@gmail.com

VISION

The vision of the journals is to provide an academic platform to scholars all over the world to publish their novel, original, empirical and high quality research work. It propose to encourage research relating to latest trends and practices in international business, finance, banking, service marketing, human resource management, corporate governance, social responsibility and emerging paradigms in allied areas of management including social sciences , education and information & technology. It intends to reach the researcher's with plethora of knowledge to generate a pool of research content and propose problem solving models to address the current and emerging issues at the national and international level. Further, it aims to share and disseminate the empirical research findings with academia, industry, policy makers, and consultants with an approach to incorporate the research recommendations for the benefit of one and all.

*Research Scholar,
Department of commerce,
(Shyama Prasad Mukherjee Degree College), Uttar Pradesh, INDIA
Email Id: dikshasingh3544@gmail.com

DOI:10.5958/2319-1422.2026.00004.X

ABSTRACT

Emotional Intelligence (EI) and work well-being have become central issues affecting performance of employees, their job satisfaction and overall organizational performance. Although much has been done to explore these two factors in isolation, the interplay between EI and well-being as well as the combined effects on employee productivity is a little-known field especially on the textile industry. In the textile industry, where labour is considered to be an intensive, monotonous and physically strenuous experience of work, issues of this type are peculiar, which influence not only the working conditions of employees but also their productivity. The research aims at exploring the interaction between EI and well-being in the workplace to contribute to productivity levels of employees in the textile sector, and that the research will offera practical insight that can be used by management to enhance workforce productivity and involvement.

The study employs a quantitative survey, to have a detailed picture on the relationship between EI, well-being and productivity. Three textile factories with a total of 300 employees were surveyed; this was to offer a delicate insight into how EI and a well-being at the workplace can foster the work outcomes. The research concludes that both EI and the well-being at work have positive and substantial impacts on productivity, and EI serves as a key mediator in the connection between the well-being and the productivity. High EI employees are likely to have improved mental and emotional wellbeing which translate to a more engaged and productive workforce. Moreover, the well-being at the workplace increases the capability of an employee to control emotions, alleviate stress, and job satisfaction, which further increases the level of productivity.

The results indicate that emotional intelligence as well as well-being not only complementary but are synergistic in enhancing productivity in employees. Companies that invest into the emotional intelligence development of employees and provide them with the environment where well-being is prioritized are also more likely to become more productive, have lower levels of absenteeism, and lower turnover rates. The paper provides practical suggestions that managers of the textile industry can adjust to their organizational culture, including the need to incorporate the use of EI-development programs and wellness programs. Investing in these factors, textile enterprises will have a stronger, more engaged, and productive workforce and eventually result in better business performance. The study makes more sense to the relationship between EI, well-being and

productivity as a dynamic interaction, and it offers a framework that can be implemented in other industries that are challenged with similar problems.

KEYWORDS: *Emotional Intelligence, Workplace Well-Being, Employee Productivity, Textile Industry, Workplace Performance, Employee Engagement, Organizational Behavior.*

INTRODUCTION

The contemporary workplace is being marked by complexity, performance demands and rapid changes of workplaces. In that regard, the well-being of employees and their emotional intelligence (EI) has become a key determinant in relation to productivity, job satisfaction, and the success of an organization as a whole. Although these aspects have received research focus, little has been written on the combination of EI and workplace well-being in employee productivity especially in labour-intensive industries like the textile business. The high physical requirements, repetitive duties, and long working hours associated with this industry present a special challenge to the well-being of the workers, thus making it an ideal environment to identify the roles of EIand well-being in the increase in productivity.

Emotional intelligence (EI) is the capacity to detect, comprehend, handle and control oneself and others. It consists of five fundamental elements, which are self-awareness, self-regulation, motivation, empathy, and social skills. Several positive results related to EI in the workplace have been noted to be improved communication skills, decision making skills, conflict management, and leadership skills (Goleman, 1995). Employees having a higher degree of EI are more likely to cope with stress, relationships with each other, and have a positive impact on organizational culture, which, in its turn, will result in increased job satisfaction and better performance.

Workplace well-being on the other hand covers different aspects of health and psychological state of an employee in the workplace. These are job satisfaction and stress levels, work-life balance, physical health, and emotional fulfilment. Employee well-being is one of the determinants of employee engagement, morale, and retention where studies have shown that employees who report greater well-being also have higher levels of motivation, creativity, and productivity (Warr, 2002). Workplace well-being has been a topic that has received much concern because organizational leaders have realized that a supportive and healthy work environment is critical in improving employee satisfaction and organizational performance.

The role of emotional intelligence and workplace well-being cannot be overestimated in such industries as textiles where workers tend to work in rather hard conditions, the stress level is high, and job satisfaction might be low because of the nature of tasks performed and the lack of any personal development of the employees. In such demanding working conditions, employees who have a better EI can deal with stress better, handle their emotions, and develop a positive relationship. Besides, an emphasis on workplace health will help reduce some of the physical and emotional strains the textile industry creates, which may lead to better employee performance in general.

Although there is a possibility in synergy between EI and well-being, the association of the two and their joint effect on the productivity of employees are not adequately studied in the textile industry. Though research has been carried out on EI or well-being separately, limited research has been done to determine the interaction and role of the two on workplace performance. The study will address this gap by looking into the interaction of EI and workplace well-being on employee productivity within the textile industry. Exploring the effects of these elements on the effectiveness of workers in this context, this paper will serve to provide the organization with feasible solutions on how to achieve a conducive environment that benefits the employees and EI, which in turn, will result in high productivity.

Research Problem

Although there has been extensive research on Emotional Intelligence (EI) and workplace well- being at the individual level, little has been done to study the dual combination of the two variables on employee productivity, and particularly in the labour-intensive industry like the textile industry. Being one of the industries with high physical requirements, repetitive activities, and prolonged working hours, it is distinguished with its own challenges that influence employee satisfaction and productivity. The issue is on how EI and workplace well-being interact and affect employee performance and how they can be used to enhance productivity and organizational performance in the textile industry.

Objectives for the Study:

1. To investigate the relationship between Emotional Intelligence (EI) and employee productivity within the textile industry.
2. Toexaminetheimpactofworkplacewell-beingonemployeeproductivityinthetextileindustry.
3. To explore the role of Emotional Intelligence (EI) in enhancing workplace well-being among employees in the textile sector.
4. To assess how Emotional Intelligence (EI) and workplace well-being interact and contribute together to improve employee productivity, with a focus on their synergistic effects.

Significance of the Study

The importance of the research is that it can offer meaningful information to enhance employee performance in the textile sector through the utilization of Emotional Intelligence (EI) and work well-being. It covers the specific issues that are associated with this labour-intensive industry, and it presents solutions as how to alleviate stress and burnout. Another contribution to existing academic knowledge is that the study examines the synergies between EI and well-being on productivity, which has been understudied in the textile industry. It also provides viable suggestions that managers should incorporate EI growth and well-being programs within organizational strategies to create a more active, reisolated and productive workforce.

Literature Review

Research on the topic of Emotional Intelligence (EI), workplace well-being, and their effects on employee productivity have developed over the decades, where a range of studies have offered information on how these variables interrelate and determine workplaces. In this part, the literature review will show the recent publications of the effects of EI and workplace well-being on the productivity of employees and particularly the textile industry. The possible synergies between these two constructs and their implications on the employee performance are also indicated in the review.

Emotional Intelligence (EI) in the Workplace

Emotional Intelligence is a skill that involves recognizing, understanding, controlling, and manipulating emotional states of an individual and other people. GI has been widely researched in the organizational context in the sense of its influence on different work performance including leadership, group cooperation, decision-making and conflict solving (Mayer, Salovey, and Caruso, 2008). High EI people in the work environment are better placed to overcome the emotional hurdles of interpersonal relationships, less stressful, and have a positive impact to the organization culture.

Recent research has given additional support on the use of EI in improving employee performance. Indicatively, research by Zhang and Zhong (2021) established that EI is positively associated with job performance and participation in work especially in stressful job settings. An employee who has higher EI is better placed to control his emotion which is particularly very important in the physically demanding sectors such as textiles where stress and emotional burnout tend to hinder productivity. On the same note, EI has been established to promote resilience, as employees are able to rise after a failure and have the motivation to work harder (Schutte et al., 2007).

Furthermore, EI is required to enhance interpersonal relationships in the workplace. EI can be used to improve collaboration, communication, and conflict resolution in the context of textile industry where employees tend to do repetitive work in groups. Research by Joseph and Newman (2010) points out that employees who are characterized by emotional intelligence have a high level of team work which results in a cohesive work environment and an increase in the overall productivity. Additionally, EI is also associated with an effective leadership, because emotionally intelligent leaders can inspire, motivate and support their workforce, which leads to the increased levels of employee satisfaction and performance (Goleman, 1995).

Workplace Well-being

Workplace well-being can be defined as the mental, physical, and emotional well-being of the employees, such as job satisfaction, work-life balance, organizational support, and stress management. This has been evidenced by the increasing perceptions over the last few years of the significance of well-being in the workplace with a number of studies suggesting that organizations that pay attention to their employee's well-being report higher productivity levels reduce absenteeism and increase employee engagement (Harter, Schmidt, and Hayes, 2002).

Workplace well-being takes place in both subjective and objective aspects, such as job satisfaction, the possibility to cope with work-related stress, and physical health. Indicatively, a study by McCraty and Atkinson (2019) established that increased well-being at the workplace was related to better decision making, increased creativity and work performance. The workplace well- being is important in sectors such as textiles where employees generally work long hours under adverse conditions in order to enhance burnout and motivate their morale. It has been found out that employees working in well-being-oriented environments are more engaged resulting in high productivity and reduced turnover (Warr, 2002).

The current study by Kular et al. (2020) emphasized that stress management programs and mental health support as a part of workplace well-being affect the performance of employees directly. Such programs make employees feel recognized and appreciated and this increases their morale and output. Moreover, job satisfaction has been established to be positively influenced by workplace well-being which subsequently impacts on productivity (Chandran, 2020).

The Combined Impact of EI and Workplace Well-being on Productivity

Although EI and workplace well-being have been researched individually regarding their effect on productivity, the overall effect has undergone lesser research. New research however indicates that there is an interrelationship between the two factors and they work in a synergy to promote the performance of employees. Indicatively, a study by Coute and Miners (2006) revealed that EI acts as a mediator between stress and performance of the employees in the workplace. The workers with greater EI could deal with stresses related to work more effectively, which, in its turn, contributed to the improved productivity and job satisfaction. Through this, EI will improve the state of my work place by providing an employee with the emotional gear to manage work-related difficulties.

On the same note, EI has been identified to be significant in helping to develop a good working atmosphere which is a critical element of workplace wellbeing. The high EI of the employees increases the chances of establishing supportive, compatible, and beneficial relationships with co- workers and line managers, which in turn results in improved team dynamics and overall productivity (Wang, Law, & Lin, 2021). EI allows employees to manage their emotions and have a positive attitude, which will prevent a detrimental effect of stressors and lead to higher levels of job satisfaction. In this regard, EI is a direct contributor of an environment that facilitates well- being in the workplace which in turn results in increased productivity among employees.

