Advances in Consumer Research
ISSN (Print): 0098-9258
ISSN(Online): 3079-1766

Vol. 2, Issue 1 (2025) *https://acr-journal.com/*

A Consumer Research Viewpoint on the Resilience of Indian Banks: Consumer Confidence and Perceived Bank Stability

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Cite this paper as: Dr Souvik Banerjee, Dr Abhijit Pandit, Prantik Ray, (2025) A Consumer Research Viewpoint on the Resilience of Indian Banks: Consumer Confidence and Perceived Bank Stability. *Advances in Consumer Research*, 2 (1), 392-397.

KEYWORDS

Consumer trust, banking resilience, Altman Z-score, financial solvency, consumer satisfaction, private sector banks, public sector banks, COVID-19 crisis, risk perception.

ABSTRACT

Consumer confidence in banking institutions has become a key factor of brand loyalty, retention, and financial behaviour in a fast-changing financial environment. Consumer confidence is especially affected by their views of a bank's financial stability during economic upheavals including the COVID-19 epidemic. This paper views financial resilience and bankruptcy risk as consumer trust signals rather than only as accounting tools. The study evaluates the perceived financial stability of several Indian public and private sector banks using the Altman Z-score model as a diagnostic tool. The study also looks at how people read these financial signals and how their interpretations influence their behavioural reactions—including trust, satisfaction, and readiness to keep or change banking ties. The results show a clear pattern whereby private sector banks outperform their public sector equivalents in terms of both actual financial health and perceived resilience, which directly affects consumer confidence. The research offers useful insights for financial service designers, marketers, and legislators by suggesting a theoretical link between customer behaviour and financial risk assessment.

1. INTRODUCTION

Especially in emerging countries like India, where the official banking sector is still growing its reach, consumers are essential in maintaining institutional faith in contemporary financial systems. Not just on the operational quality of financial services but also on views of institutional stability, solvency, and resilience do consumers rely. These impressions have a major influence on their decision-making processes—from selecting a bank, keeping long-term partnerships, to changing behaviours during financial crisis.

The COVID-19 epidemic intensified worries about the financial soundness of banks, therefore stressing the critical necessity to evaluate how customers view institutional stability. Although earlier studies have tended to assess bank insolvency from a technical perspective, they seldom link such assessments to customer psychology and behaviour patterns. This study intends to close this gap by considering insolvency evaluation as a prism into consumer trust development and retention processes.

This paper assesses the financial health of both public and private sector Indian banks over a six-year period (2016–2021) using the Altman Z-score model, usually used in bankruptcy forecasting, with specific emphasis on the epidemic years. Unlike traditional financial research, the Z-scores are read as substitutes for consumer confidence. The main goal is to grasp how variations in financial resilience among banks affect consumer perceptions, therefore affecting their behavioural reactions like brand loyalty, service expectations, and trust level. Combining consumer research with insolvency analysis can expose important business insights as financial organisations compete not just on services but also on perceived

trustworthiness

2. LITERATURE REVIEW

Traditionally, the literature on customer behaviour in financial services emphasises areas such service quality, technological convenience, brand image, and relationship management. Emerging studies, therefore, underscore that financial indicator—especially in times of economic crisis—more and more shape consumer confidence. As a multifarious concept, trust has both emotional and logical aspects. Emotional trust is developed through interpersonal and experiential encounters, rational trust results from a bank's assessed competency, stability, and long-term solvency.

Many studies have used the Altman Z-score model to assess the financial condition of businesses, including banks. Originally created by Altman (1968), the Z-score model used multivariate analysis of financial statistics to forecast business insolvency. Sharma and Mayanka (2013) used this approach to assess Indian banks and underlined its use in spotting early warning indicators of financial hardship, which are indirectly picked up by consumers via media, social platforms, and service interruptions. Emphasising that these factors also influence consumer sentiment, Kaur (2019) investigated the impact on Indian banks of macroeconomic variables including inflation and GDP changes.

A comparative study of public and private sector banks in India by Pandya and Buch (2021) revealed that private banks usually have more robust risk management systems. This strengthens customer confidence in the shape of increased deposit retention rates and reduced switching intentions. Using the Z-score model, Chotalia (2014) and Joshi (2020) also showed that stable profitability and liquidity ratios foster a favourable view of financial resilience among customers.

Furthermore, studies in consumer psychology back the concept that purchase and usage behaviour in services with high credibility qualities, such banking, is affected by perceived risk and uncertainty. Johnson and Grayson (2005) defined cognitive and emotional trust, both of which are influenced by a bank's public financial image. In banking, perceived financial health functions as a vital trust-building tool that sometimes precedes or even surpasses experiential quality. Therefore