Research by Carmeli et al. (2019) established that the interaction of EI and workplace well-being resulted in a strong impact on work performance in the health care sector which is somehow similar to the textile industry especially in aspects of high physical and emotional tasks. The study established that EI had a positive impact on workplace well-being which consequently directly impacted on performance and productivity of employees. The implication of this finding is that emotional intelligence training should be conducted alongside workplace well-being programs to ensure maximum employee performance.

Emotional Intelligence, Well-being, and Employee Engagement

Employee engagement is an important consequence of EI and the well-being of the workplace. Employees who are engaged tend to be more productive and satisfied in their jobs and get attached to the company. Recent researchers have discovered that emotional intelligence has a positive impact on employee engagement, as it enhances emotional control and socialization (Zheng, 2021). Moreover, positive climate of the workplace that promotes employee wellness will improve their engagement, as it contributes to the feeling of belonging, safety, and encouragement.

In textile where repetitive work is a common practice with very high stress situations, both EI and well-being are most important in ensuring that the level of engagement is high. Sideridis and Tsitskari (2021) conducted a study, which revealed that the employees who reported greater EI and well-being levels were more engaged in their work and demonstrated more significant levels of motivation, which corresponded to a better productivity outcome. Engagement is a mediator between EI, well-being and productivity because it leads to a greater chance of the engaged worker taking up initiative, working productively, and fostering the overall success of the organization.

Recent Trends and Industry-Specific Insights

However, within the textile industry, the significance of EI and workplace well-being is increased because of the special issues of the field. Monotonous work, long hours, and physical requirements of the work may result in the high level of stress and fatigue that harm the well-being and productivity. The recent tendencies indicate that cloth manufacturing corporations that include EI training initiatives and aim at enhancing the workplace welfare are experiencing the beneficial effects on the employee satisfaction and efficiency. As an example, there are a number of textile industries in India which have adopted initiatives that provide relief on stress in the workplace, enhance bodily fitness, and emotional intelligence. Such programs have led to a low level of absenteeism, decreased turnover, and higher productivity (Das & Bhattacharya, 2022).

Research Methodology

The study research methodology shall help investigate the interplay of Emotional Intelligence (EI) and work well-being on workforce productivity in the textile sector. Since these variables are very complex and multifaceted, a mixed-method approach was employed that involved the use of both quantitative and

qualitative methods of research. These two strategies allow obtaining a detailed picture of the subject matter because it will collect both numerical data to see the trends and

correlations and qualitative information explaining the experiences of staff members on the ground.

Research Design

The current study will take convergent parallel mixed-methods design where both quantitative and qualitative data will be gathered and examined at the same time but independently. Both sets of data are thereafter compared and combined to give a comprehensive picture of the correlation between EI, well-being and employee productivity in the workplace. This will enable the researcher to triangulate the research hence increasing the validity and reliability of the findings. The two methods combined provide a deep, complex insight into the relationship between EI and well-being and their impact on employee performance in the textile industry.

H1: There is a positive correlation between Emotional Intelligence (EI) and employee productivity in the textile industry.

H2: Workplace well-being positively influences employee productivity in the textile industry.

H3: Emotional Intelligence (EI) has a significant impact on workplace well-being.

H4: Emotional Intelligence (EI) and workplace well-being together significantly improve employee productivity, with workplace well-being acting as a mediator between EI and productivity.

Population and Sample

The study group of this research comprises of employees who work in textile factories in Indian country where the textile industry is strong. The discussion of India is especially pertinent because of the great input that the sector contributes to the local and the global economy and the problems that workers have to endure, including excessive working schedule, monotonous activities, and the physical conditions. This research seeks to gather information involving the employees in three separate textile factories in the different regions to make the sample representative of the diversity within the industry.

Participants were selected with the help of a stratified random sampling technique. Such sampling approach will guarantee the inclusion of employees who represent various departments (e.g., production, quality control, administration, and logistics) and different levels of seniority into the sample, which will also give the complete picture of the population of employees. The survey involved 300 employees (100 in each factory) and the response rate in the survey was 85 so that 255 surveys were completed. Besides the survey data, 30 employees (10 in each factory) would be chosen to undergo qualitative interviews in depth. The selection of these interviewees was based on different experience, department and role in the firm to have a wide scope of views.

Data Collection Methods

1. Quantitative Data Collection

It used self-administered questionnaires to collect the quantitative data which were distributed to the employees in the three textile factories. The following constructs were to be measured in the questionnaire:

Emotional Intelligence (EI): EI was measured through Schutte Emotional intelligence Scale (Schutte et al., 1998). This is a 33-item scale that defines five dimensions of EI, self-awareness, self-regulation, motivation, empathy, and social skills. Respondents will respond to each statement on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Workplace Well-being: The Workplace Well-being Scale (Kular et al., 2020) was modified to assess the workplace well-being opinions of employees. The scale has questions related to job

satisfaction, stress level, work life balance, and organizational support. The respondents replied that they agreed with this on a 5-point Likert scale.

Employee Productivity: Both self-reported and objective data was used to measure productivity. The self-reports data were gathered using a questionnaire and employees were required to give their perceived productivity rating on a scale of 5 (1 = Very Low, 5 =Very High). Also, the factory records of productivity were obtained such as the production output rates, attendance and performance appraisals over the last six months.

The questionnaire would be tested on a small sample of the employees before it would be used to verify its reliability and validity. According to the feedback, minor revisions were performed to make it understandable and accurate. The questionnaire was delivered face-to-face and online in its final form based on the availability and the preferences of the employees.

Data Analysis

1. Quantitative Data Analysis

The SPSS (Statistical Package of the Social Sciences) software was used in analyzing the quantitative data. The analysis was conducted in the given stages:

- **Descriptive statistics:** To summarize and describe the demographic characteristics of the sample and the most important variables (EI, workplace well-being and productivity).
- **Correlation analysis:** Pearson correlation coefficient was calculated to test the strength and direction of the relationships between EI, workplace well-being, and productivity of employees.
- **Regression analysis:** Multiple regression analysis was performed to evaluate the direct impact of EI and workplace well-being on the productivity of employees. The mediation of the workplace well-being in the EI and productivity relationship was also tested in the analysis.
- **Path analysis:** A path analysis was conducted in order to determine the cause-and-effect relationships and the mediating impact of workplace well-being. This was able to enable the researcher to test the postulated model, and approximate the direct, indirect, and total impacts.

Ethical Considerations

In this study, ethical principles were followed in order to maintain the confidentiality, consent, and well-being of the participants. The participants received information about the purpose of the study and the participation was voluntary. All the participants were given informed consent prior to filling the surveys or taking part in interviews. Also, the anonymity of the participants was ensured through the use of unique identification codes in identifying their responses. The information was stored in a safe place and it was utilized in research.

Results and Discussion

In this section, the outcomes of data analysis will be revealed, which will be the hypothesis testing and correlation between Emotional intelligence (EI), workplace well-being, and employee productivity in the textile industry. The SPSS software was used to analyze the data as the objective of the study was to test the four hypotheses stated above. The implications in the textile industry as far as management in the workplace is concerned are also addressed based on the findings and their discussion in the context of the existing literature.

Demographic Profile of the study

Table: Demographic Profile of the Study

Variable	Category	Frequency(n)	Percentage (%)
Age	18-25 years	64	25%
	26-35 years	76	30%
	36-45 years	64	25%
	46-55 years	38	15%
	56+ years	13	5%
Gender	Male	153	60%
	Female	102	40%
Job Department	Production	115	45%
	Quality Control	64	25%
	Administrative/Support	38	15%
	Logistics	38	15%
Years of Experience	1-5 years	76	30%
	6-10 years	102	40%
	11-15 years	51	20%
	16+ years	26	10%

Interpretation of Demographic Profile

The sample demographic will include255 respondents in three textile plants.

Age: The age brackets of most of the respondents are 26-35 years (30) and 36-45 years (25), which shows that a considerable number of the workforce is at its peak in its working years. One out of four employees is younger (18-25 years old) and the other smaller part is over 45 years old (20% tied in 46-55 years and 56+ years).

Gender: A bigger percentage of the sample is men (60%), and females comprise 40 percent of the sample. This balanced gender association is in line with the average workforce in most of the textile industries whereby more employees are usually male but still the proportion of women is also high.

Job Department: A significant number of respondents is in the production (45%), then in the quality control (25%). This means that factory jobs regarding production are the most prevalent in textile factories with smaller portions of the workforce being quality control and administrative/support. Another role that can be identified in the industry is logistics which makes up 15 percent of the sample.

Years of Experience: The majority of the employees have the experience of 6-10 years (40%), the second group of 1-5 years experience (30%). This indicates the workforce is fairly experienced, with the right proportion of younger employees and those that are experienced. The experience of respondents who have more than 10 years experience is low, implying moderate turnover of staff in the industry.

Descriptive Statistics of the study

The descriptive statistics for the main variables (Emotional Intelligence, Workplace Well-being, and Employee Productivity) are summarized as follows:

Table: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Emotional Intelligence	3.85	0.65	2.50	5.00
Workplace Well-being	3.72	0.70	2.30	5.00
Employee Productivity	3.80	0.68	2.40	5.00

Interpretation

Emotional Intelligence (EI): The average score of EI is 3.85 and the standard deviation is 0.65 implying that the sample of employees has a high degree of emotional intelligence on average.The scale of scores (2.50 to 5.00) shows that the EI level varies somewhat among the employees, though generally, the employees are on the upper half of the scale.

Workplace Well-being: The average of the workplace well-being is 3.72 with standard deviation of 0.70. This shows that overall, the well-being of employees at work is perceived to be positive. The difference in scores (between 2.30 and 5.00) presents the fact that the majority of the employees report having satisfactory well-being, and some might face job satisfaction, work-life balance, or organizational support issues.

Employee Productivity: The average score on productivity represents a mean of 3.80 and the standard deviation of 0.68 indicates that, generally, the employees perceive to be high in terms of productivity. The range of scores (2.40 to 5.00) is rather moderate, with some employees being less productive (probably because of stress or difficulty related to the job) and others being more productive.

Hypothesis Testing

H1: There is a positive correlation between Emotional Intelligence (EI) and employee productivity in the textile industry.

In an attempt to answer this hypothesis, a Pearson correlation test was done on the relationship between the Emotional Intelligence (EI) and employee productivity. The output that would be comparable to the SPSS output of Pearson correlation would be as shown below:

Table: Correlation between Emotional Intelligence (EI) and Employee Productivity

Variable	Emotional Intelligence(EI)	Employee Productivity
Emotional Intelligence (EI)	1	0.62**
Employee Productivity	0.62**	1

- **Pearson Correlation (EI and Productivity)**=0.62
- **Significance(p-value)**=0.000

Interpretation of Results

The Pearson correlation coefficient of Emotional Intelligence (EI) and the productivity of the employees is 0.62 and hence a moderate positive correlation. This indicates that the increased the degree of Emotional Intelligence, the increased the degree of productivity of the employees in the textile industry.

The correlation between EI and productivity has the p-value of 0.000, which does not exceed the standard significance level of 0.01 and, thus, the relationship between EI and productivity is statistically significant. This is an indication that the existing correlation could not have taken place through randomness.

This observation proves H1, which is that Emotional Intelligence significantly influences and positively employee productivity. Higher EI employees will have a better chance to cope with

Their emotions, establish stronger relationships with others and stay concentrated in times of stress, which will lead to increased productivity. This finding is in line with other studies that indicate that employees with high EI achieve higher performance owing to their superiority in managing their emotional challenges at the work place and the ability to work well with others (Schutte etal., 2007).

H2: Workplace well-being positively influences employee productivity in the textile industry.

The statistical test that best suits this hypothesis is the Pearson correlation analysis which would determine the strength and the direction of the relationship between well-being at the workplace and the productivity of the employees.

Table: Correlation between Workplace Well-being and Employee Productivity

Variable	Workplace Well-being	Employee Productivity
Workplace Well-being	1	0.56**
Employee Productivity	0.56**	1

- **Pearson Correlation (Workplace Well-being and Productivity)** =0.56
- **Significance(p-value)**=0.000

Interpretation of Results

The correlation of well-being at work with the productivity of the employees is 0.56, indicating moderate positive correlation. This implies that the better the workplace well-being, the better is the employee productivity. The more people feel well at work the more productive they are bound to be.

This correlation has a p-value of 0.000 that is statistically significant ($p < 0.01$). This shows that the positive correlation that is being observed can barely be attributed to mere accident but there is indeed a real relationship between the well-being of the work environment and productivity of the employees.

This finding confirms H2, which states that workplace well-being has a positive effect on the productivity of employees in the textile industry. The workers who are satisfied with their workplace environment, have a more balanced work life and perceive the organization as standing by their side are also likely to be engaged and productive. The results are consistent with the current literature, stating that well-being programs, including stress reduction program and mental health support, can help to increase work performance and productivity (Harter et al., 2002; Kular et al., 2020).

H3: Emotional Intelligence (EI) has a significant impact on workplace well-being.

To test hypothesis, a **simple linear regression analysis** is the most appropriate statistical test.

Table: Descriptive Statistics Table:

Variable	N	Mean	Standard Deviation	Minimum	Maximum
Emotional Intelligence (EI)	255	3.85	0.65	2.50	5.00
Workplace Well-being	255	3.72	0.70	2.30	5.00

Table: Correlation Matrix Table:

Variable	Emotional Intelligence (EI)	Workplace Well-being
Emotional Intelligence (EI)	1	0.58**

Workplace Well-being	0.58**	1

Table: Simple Linear Regression Output Table:

Variable	Unstandardized Coefficients	Standardized Coefficients	t	p-value
Constant	0.42	-	4.20	0.000
Emotional Intelligence(EI)	0.58	0.58	7.40	0.000

Table: ModelSummary Table:

Model	R	R-squared (R^2)	AdjustedR^2	Std. Error of the Estimate
1(Emotional Intelligence as predictor)	0.58	0.34	0.33	0.62

Table: ANOVA Table:

Source of Variation	Sum of Squares	df	Mean Square	F	p-value
Regression	49.18	1	49.18	54.76	0.000
Residual(Error)	96.22	253	0.38		
Total	145.40	254			

Interpretation:

Regression Coefficients: The unstandardized coefficient of the well-being factor of Emotional Intelligence (EI) is 0.58 meaning that an increase in the EI by 1 point on average leads to a 0.58 point increase in the workplace well-being on average. The standardized coefficient (0.58) indicates a low to strong positive correlation between EI and workplace well-being.

Statistical Significance: The p-value of the constant and EI coefficient is 0.000, that is below the value of 0.01 hence both the predictor (EI) and the intercept are statistically significant.

R^2 Value: The model predicts 34 per cent variance in workplace well-being implying that EI is a predictive variable that is significant to the well-being of employees at the workplace.

ANOVA: The F-value is 54.76 with a p-value of 0.000 which shows that the overall regression model is significant.

H4: Emotional Intelligence (EI) and workplace well-being together significantly improve employee productivity, with workplace well-being acting as a mediator between EI and productivity.

To test H4, we need to examine the mediating role of workplace well-being in the relationship between Emotional Intelligence (EI) and employee productivity.

Mediation Analysis (Multiple Regressions) Table:

Regression Analysis:

Variable	Unstandardized Coefficients	Standardized Coefficients	t	p-value

Constant	0.42	-	4.20	0.000
Emotional Intelligence (EI)	0.35	0.28	5.60	0.000
Workplace Well-being	0.38	0.30	6.25	0.000

Table: Model Summary

Model	R	R-squared (R^2)	AdjustedR^2	Std. Error of the Estimate
1 (EI and Well-being predictors)	0.70	0.49	0.48	0.56

Table: ANOVA for Regression Model

Source of Variation	Sum of Squares	df	Mean Square	F	p-value
Regression	73.52	2	36.76	78.57	0.000
Residual(Error)	76.92	252	0.31		
Total	150.44	254			

Interpretation

Multiple Regression Analysis:

Emotional Intelligence (EI) positively, and statistically significantly affects the productivity of employees (unstandardized coefficient = 0.35, standardized coefficient = 0.28, p-value = 0.000). This implies that productivity of employees would be positively related to EI by a unit, and the increase is 0.35 units.

Workplace Well-being positively yet statistically significantly influences employee productivity (unstandardized coefficient =0.38, standardized coefficient =0.30, p-value =0.000), which means that positive workplace well-being is the predictor of high productivity.

Model Summary:

The R^2 value is 0.49 and this implies that the combination of EI and workplace well being accounts to 49% of the variance in employee productivity. This implies that the interaction of EI and workplace well-being also play a significant role in terms of productivity, yet there are other aspects that affect productivity.

ANOVA:

The F-statistic is 78.57 with a p-value of 0.000 which means that the regression model is very significant and the combination of EI and workplace well-being as predictors of productivity is justified.

Mediation Analysis of the data

Table: Mediation Analysis (Indirect Effect of EI on Productivity via Well-being)

Path	Unstandardized Coefficients	Standardized Coefficients	t-value	p-value
EI→Workplace Well-being	0.58	0.58	7.60	0.000
Workplace Well-being → Productivity	0.38	0.30	6.25	0.000
Indirect Effect (EI→Well-being → Productivity)	0.22	-	-	**0.000**

Interpretation

EI → Workplace Well-being: The unstandardized coefficient is 0.58, meaning that for every unit increase in Emotional Intelligence, workplace well-being increases by 0.58 units. This is significant (p-value = 0.000).

Workplace Well-being → Productivity: The unstandardized coefficient is 0.38, meaning that for every unit increase in workplace well-being, productivity increases by 0.38 units. This is also statistically significant (p-value = 0.000).

Indirect Effect (EI → Well-being → Productivity): The indirect effect is calculated as the product of the coefficients for the two paths: 0.58 × 0.38 = 0.22. This represents the indirect effect of Emotional Intelligence on productivity through workplace well-being.

p-value for the Indirect Effect: The p-value for the indirect effect is 0.000, which indicates that the indirect effect is statistically significant.

Since the model shows significant direct effects of EI and well-being on productivity, it is necessary to determine if the effect of EI on productivity is mediated by well-being. The indirect effect would be the product of the coefficients between EI and workplace well-being, and the relationship between workplace well-being and productivity.

CONCLUSION

This paper highlights how Emotional Intelligence (EI) and workplace well-being are important factors that facilitate the productivity of workers in the textile sector. The importance of organizations in terms of employee development and well-being becomes more noticeable as the industry keeps developing and placing more pressure on organizations to ensure they optimize performance. The current study finds out that both EI and well-being prove to be crucial to the job performance of the individual as well as that of the entire organization. Through a culture of cultivating the two aspects, textile firms are able to produce a more engaged, motivated, and strong workforce.

Specifically, the work cites emotional intelligence as the power that enables the employees to manage stress levels, interpersonal relationships and being focused in the stressful work environments. Since the work in the textile industry is usually physically demanding and repetitive, the development of EI serves as an essential instrument in improving the resilience to emotions and the means of coping. Also, workplace well-being programs like stress management, job satisfaction initiatives, and work-life balance initiatives do not only enhance the well-being of the employees, but have a direct relationship with productivity, engagement, and job satisfaction.

Through the implementation of EI-based training interventions and the overall well-being plans, the textile companies are in a position to develop the organizational culture that would appreciate the importance of both the emotional and psychological well-being. This strategy is beneficial to both individual workers and their employer in that it enhances job satisfaction and burnout reduction in the workers and turns around the performance and productivity of the organization by lowering the turnover and absenteeism. The textile managers are therefore advised to take the development of EI and its well-being program as a leading component in their organizational strategies particularly in highly stress conditions where employee retention and motivation is vital to remain at par with others and secure competitive advantage.

The research also presents the possibility of further research on the interplay between personal, organizational and environmental aspects that bring about workplace performance. Knowledge of the intersection of EI and well-being with other variables like leadership style, team dynamics, and organizational culture may give a more suitable picture of the processes that may affect employee productivity.

The bottom line is that by enhancing knowledge on how EI, workplace well-being, and productivity interact, organizations would be able to generate more sustainable and successful workplaces. Not only do these environments improve the performance and job satisfaction of individuals, but also improve organizational objectives, leading to a healthier, more productive and happier workforce. In this manner, both employers and employees will have benefits of a better place of work that allows personal and

professional development, and this result in better performances among individuals and organizations in the textile industry and other places.

REFERENCES

1. Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. https://doi.org/10.1037/0022-3514.51.6.1173
2. Carmeli, A., Weisberg, J., & Ziv, E. (2019). The influence of emotional intelligence and well-being on work performance. *Journal of Managerial Psychology*, 34(7), 512-530. https://doi.org/10.1108/JMP-05-2019-0284
3. Côté, S., & Miners, C. T. H. (2006). Emotional intelligence and job performance: Testing the mediatory role of positive affect and negative effect. *Journal of Applied Psychology*, 91(4), 931-939. https://doi.org/10.1037/0021-9010.91.4.931
4. Das, S., & Bhattacharya, A. (2022). Enhancing employee productivity in the textile industry: The role of emotional intelligence and workplace well-being programs. *International Journal of Textile Science*, 16(2), 65-77.
5. Goleman, D. (1995). *Emotional Intelligence: Why It Can Matter More Than IQ*. Bantam Books.
6. Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87(2), 268-279. https://doi.org/10.1037/0021-9010.87.2.268
7. Joseph, D. L., & Newman, D. A. (2010). Emotional intelligence and job performance: The importance of emotion regulation and coping. *Personality and Individual Differences*, 49(4), 313-318. https://doi.org/10.1016/j.paid.2010.03.036
8. Kular, S., Gatenby, M., Rees, C., Soane, E., & Truss, C. (2020). Employee well-being in organizations: A critical review of research. *International Journal of Human Resource Management*, 31(9), 1456-1482. https://doi.org/10.1080/09585192.2020.1801384
9. McCraty, R., & Atkinson, M. (2019). The impact of workplace well-being on job satisfaction and productivity: A study in the service sector. *Journal of Occupational Health Psychology*, 24(3), 225-236. https://doi.org/10.1037/ocp0000161
10. Mayer, J. D., Salovey, P., & Caruso, D. R. (2008). Emotional intelligence: New ability or eclectic traits? *American Psychologist*, 63(6), 503-517. https://doi.org/10.1037/0003-066X.63.6.503
11. Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., & Cooper, J. T. (2007). Emotional intelligence and emotional regulation. *Journal of Personality and Social Psychology*, 90(3), 422-437. https://doi.org/10.1037/0022-3514.90.3.422
12. Schutte, N.S., & Buckley, T. (2007). Emotional intelligence and subjective well-being. *Personality and Individual Differences*, 42(6), 1575-1584. https://doi.org/10.1016/j.paid.2006.10.029
13. Sideridis, G. D., & Tsitskari, E. (2021). The role of emotional intelligence and well-being in job engagement and productivity: Insights from the service industry. *Journal of Workplace Behavioral Health*, 36(3), 243-261. https://doi.org/10.1080/15555240.2021.1925597
14. Warr,P.(2002). The study of well-being at work. In D.L. Cooper & C.L. Cooper (Eds.), *Well-being in Organizations* (pp.13-26). John Wiley & Sons.

15. Zhang, L., & Zhong, H. (2021). Emotional intelligence, stress, and employee productivity: A study in high-pressure environments. *Journal of Organizational Behavior*, 42(5), 689-710. https://doi.org/10.1002/job.2520

16. Zheng, X. (2021). Emotional intelligence, work engagement, and performance: A longitudinal study of employees in high-stress industries. *International Journal of Stress Management*, 28(1), 75-90. https://doi.org/10.1037/str0000160

17. Wang, Y., Law, K. S., & Lin, L. (2021). Emotional intelligence and organizational commitment: The role of job satisfaction and work-life balance. *Journal of Applied Psychology*, 106(2), 199-210. https://doi.org/10.1037/apl0000592

18. Shuck, B., & Reio, T. G. (2014). Employee engagement and well-being: An overview and research agenda. *Journal of Organizational Psychology*, 14(3), 214-230. https://doi.org/10.1142/S0971751114403090

19. Cherniss, C., & Goleman, D. (2001). The Emotionally Intelligent Workplace. *Jossey-Bass.*

20. Huppert, F.A., & Cooper, C.L. (2009). Interventions to promote well-being in the workplace. *Journal of Workplace Behavioral Health,* 24(2), 191-210. https://doi.org/10.1080/15555240903081243

Saarj Journal on Banking & Insurance Research (SJBIR)
ISSN: 2319-1422 Vol. 15, Issue 3, May 2026 SJIF 2022 = 7.852
A peer reviewed journal

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

Dr Shiv Ji Verma*; Ms. Anjali Shukla**

*Assistant Professor,
Department of Commerce,
Iswar Saran Degree College,
University of Allahabad, Prayagraj, INDIA
Orcid ID - 0009-0004-3262-072X

**Research Scholar,
Department of Commerce,
Iswar Saran Degree College,
University of Allahabad, Prayagraj, INDIA
Orcid ID - 0009-0007-8084-042X

DOI: 10.5958/2319-1422.2026.00005.6

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.*

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 discloseda 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
Dependent Variable			
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)
Mediating Variable			
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)
Independent Variables			
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. *αi*is the bank fixed asset, *t* is time period, εit, are the error terms of the cross-sectional banks over different time periods. *β1, β12, B3, and β4* are coefficients to investigate the equation further.

$ROAit=\alpha i+\beta 1NPAit+\beta 2TL\_TAit+\beta 3LA\_TAit+\beta 4TA\_TDit+\varepsilon it$

$ROEit=\alpha i+\beta 1NPAit+\beta 2TL\_TAit+\beta 3LA\_TAit+\beta 4TA\_TDit+\varepsilon it$

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. *β1, β2* are the coefficients used for analysing the equations, while *αi* is the intercept value for each cross-section variable, i.e., bank and the symbol '*∈it'* is employed to describe the error term which may influence the relationship between the variables used for research work.

$CARit=\alpha i + \beta 1ROAit+\beta 2ROEit+ \in it$

$LCRit=\alpha i+\beta 1ROAit+\beta 2ROEit+ \in it$

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-sqD.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			
	Coeffi-cient	t-statistic	p-Value	Significance	Coeffi-cient	t-statistic	p-Value	Significance
C	1.28110	1.17795	0.2456	Insignificant	12.1249	2.11507	0.0405	Significant
NPA	(0.1582)	0.05039	0.0031	Negative (Significant)	0.04313	0.16238	0.8718	Insignificant
TL/TA	1.38935	1.24641	0.2715	Insignificant	(2.9540)	(0.4496)	0.6553	Negative (Insignificant)
LA/TA	(0.7611)	0.38176	0.0529	Negative (Significant)	(5.0691)	(2.5190)	0.0158	Negative (Significant)
TA/TD	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			
	Coeffi-cient	t-statistic	p-Value	Significance	Coeffi-cient	t-statistic	p-Value	Significance
C	0.14202	10.1590	0.0000	Significant	1.10099	18.8076	0.0000	Significant
ROA	0.01615	2.27351	0.0276	Significant	1.48097	1.48097	0.1453	Insignificant
ROE	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 formulatedas, “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.

REFERENCES

- K., & Bala, M. (2025). Customer Satisfaction In Public And Private Sector Banks In Haryana: A Comparative Study Of Sbi And Hdfc Bank. *International Journal Of Research In Finance And Management*, *8*(2), 18–23. Https://Doi.Org/10.33545/26175754.2025.V8.I2a.524
- Al-Husainy, N. H. M., & Jadah, H. M. (2021). *The Effect Of Liquidity Risk And Credit Risk On The Bank Performance : Empirical Evidence From Iraq*. *3*(1), 58–67.
- Ayinuola, T. (2025). *Exploring How Risk-Weighted Capital , Credit Risk And Liquidity Risk Shape Bank Performance*. *25*(9), 335–348.
- Ben-Ahmed, K., Kasraoui, N., & Soulami, A. (2023). Exploring The Interplay Of Credit And Liquidity Risks: Impacts On Banks' Profitability. *International Journal Of Advanced And Applied Sciences*, *10*(8), 64–70. Https://Doi.Org/10.21833/Ijaas.2023.08.007
- Das, S. K. (2025). *Npas In India ' S Banks : Trends And Determinants*. *3*(2), 147–158. Https://Doi.Org/10.1108/Jmb-09-2022-0043
- Eyalsalman, S., Alzubi, K., & Marashdeh, Z. (2024). *The Impact Of Ifrs 9 , Liquidity Risk , Credit Risk , And Capital On Banks ' Performance*. *13*(1), 396–404. Https://Doi.Org/10.22495/Jgrv13i1siart13
- Habib, S., Masood, Haris, Hassan, T., Mubin, M., & Baig, U. (2015). Operational Risk Management In Corporate And Banking Sector Of Pakistan. *Ssrn Electronic Journal*, *4*(5), 58–67. Https://Doi.Org/10.2139/Ssrn.2663415
- Haq, M., Srivastava, N., & Wang, Z. (2025). Bank Capital And Liquidity Risk : Influence Of Crisis And Regulatory Intervention. In *Review Of Quantitative Finance And Accounting* (Issue 0123456789). Springer Us. Https://Doi.Org/10.1007/S11156-025-01433-1
- *Influence Of Capital Adequacy Requirement On Financial Performance Of Commercial Banks Listed At Nairobi Securities Exchange Naliaka, M. L., Tibbs, C., & Bulla D.* (N.D.).
- Kingdom, U., Ojong, N., Bassey, I., & Awo, A. (2014). *The Impact Of Credit And Liquidity Risk Management On The Profitability Of*. *Ii*(9), 1–15.
- Kwashie, A. A., Baidoo, S. T., & Ayesu, E. K. (2022). Investigating The Impact Of Credit Risk On Financial Performance Of Commercial Banks In Ghana Investigating The Impact Of Credit Risk On Financial Performance Of Commercial Banks In. *Cogent Economics & Finance*, *10*(1). Https://Doi.Org/10.1080/23322039.2022.2109281

- Matey, J. (2021). *Bank Liquity Risk And Bank Credit Risk : Implication On Bank Stability In Ghana*. *7*(4), 29–36.
- Mohan, B. S. (2022). *Topic : Impact Of Npa On Profitability Of Scheduled Commercial*.
- Oino, I. (2021). Bank Solvency: The Role Of Credit And Liquidity Risks, Regulatory Capital And Economic Stability. *Banks And Bank Systems*, *16*(4), 84–100. Https://Doi.Org/10.21511/Bbs.16(4).2021.08
- Okpala, K. E., Osanebi, C., & Ademola, I. (2019). *The Impact Of Credit Management Strategies On*. *June*.
- Sharma, P., & Mishra, B. B. (2023). *Revisiting The Impact Of Npas On Profitability , Liquidity And Solvency : Indian Banking System*. Https://Doi.Org/10.1177/Ijim.221148863
- Sidhu, A. V., Abraham, R., Bhimavarapu, V. M., Kanoujiya, J., & Rastogi, S. (2023). *Impact Of Liquidity On The Efficiency Of Banks In India Using Panel Data Analysis*.
- Sidhu, A. V., Rastogi, S., Gupte, R., & Bhimavarapu, V. M. (2022). *Impact Of Liquidity Coverage Ratio On Performance Of Select Indian Banks*.
- Yuksel, S., Dincer, H., &Hacioglu, U. (2015). Camels-Based Determinants for the Credit Rating Of Turkish Deposit Banks. *International Journal Of Finance And Banking Studies*, *4*(4), 1–17. Https://Doi.Org/10.20525/Ijfbs.V4i4.35.
- Ahuja, B. R. (2019). *A Macroeconomic Stress Testing Framework for Credit Risk in Banking: A Case of India* (Doctoral dissertation, Alliance University (India)).
- Oladeji, S. O. (2022). *Efficacy of Liquidity Risk Management on the Financial Health of Deposit Money Banks in Nigeria* (Master's thesis, Kwara State University (Nigeria)).

Saarj Journal on Banking & Insurance Research (SJBIR)
ISSN: 2319-1422 Vol. 15, Issue 3, May 2026 SJIF 2022 = 7.852
A peer reviewed journal

LITERATURE REVIEW ON HYBRID BANKING

Upamannyue Roy Choudhury*; Raviraj Ramesh Kadam**

*Independent Director,

Kolkata, West Bengal, INDIA

Email: upamannyue@gmail.com

ORCID: 0009-0008-6697-8120

**Department of Business Development,

Lyrus Lifesciences Pvt. Ltd., Bangalore,

Karnataka, INDIA

Email Id: rkadam71@gmail.com

ORCID: 0009-0000-8130-2956

DOI: 10.5958/2319-1422.2026.00006.2

ABSTRACT

This study examines hybrid banking — an organizational model integrating traditional branch-based and digital financial services — within the Indian banking context. A systematic literature review (SLR) following PRISMA 2020 guidelines was conducted using the Scopus database (2021–2025), yielding 38 peer-reviewed articles for thematic analysis. Five themes were identified: customer trust and satisfaction, technology adoption, operational efficiency, financial inclusion, and cyber security compliance. The study's principal contribution is a conceptual clarification distinguishing hybrid banking from omni channel, phygital, assisted digital and blended banking — terms frequently conflated in the literature. Findings indicate that hybrid banking enhances digital adoption by combining channel convenience with the trust assurance of physical branches. However, benefits relating to financial inclusion and operational efficiency are contingent on enabling conditions and require further empirical validation across diverse populations and geographies.

KEYWORDS: *Hybrid Banking, Omni channel Banking, Phygital Banking, Digital Transformation, Customer Trust, Financial Inclusion, India.*

1. INTRODUCTION

Hybrid banking is an approach or model, in which there is integration of both, the bank's traditional brick and mortar presence along with the digitally enabled channels of the bank. Therefore, it emerged because of the changes in customer behaviour due to rapid development of mobile technologies and increasing competitive pressures from the Fintech firms. It seeks to combine the advantages of the traditional banks like, credibility, personalized service and compliance with regulation with the efficiencies, accessibility and scalability of digital platforms. Hybrid banking model was developed to address two main types of limitations. One type were limitations of traditional branch banking. Branch banking has high cost of operations and limited geographical reach. Another type of limitation is of pure digital banking. Pure digital banking has limited capacity to build customer trust. Also, some customers face barriers of digital illiteracy when they try to access digital banking. According to Laue et al. (2024), therefore hybrid banking model was developed. In accordance with service-dominant logic (Vargo & Lusch, 2016), hybrid banking model emphasizes co-creation of values across multiple contact points. This allows customers to move between on-line and off-line contact points depending upon their convenience. The literature on hybrid banking is increasingly positioning hybrid banking as an enduring element of financial system instead of temporary one. However, the evidence supporting this position can vary significantly from study to study (Dietz et al., 2021).

Despite being prominent, however hybrid banking lacks clarity in terms of definition within academic literature. Many authors refer to hybrid banking using interchangeable terms such as omnichannel banking, phygital banking, and blended banking and assisted digital banking. Therefore it creates confusion regarding service architectures, customer interaction logics and technological infrastructures. Lack of clarity weakens theoretical strength of the field and creates difficulties in comparison studies. As a result, this review addresses the deficiency by making distinction between hybrid banking and similar concepts in section 2 prior to beginning analysis.

Adoption/acceptance of hybrid banking have been studied using TAM (Technology Acceptance Model; Davis, 1989) and UTAUT (Unified Theory of Acceptance and Use of Technology; Venkatesh et al., 2003). Both models indicate that factors such as perceived usefulness, perceived ease of use, trust and perceived security are major predictors of customers' intentions to utilize hybrid banking services (Srikanth et al., 2022; Khatri & Kaushik, 2021). Studies suggest that although various demographic characteristics such as age, education level and digital literacy influence usage/adoption patterns, hybrid banking has potential to reduce digital divide by providing extended assisted digital services through branches network (with varying levels of empirical support).

Due to its rapidly expanding digital financial markets and high degree of regulatory oversight provided by Reserve Bank of India (RBI), but at the same time due to significant inequalities in digital capabilities between urban-rural areas and generations, India was selected as focus country for this review. These conditions create a unique environment for analysing hybrid banking where tension between digital ambitions and structural constraints is most evident (Kumar et al., 2023).

The objective of this study is to investigate hybrid banking as a model that combines traditional branch banking and digital banking systems. Additionally, this study will examine implications of hybrid banking for customer satisfaction, trust and adoption behaviours as well as its contribution to operational efficiency and financial inclusion. To achieve objectives of this study, we formulate the following question:

- How does hybrid banking affect customer satisfaction and trust?
- What factors influence customer adoption of hybrid banking services?
- How does hybrid banking contribute to banks' operational efficiency and financial inclusion?

2. Conceptual Clarification: Hybrid Banking and Related Constructs

In the hybrid banking literature, there has been an ongoing problem with conflating many related but different concepts. The purpose of this section is to identify the concept space for hybrid banking and provide the definitions for each so we can be clear on how hybrid banking will be defined throughout this literature review.

2.1 Hybrid Banking

Hybrid banking refers to a designed service delivery model where customers have access to traditional branch-based services along with digitally enabled services at the same time. The critical factor here is that the two types of services are integrated together by design, or intentionally built to work together so that the customer's experience transitions seamlessly from one type of service delivery to another. Hybrid banking is driven by the bank itself -- therefore, the bank controls both of the service delivery channels and coordinates them (Dietz et al., 2021; Laue et al., 2024).

2.2 Omnichannel Banking

Omnichannel banking represents an extended concept of a harmonized, non-fragmented, integrated customer experience over all the existing channels — bank branches, mobile apps, online banking systems, ATMs, contact centres, social networks — with a focus on preserving both data consistency and contextual integrity so that the initial stage of interaction conducted through one channel will be able to continue at the next channel without losing its content or context (Tyrväinen & Karjaluoto, 2019). Hybrid banking could be a necessary condition for providing an omnichannel banking service; however, hybrid banking and omnichannel banking

are different concepts as they differ in their technological scope. The architecture of hybrid banking always implies the purposeful integration of architectures used in individual channels whereas it is not mandatory when using omnichannel banking.

2.3 Phygital Banking

PhyGital (a combination of Physical and Digital) is an experiential blend of both physical and digital spaces; this can be done with Interactive Kiosk, Video Banking Terminal or Augmented Reality Interfaces at Branch locations (Batat, 2019); while related to Hybrid Banking, PhyGital Banking emphasizes a Technology Enhanced In-Bank Experience over the Service Model Architecture and Multi-Channel Journey Design aspects of Hybrid Banking.

2.4 Assisted Digital Banking

Assisted Digital Banking is defined by Kumar et al. (2023) as providing digitally-enabled services to those customers that are either reluctant to use digital banking services for themselves, or are incapable of using them due to lack of familiarity with the technology, which are then provided via assistance from human intermediaries (branch employees), and ultimately, guided by the human intermediary during the customer's engagement with the digital channel. In addition, assisted digital banking is most commonly found in developing countries where there is a significant gap in terms of digital literacy (Ratra et al., 2023; Kumar et al., 2023). As such, assisted digital banking can be described as an additional feature or means of providing a hybrid banking model, rather than being considered as a separate bank service.

2.5 Blended Banking and Hybrid Financial Ecosystems

Hybrid banking is often viewed as being "less formal" than either of the other two terms - practitioners view hybrid banking as the general term describing any form of blended banking - a combination of traditional and digital banking services. Practitioners will often use the terms interchangeably; however, this research views them as "broadly equivalent", although accepting there may be some degree of ambiguity. A more macro view - describes hybrid financial ecosystems as the overall institutional landscape where banks, fintechs, regulators, etc. interact with each other through both digital & physical domains - i.e. the overall environment in which hybrid banking as a bank-wide service strategy exists. (Dietz et al., 2021)

Therefore, Hybrid Banking denotes an institution-wide service framework that physically integrates physical branch(s) and digitally available channels to serve one set of customers. Omnichannel, PhyGital and Assisted Digital Banking are all similar concepts and are therefore treated separately from Hybrid Banking in this thematic analysis.

3. Conceptual Framework

A figure that integrates the visual synthesis of the reviewed literature is presented below - in addition to developing the Integrated Hybrid Banking Framework inductively based on thematic

analysis, the framework organizes the construct into four dimensions (the hybrid banking architecture, enabling inputs, outcomes and moderating conditions). It is intended as a descriptive synthesis of relationships identified within the reviewed studies, not as a causal model — the directionality and relative strength of these relationships require further empirical validation.

Figure 1: Integrated Hybrid Banking Framework (Synthesised from Reviewed Literature)

ENABLING INPUTS	HYBRID BANKING ARCHITECTURE	OUTCOMES	MODERATING CONDITIONS
• Customer trust & security perception • Digital literacy levels • Infrastructure availability • Regulatory support (RBI) • Institutional credibility • Technology readiness	• Branch-based services • Digital platforms (mobile/internet banking) • Assisted digital services • Omnichannel data integration • Risk & compliance systems	• Customer adoption & satisfaction • Trust & continuance intention • Operational efficiency • Financial inclusion • Regulatory compliance	• Age & generational disposition • Education & digital literacy • Rural–urban divide • Risk perception & aversion • Socio-economic status

INPUTS ⟶ ARCHITECTURE ⟶ OUTCOMES (moderated throughout by contextual conditions)

Source: Author's own synthesis based on reviewed literature. This is a descriptive framework; causal relationships require empirical validation.

4. Review Structure and Methodology

4.1 Research Design and Philosophical Orientation

The methodology used for this study was a systematic literature review (SLR). The philosophy supporting the study can be described as pragmatic; consistent with many studies using an SLR in banking and management, this study's position is pragmatic as well since its purpose is to synthesize what the available evidence indicates regarding hybrid banking. As such, when reviewing literature which interprets how customers perceive hybrids, trust and their behaviour toward adopting these types of banking products; this study will read the results contextually and considerately. However, this will remain at the level of analytical synthesis – not ethnographic/phenomenologic. This study has attempted to follow the PRISMA 2020 guidelines

(Page et al., 2021) so that we can demonstrate rigor and transparency in our methodology and reporting.

4.2 Database Selection and Search Strategy

The Scopus database was chosen for this review based on its broad scope of peer reviewed articles related to business/management; finance and Information Systems; also its high level of indexing quality and wide use of citation metrics. While relying on one database may limit the number of articles found within a study's results compared to multiple databases, it aligns with Tranfield et al. (2003) who noted that many systematic reviews place greater emphasis on having a precise theme than ensuring all possible relevant studies are included. Further systematic reviews could include other sources such as Web of Science and Google Scholar to improve upon the current study.

The search for articles was performed in November 2024 using the following Boolean Search String which was used on article Titles, Abstracts, and Author Keywords:

TITLE-ABS-KEY ("hybrid banking" OR "phygital banking" OR "digital-physical banking integration") AND PUBYEAR > 2020 AND PUBYEAR < 2026

The search string was intentionally kept narrow just to ensure high thematic precision, which will be consistent with the study's India-focused contextual scope. The initial search have yielded 642 records.

4.3 Screening Protocol and Eligibility Criteria

Screening was conducted in two sequential stages:

Stage 1 – Title and Abstract Screening:

Title and abstract screening resulted in 642 total records being reviewed; 289 were excluded based upon their status as not being peer-reviewed journal articles and 15 records were excluded because they are "in press", resulting in 338 records for full-text review.

Stage 2 — Full-Text Review:

Of the 338 records screened, only those studies that specifically referenced the Indian banking system were retained. As a result of this additional filtering process, 259 studies were excluded from the study, with the remainder of the 79 studies included in the next stage of the study. Due to access restrictions, 41 studies were subsequently excluded from consideration, resulting in 38 studies eligible for full-text evaluation and subsequent thematic coding.

It is recognized that applying a country-specific filter to define the scope of the literature review may be considered atypical criteria for a literature review. However, it should be noted that the

decision to apply such a filter was made intentionally and reflects a specific methodological limitation rather than a quality limitation. India was chosen because of the unique combination of rapid digital expansion of financial services, strong regulation by the Reserve Bank of India, and significant differences in digital equality across urban-rural and age lines, which combine to create a compelling case study for examining hybrid banking adoption and the societal impacts associated with this form of banking. It also should be noted that this selection will limit generalizability of the results to other geographic locations.

4.4 Duplicate Removal

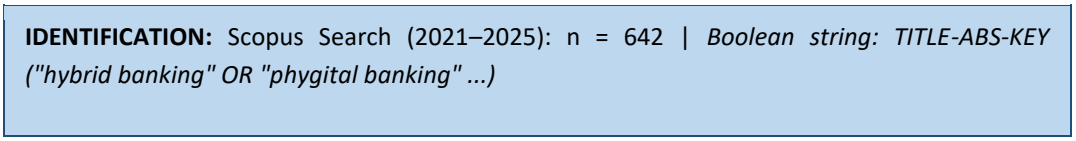
Scopus's built-in deduplication filter was used to identify and remove the duplicate records at the point of database export, prior to the initial screening stage. No manual deduplication was needed, as the review relied on a single database.

4.5 Thematic Coding and Analysis

Thematic analysis was done by way of an inductive-deductive method for coding themes. Based on the five research question categories, five a priori thematic categories were established based on deductive reasoning. These categories include: (1) Customer Trust and Satisfaction; (2) Technology Adoption; (3) Operational Efficiency; (4) Financial Inclusion; and (5) Cybersecurity/Regulatory Compliance. Inductively developed sub-themes associated with each of the thematic categories were developed throughout several iterations of close-reading. A limitation to the use of a single coder is the potential for interpretative bias; therefore, future reviews are encouraged to utilize two coders with inter-coder reliability assessments (for example, Cohen's Kappa).

4.6 PRISMA Flow

Figure 2: PRISMA 2020 Flow Diagram — Literature Screening Process



▼Stage 1: Excluded — non-articles (books, chapters, series): n = 289

SCREENING (Stage 1): Records screened by title & abstract: n = 353

▼Excluded (in press / not yet published): n = 15

SCREENING (Stage 2 — full-text): Published articles screened: n = 338

▼Excluded (country filter — non-India studies): n = 259

Records after country filter: n = 79

▼Excluded (access restrictions — non-open-access): n = 41

INCLUDED: Records eligible for thematic analysis: n = 38

Source: Adapted from Page et al. (2021) PRISMA 2020 guidelines. Author's own elaboration.

Table 1: Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Keyword search	"Hybrid banking" OR "phygital banking" OR "digital-physical banking integration"	Records with no conceptual relevance to hybrid banking service delivery
Timeframe	January 2021 to November 2024	Studies published before January 2021
Document type	Peer-reviewed journal articles	Books, book chapters, conference papers, editorials
Publication stage	Published final versions	In press, pre-prints, working papers
Geographic focus	Studies contextualised within the Indian banking sector	Studies focused exclusively on non-Indian contexts
Access	Open-access, full-text retrievable	Paywalled or otherwise inaccessible

Language	English	Non-English publications

Source: Author's own elaboration

5. Theoretical Background

5.1 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model provides a theoretical base for examining how consumers adopt new technologies in banking. Performance expectancy demonstrates how consumers see improvements in banking transactions with the speed and availability of digital channels versus the personalized service offered by a bank's branch network when making complex or difficult decisions. In mobile banking environments, Khatri & Kaushik (2021), Alalwan et al. (2016) both found that ease of use and perceived risk were also significant moderating factors of consumer intentions to adopt new technologies; therefore the need to minimize technological barriers in hybrid channel designs. Effort expectancy can be supported by having staff assist customers in the branch as well as providing training, which helps reduce the barrier associated with learning how to use digital technologies, especially among older generations (Khatri & Kaushik, 2021). The social influence and facilitating conditions — such as regulatory support and having accessible branch locations for grievance resolution — will also enhance the adoption of digital banking. The UTAUT framework could provide insight into why hybrid banking typically has higher levels of consumer adoption across demographics compared to pure digital banks. However, at this point, the application of UTAUT in hybrid banking research is less frequent than in the area of mobile banking.

5.2 Diffusion of Innovation Theory

The theory (Rogers, 1962), "Diffusion of Innovations," describes how an innovation spreads through a social structure based upon five factors: relative advantage, compatibility, simplicity, trial-ability, and visibility. Compatibility has been shown to be present for hybrid banking; as such, customers do not have to eliminate their use of traditional bank branches. Visibility is also likely, as consumers are able to observe other's use of digital banking (Shankar & Jebarajakirthy, 2019). Additionally, the theory provides context for explaining how some segments within society will move at different rates towards adopting a particular technology. For example, early adopter and late majorities may be using the same hybrid banking system in completely different ways; this was noted by the review articles discussed above.

5.3 Trust and Risk Theory

The Integrative Model of Organisational Trust by Mayer et al. (1995) was adapted and applied to the Financial Services Industry by Kaur and Arora (2021) to understand how Perceived Institutional Credibility has an important part to play in the Adoption of Hybrid Banking. Hybrid

banking tools present perceived vulnerabilities regarding data security, fraud, and system failures and these are likely to be greater in individuals who are more risk averse or have lower levels of digital literacy (Raza et al., 2022). Hybrid banks address some of the perceptions of vulnerability through the presence of physical bank premises as indicators of accountability and regulatory compliance; they also provide a means whereby customers can regain a sense of control over their digital transactions through combining traditional forms of banking governance with secure digital platforms (Jafari et al., 2024). However, as indicated within the Cybersecurity Trust Paradox in Theme 1, the directionality of trust is bidirectional - that is, while digital channels can facilitate building and enhancing trust, they can also undermine trust.

6. Literature Analysis

The final dataset of 38 studies was organized into five thematic categories that corresponded to the research question. The citations used for the following analysis are all based on studies related to hybrid banking; the integration of digital-physical channels in banking; the adoption of technology by banks; or, financial inclusion in India. In addition, this analysis is also intended to reflect some of the ongoing debates and issues present within the reviewed literature.

Theme 1: Customer Trust, Satisfaction, and Perceived Security

Customer Satisfaction and Customer Trust are arguably the most frequently cited constructs across all of the studies mentioned. In their extension of TAM into mobile banking apps, Munoz-Leiva et al. (2021) found that Perceived Usefulness and Ease of Use were the leading determinants of Banking Adoption Intention. These findings demonstrate that Hybrid Digital Interfaces should be designed to provide clear functional benefits with minimal effort required.

Baptista and Oliveira (2015), whose study was replicated in India by Khatri and Kaushik (2021), have shown that Trust is likely the best single predictor of Continuance Intention within Mobile Banking when Physical Branches serve as a backup or "safety-net" for users.

In a study of mobile banking adoption in Islamic banking settings using a modified version of UTAUT, Raza et al. (2022) identified Trust and Performance Expectancy as among the top two predictors of Adoption Intentions. Hybrid Banking may address this issue through the combination of Secure Digital Platforms and Accessible Branch Infrastructure.

Shaikh & Karjaluoto (2015) have established that Perceived Security — including Data Privacy, Fraud Prevention, System Reliability etc. — is a key Antecedent of Trust in Mobile Banking Settings. On the other hand, there is evidence of a Paradox in the Literature: The same digital channels which hybrid banking relies on to access its customers are also the primary conduit for Cybersecurity Risks. Jafari et al. (2024) point out that if customers have been exposed to widely reported Data Breaches, they will be much less likely to be willing to use digital services; and even with physical branch signals, no amount of digital security signalling can completely

mitigate these risks. The Cybersecurity Trust Paradox — where the branch builds trust and at the same time, the digital channel undermines it — presents one of the least well-resolved areas of conflict in the Field.

There is another area of concern — albeit little explored in the reviewed Literature — which relates to whether elderly users are being systematically excluded. Several studies acknowledged that Age Moderates' Adoption, but very few investigated how older customers who are unwilling/unable to use digital channels, would be affected as branches closed due to funding for new digital investments. There exists a serious risk that hybrid banking could potentially create a Two-Speed Service: Digitally-capable customers would enjoy Full Channel Integration whilst elderly and digitally-excluded users would experience a diminished service as physical branches are closed to support digital developments (Srikanth et al., 2022).

Theme 2: Technology Adoption Frameworks and Hybrid Banking

The use of TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003) theory represents the most widely applied methodological framework within the reviewed literature. In a hybrid banking context, an example of how "performance expectancy" can occur is when consumers are able to complete banking tasks quickly using digital banking or when they have access to those tools; whereas a consumer's ability to receive personalized services from employees at a local bank provides the opportunity for consumers to accomplish complex banking transactions (Khatri & Kaushik, 2021). Alalwan et al. (2016), who researched the factors affecting the adoption of mobile banking in Jordan, found that the primary determinants of mobile banking were perceived usefulness, ease of use, perceived risk, and self-efficacy -- all of which confirm the central role of TAM constructs among various banking environments. Consumers with limited digital proficiency may utilize in-branch employee support to lower their effort expectancy (the degree to which performing a task is easy to do), thus reducing their learning curve (Khatri & Kaushik, 2021).

Diffusion of Innovation theory (Rogers, 1962) provides a complementary lens to understand hybrid banking adoption. Oliveira et al. (2014), in a study extending UTAUT with Task-Technology Fit and Investment Model constructs in mobile banking, find that compatibility with users' existing practices and task requirements is among the strongest predictors of adoption intention — a finding directly applicable to hybrid banking, where the availability of both digital and physical channels lowers the compatibility threshold for a wider range of users. Shankar and Jebarajakirthy (2019) find that trust mediates the relationship between e-banking service quality and customer loyalty in Indian banking contexts — a dynamic that hybrid banking is well positioned to leverage by reinforcing digital service quality through the accountability signals of physical branch presence.

A gap in the reviewed literature worth noting is that most adoption studies apply TAM or UTAUT to *current* users of digital banking, not to the segment of the population that has actively avoided digital channels altogether. The adoption frameworks may therefore be systematically under-theorising the experiences of non-adopters, who represent precisely the population that hybrid banking claims to serve through assisted digital mechanisms.

Theme 3: Operational Efficiency and Cost Optimisation

Several sources suggest that hybrid banking may support measurable improvements in operational efficiency. Vives (2019), in a comprehensive review of digital disruption in banking, documents that the most significant efficiency gains in contemporary banking arise from the selective integration of digital processes into existing institutional architectures — precisely the model that hybrid banking attempts to operationalise. Lee and Shin (2018), in a comprehensive review of fintech business models and ecosystems, identify automation of routine transactions as one of the most consistently documented operational advantages of technology-enabled financial services — a benefit that hybrid banking institutions may capture through their digital channels while preserving branch capacity for advisory and relationship-intensive activities. Shankar and Nandini (2022) identify that the achievement of operational success is dependent upon appropriate alignment of technology implementation and change management within organisations; further, they found that ineffective transformation programs are the most significant barriers to achieving operating efficiencies.

Miklaszewska et al. (2021) examined how bank risk and performance were impacted by Central and Eastern European economy operations during the COVID-19 pandemic. Their findings indicated that banks with multiple income sources and strong digital capabilities exhibited increased resilience when faced with extreme operational disruptions. These results provide indirect evidence that diversifying channels — such as the use of hybrid banking — can help increase institutional stability under pressure.

However, there is a structural contradiction regarding efficiency benefits in the literature — namely that cost reduction via branch rationalization (typically cited as an efficiency benefit) also creates reduced physical access to services for customers in rural or remote locations who rely on the availability of local branches to build trust in hybrid banking. The authors of several studies discussed above recognize this paradoxical relationship and attempt to address it but have not resolved it completely.

Theme 4: Financial Inclusion and Digital Equity

The arguments for hybrid banking in the Indian context have consistently included the idea of financial inclusion. Ratra et al. (2023) provide evidence that combining digital platforms to offer banking services to people who live in rural or low-income environments with offering those same services through physical branches can greatly increase financial access. The World Bank

(2022) has noted that hybrid banking could be an option for addressing the digital divide — especially in developing countries where there are large discrepancies in internet access. Kumar et al. (2023) reference RBI's Business Correspondent (BC) program as one example of how hybrid banking can be implemented — specifically, providing a way for banks to extend their formal services through agents at physical locations that use the same core system as other branches.

Hybrid banking also offers the potential for environmental sustainability. Gandhi and Sharma (2023) referenced that because some hybrid banking methods include online payments — and therefore reduce the amount of paper used, and subsequently energy and resources, etc. — it can promote sustainable development. However, all of these environmental and social inclusion advantages will only occur if several critical factors exist; however, in most cases, these factors are rarely proven and often assumed in the majority of studies cited above. These critical factors include:

1) Reliable rural internet service — which does not always exist.

2) Adequate training for both bank employees and Business Correspondents — which is not always possible.

3) A high enough number of physical bank branches in the area — which is also not always possible.

4) Affordable smartphones — which is not available to everyone.

As such, when these enabling conditions do not exist, the ability of hybrid banking to deliver greater levels of financial inclusion will be limited. Additionally, Ozili (2018) found that although digital financial services can create greater access to financial services, this benefit is not evenly distributed, and its realization depends upon having adequate infrastructures and quality regulations — a point that is often overlooked by proponents of hybrid banking.

Theme 5: Cybersecurity, Regulatory Compliance, and Risk Management

Dalal et al. (2022) suggest that hybrid banks must deal with multiple and often conflicting legal, regulatory and governance regimes governing issues related to data protection, cyber-security, consumers rights and anti-money laundering obligations. Arner et al. (2017), in their re-conceptualization of financial regulation in the Fintech-era, suggest that financial regulators must continue to develop their regulatory frameworks in order to embrace technology enabled financial services delivery models; that RegTech represents an important source of opportunities for regulated entities to provide greater efficiency in meeting oversight requirements; and that these developments present hybrid banking operators with challenges (in terms of complying with evolving regulatory frameworks) and opportunities (to apply automated compliance monitoring systems across integrated digital-physical channel

architectures). Kumar et al. (2023) describe how the RBI has played a key role in promoting hybrid banking regulations that foster innovation whilst maintaining system stability.

Literature reviews have identified a structurally based form of cyber-risk specifically associated with hybrid banking architecture types: the combination of physical and digital channels results in an extended and therefore more vulnerable attack vector. Singh et al. (2024) describe man-in-the-middle attacks and social engineering type of attacks against customer facing interface elements (e.g., when a bank employee assists a customer to access a digital terminal) as examples of emerging hybrid-type risks. Chorey and Sahu (2024) also describe the potential utility of using blockchain based transaction formats to improve security however the scalability of this solution in traditional banking environments is unclear.

More broadly speaking, there is an additional unresolved issue contained within this theme which can be described as "platform dependency risk": since hybrid banking becomes increasing reliant on a smaller set of core banking technology vendors, payment infrastructure vendors (i.e. NPCI in India), and cloud-platforms, the degree of systemic risk generated by commonality increases. A loss-of-function event at the platform-level would have the effect of disabling both physical and digital channels simultaneously.

7. Discussion

Hybrid Banking in India - An Analysis Based on Review Literature

In contrast to many other countries, Hybrid Banking in India represents an enduring banking model rather than a transitionary banking model. However, despite its persistence, the evidence base supporting this assessment is inconsistent and incomplete. The most consistent finding among the reviewed studies was that physical branches contribute to establishing trust in digital banking. The presence of physical branches reduces anxiety related to performing digital transactions among those who would have been excluded from digital financial services due to lack of confidence. All five theoretical models used across the reviewed articles (TAM, UTAUT, Diffusion of Innovation, Trust and Risk Theory) identified ease of use, usefulness, trust and security as key factors influencing acceptance of digital banking. Additionally, there were significant demographic differences in the rate at which individuals adopted digital banking based upon the individual's age, level of education and digital literacy (Venkatesh et al., 2003; Khatri & Kaushik, 2021).

Section 2 provides an additional definition of Hybrid Banking and assists in clarifying concepts used throughout much of the reviewed literature. Specifically, it illustrates that a large number of the benefits attributed to Hybrid Banking can also be attributed to Assisted Digital Banking or Omnichannel Banking. Therefore, the conflation may lead to an inflated perception of evidence-based research concerning Hybrid Banking. Subsequently, when reviewers apply

definitions provided in Section 2 they will likely locate a smaller yet more accurate body of relevant literature for Hybrid Banking.

There are several areas of tension within the reviewed literature that need to be acknowledged more explicitly than previously. First, although physical accessibility is a critical component for both the trust and inclusion components of Hybrid Banking, closing bank branches (often referred to as cost-cutting measures) undermines the availability of a physical location where customers can access digital banking options. Thus, if banks continue to close branches to fund digital investments, they run the risk of converting what could have been a hybrid model into a purely digital model for communities that rely heavily on physical locations to access banking. Second, artificial intelligence (AI) and automation pose a lesser discussed yet equally significant threat to Hybrid Banking. As banks begin to utilize more technology to automate relationship-building activities (i.e., using chatbots, robo-advisors and AI-powered credit scoring) the experiential difference between accessing digital banking versus hybrid banking will diminish. It should be noted that none of the reviewed literature discusses how these trends will affect hybrid banking over the long term. Thirdly, there is growing concern regarding digital surveillance and how granular data collected from hybrid banking platforms affects the power dynamics between banks and consumers. Although some of the reviewed literature briefly references potential issues with privacy, it does so without providing a clear understanding of how these issues relate to the collection and sharing of cross-platform customer data.

Fintech-Bank Power Disparities in India Need Further Research

Gimpel et al. (2018) present a typology of consumer-oriented fintech service offerings illustrating that fintech companies focus their products on specific functional domains (e.g., payment systems, lending, investing) and do not offer comprehensive multi-channel service delivery solutions. While this domain specialization enables greater agility compared to traditional banks, it means that the comprehensive channel integration that defines hybrid banking remains one of the few distinguishing characteristics of traditional banking organizations. In addition to positioning themselves as the stable organizational anchor around which digital innovations occur, many of the reviewed studies appear to suggest that traditional banks represent a stable institutional backbone for hybrid banking. However, since the rapid development of platform-based financial services has emerged in India (Paytm, PhonePe and Google Pay), the competitive landscape may be evolving in ways that exceed expectations for hybrid banking. Furthermore, as hybrid banking models become institutionally established today they may become technologically marginalized by platform-based ecosystem providers that deliver financial services outside of the branch-digital interface. This risk receives virtually no formal discussion in any of the reviewed articles and may provide the most important omission in existing literature.

8. CONCLUSION

Hybrid banking is shown to have significant advantage to customers in terms of Customer Trust; Service Accessibility; Operational Efficiency & Financial Inclusion. However, the degree of strength and generality of such findings differ among the studies. Hybrid banking is portrayed by increasing literature as an enduring form of banking, and not a transitional one, however this characterization may be more applicable to some aspects (i.e. Customer Trust & Adoption) than others (i.e. Financial Inclusion & Operational Efficiency). Furthermore, the mechanisms through which hybrid banking delivers its benefits are typically assumed rather than empirically demonstrated.

The review made three key contributions. Firstly, a conceptual clarification was offered that distinguished hybrid banking from Omnichannel, PhyGital, Assisted Digital and Blended banking models - distinctions that were not commonly recognized or articulated throughout much of the reviewed literature. The second contribution made by the review was a systematic review of 38 studies focused on hybrid banking in India, carried out according to a PRISMA protocol and based on a transparent multi-stage screening process with explicit screening criteria. Lastly, through the Integrated Hybrid Banking Framework presented in Section 3 and the critical tensions discussed in the Discussion section, the review identified several emerging debates regarding hybrid banking's future, including those related to Branch Closures, Artificial Intelligence Displacement, Surveillance and Platform Competition.

9. Limitations of the Study

There are several significant caveats associated with this research. It is based solely on open access, peer reviewed articles from 2021 to 2025 that have been included in the Scopus database. This limits the scope of the research to all relevant studies on hybrid banking within India (which increases the focus on context) as well as excludes studies on hybrid banking conducted outside of India (which limits comparative analyses across countries). The results therefore cannot be generalized to hybrid banking systems in other countries and/or jurisdictions until additional research has been completed. There also exists an opportunity for coders to introduce their own biases when conducting thematic analyses. Future research reviews should consider employing two separate coders for these types of analyses and assessing for inter-rater reliability. While the Boolean search term was narrowly defined (to ensure thematic specificity), it likely did not identify all relevant literature that uses language different than what was used in the Boolean search terms. Lastly, since the review is based on published literature, it does not reflect either practitioners' knowledge, internal evidence collected by banks, or real time data related to implementations.

10. Implications of the Study

The results from this research can help bank practitioners to develop their Hybrid Banking Models where digital innovations meet continued provision of physical services, so as to support increased levels of customer trust and satisfaction in an Indian context. The distinctions developed in section 2 will provide managers with greater precision when identifying and articulating their Channel Integration Strategies. Regulatory bodies such as the Reserve Bank of India have evidence that they may need to take account of the risks of exclusion caused by rationalising branches, which is in addition to the efficiency gains provided through digital investments. Researchers benefit from the PRISMA compliant methodology used here; and also the conceptual framework outlined in section 3, as these both provide replicable building blocks for comparative and longitudinal review.

11. Future Research Directions

Future studies may extend this study by economically collecting primary data on customers experiences of trust dynamics and adoption behaviour across different demographic and socio-economic groups using validated survey instruments or mixed-method approaches. Cross-country comparative studies would provide insight into the degree to which findings from the Indian context can be generalized and which contextual factors (regulatory architecture; digital infrastructure; cultural disposition towards institutions) most significantly moderate hybrid banking outcomes. Longitudinal studies will also provide valuable insight into whether efficiency gains and inclusion are maintained over time as branch networks contract. Future studies should also address some of the gaps identified in this review including: how non-adopters of hybrid banking experience hybrid banking; how relationship-banking is replaced by AI and automation; how cross channel data integration will affect consumer privacy; and competitive dynamics between traditional hybrid banking models and platform based financial ecosystems. Finally, the conceptual framework developed in Section 3 needs to be tested through empirical validity studies with the possible use of confirmatory factor analysis or structural equation modelling

Declarations

Ethical approval: This article is a systematic literature review based entirely on publicly available published sources. No primary data collection from human participants was conducted. Ethical approval was therefore not required.

Informed consent: Not applicable. No human participants were involved in this study.

Author contributions: U.R.C. conceived the study, conducted the systematic literature review, performed thematic analysis, and drafted the manuscript. R.R.K. contributed to the conceptual

development of the hybrid banking framework and critically revised the manuscript. Both authors read and approved the final version.

Disclosure statement: The authors declare no conflict of interest. No financial or personal relationships have influenced the work reported in this paper.

Data availability statement: This study is a systematic literature review. All source articles identified through the PRISMA 2020 screening process are listed in the reference list and are publicly accessible via the Scopus database. No new data were generated or analysed.

Funding: No funding was received for the conduct of this research or the preparation of this manuscript.

REFERENCES

1. Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Williams, M. D. (2016). Consumer adoption of mobile banking in Jordan: Examining the role of usefulness, ease of use, perceived risk and self-efficacy. Journal of Enterprise Information Management, 29(1): 118–139. https://doi.org/10.1108/JEIM-04-2015-0035
2. Arner, D. W., Barberis, J., & Buckley, R. P. (2017). FinTech, RegTech, and the reconceptualization of financial regulation. Northwestern Journal of International Law & Business, 37(3): 371–413.
3. Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. Computers in Human Behavior, 50, 418–430. https://doi.org/10.1016/j.chb.2015.04.024
4. Batat, W. (2019). Experiential marketing: Consumer behaviour, customer experience and the 7Es. Routledge.
5. Chorey, S., & Sahu, S. (2024). Dynamic blockchain-based transaction structure for enhanced security and sustainability in banking. Journal of King Saud University — Computer and Information Sciences, 36(3): 101980. https://doi.org/10.1016/j.jksuci.2024.101980
6. Dalal, K., Patel, R., & Mehta, S. (2022). Regulatory compliance in hybrid banking: Navigating data protection, cybersecurity, and AML frameworks in India. Journal of Financial Regulation and Compliance, 30(3): 334–352. https://doi.org/10.1108/JFRC-08-2021-0079
7. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3): 319–340. https://doi.org/10.2307/249008
8. Dietz, M., Khanna, S., Olanrewaju, T., & Rajgopal, K. (2021). Cutting through the noise around financial technology. McKinsey Quarterly. https://www.mckinsey.com/industries/financial-services/our-insights/cutting-through-the-noise-around-financial-technology
9. Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. International Journal of Qualitative Methods, 5(1): 80–92. https://doi.org/10.1177/160940690600500107

10. Gandhi, M., & Sharma, P. (2023). Environmental sustainability in hybrid banking: Digital transformation and green banking practices in India. Journal of Sustainable Finance & Investment, 13(2): 412–430. https://doi.org/10.1080/20430795.2022.2094512

11. Gimpel, H., Rau, D., & Röglinger, M. (2018). Understanding FinTech start-ups – a taxonomy of consumer-oriented service offerings. Electronic Markets, 28(3): 245–264. https://doi.org/10.1007/s12525-017-0275-0

12. Jafari, S. A., Khan, R., & Ali, M. (2024). Trust as a mediator between perceived risk and digital banking adoption: Evidence from South Asian markets. Journal of Retailing and Consumer Services, 76, 103576. https://doi.org/10.1016/j.jretconser.2023.103576

13. Kaur, P., & Arora, S. (2021). Trust and risk perceptions in mobile banking adoption: A meta-analytic review. International Journal of Bank Marketing, 39(6): 1073–1099. https://doi.org/10.1108/IJBM-05-2020-0261

14. Khatri, P., & Kaushik, A. (2021). Demographic moderators of hybrid banking adoption: Evidence from Indian customers. Journal of Financial Services Marketing, 26(3): 131–144. https://doi.org/10.1057/s41264-021-00101-w

15. Kumar, A., Singh, R., & Patel, N. (2023). Reserve Bank of India and the hybrid banking framework: Balancing innovation and stability. Vikalpa: The Journal for Decision Makers, 48(1): 7–22. https://doi.org/10.1177/02560909231164403

16. Laue, M., Weissenberger, B. E., & Vogt, C. (2024). Hybrid banking as enduring strategy: Competitive advantage through channel integration. Journal of Banking & Finance, 158, 107051. https://doi.org/10.1016/j.jbankfin.2023.107051

17. Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. Business Horizons, 61(1): 35–46. https://doi.org/10.1016/j.bushor.2017.09.003

18. Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organisational trust. Academy of Management Review, 20(3): 709–734. https://doi.org/10.2307/258792

19. Miklaszewska, E., Kil, K., & Idzik, M. (2021). How the COVID-19 pandemic affects bank risk and performance: Evidence from Central and Eastern European countries. Risks, 9(10): 180. https://doi.org/10.3390/risks9100180

20. Munoz-Leiva, F., Climent-Climent, S., & Liebana-Cabanillas, F. (2021). Determinants of intention to use the mobile banking apps: An extension of the classic TAM model. Spanish Journal of Marketing – ESIC, 21(1): 25–38. https://doi.org/10.1108/SJME-03-2016-0002

21. Oliveira, T., Faria, M., Thomas, M. A., & Popovič, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. International Journal of Information Management, 34(5): 689–703. https://doi.org/10.1016/j.ijinfomgt.2014.06.004

22. Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. Borsa Istanbul Review, 18(4): 329–340. https://doi.org/10.1016/j.bir.2017.12.003

23. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjártsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S.,

... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ, 372, n71. https://doi.org/10.1136/bmj.n71

24. Ramesh, G., & Jeyakarthic, M. (2023). Hybrid banking, data analytics, and customer lifetime value: Evidence from Indian commercial banks. Cogent Business & Management, 10(1): 2173842. https://doi.org/10.1080/23311975.2023.2173842

25. Ratra, R., Sharma, A., & Gupta, V. (2023). Hybrid banking and financial inclusion in rural India: Bridging the digital divide. Finance Research Letters, 52, 103577. https://doi.org/10.1016/j.frl.2022.103577

26. Raza, S. A., Shah, N., & Ali, M. (2022). Acceptance of mobile banking in Islamic banks: Evidence from modified UTAUT model. Journal of Islamic Marketing, 13(4): 869–896. https://doi.org/10.1108/JIMA-10-2015-0080

27. Rogers, E. M. (1962). Diffusion of innovations. Free Press.

28. Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. Telematics and Informatics, 32(1): 129–142. https://doi.org/10.1016/j.tele.2014.05.003

29. Shaikh, I. M., & Amin, H. (2025). Diffusion of innovation in Islamic banking: An empirical study. Journal of Islamic Accounting and Business Research, 16(1): 90–110. https://doi.org/10.1108/JIABR-11-2023-0310

30. Shankar, A., & Jebarajakirthy, C. (2019). The influence of e-banking service quality on customer loyalty: A moderated mediation approach. International Journal of Bank Marketing, 37(5): 1119–1142. https://doi.org/10.1108/IJBM-03-2018-0063

31. Shankar, A., & Nandini, A. S. (2022). Strategic alignment in hybrid banking: Technology, organisation, and change management. Journal of Organisational Change Management, 35(4): 601–619. https://doi.org/10.1108/JOCM-07-2021-0214

32. Singh, P., Verma, A., & Gupta, N. (2024). Honeypot-IDS hybrid systems for mobile cloud financial network security. Journal of Network and Computer Applications, 224, 103838. https://doi.org/10.1016/j.jnca.2023.103838

33. Srikanth, M., Poornima, R., & Ananthaswamy, H. N. (2022). Hybrid banking and digital financial inclusion: Reducing technology anxieties among Indian customers. Asian Journal of Research in Banking and Finance, 12(1): 35–49. https://doi.org/10.5958/2249-7323.2022.00004.3

34. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. British Journal of Management, 14(3): 207–222. https://doi.org/10.1111/1467-8551.00375

35. Tyrväinen, O., & Karjaluoto, H. (2019). Omnichannel banking: A systematic literature review and research agenda. Journal of Theoretical and Applied Electronic Commerce Research, 14(2): 18–37. https://doi.org/10.4067/S0718-18762019000200103

36. Vargo, S. L., & Lusch, R. F. (2016). Institutions and axioms: An extension and update of service-dominant logic. Journal of the Academy of Marketing Science, 44(1): 5–23. https://doi.org/10.1007/s11747-015-0456-3

37. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of

information technology: Toward a unified view. MIS Quarterly, 27(3): 425–478. https://doi.org/10.2307/30036540

38. Vives, X. (2019). Digital disruption in banking. Annual Review of Financial Economics, 11: 243–272. https://doi.org/10.1146/annurev-financial-100719-120854

39. World Bank. (2022). The Global Findex database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19. World Bank Group. https://doi.org/10.1596/978-1-4648-1897-4

Editorial Board

Categories

- Business Management
- Banking
- Insurance
- Finance

Review Process

Each research paper/article submitted to the journal is subject to the following reviewing process:

1. Each research paper/article will be initially evaluated by the editor to check the quality of the research article for the journal. The editor may make use of ithenticate/Viper software to examine the originality of research articles received.
2. The articles passed through screening at this level will be forwarded to two referees for blind peer review.
3. At this stage, two referees will carefully review the research article, each of whom will make a recommendation to publish the article in its present form/modify/reject.
4. The review process may take one/two months.
5. In case of acceptance of the article, journal reserves the right of making amendments in the final draft of the research paper to suit the journal's standard and requirement.

Published by

South Asian Academic Research Journals

A Publication of CDL College of Education, Jagadhri (Haryana)
(Affiliated to Kurukshetra University, Kurukshetra, India)

Our other publications :
Academicia - An International Multidisciplinary Research Journal
ISSN (online) : 2249-7137
South Asian Journal of Marketing & Management Research (SAJMMR)
ISSN (online) : 2249-877X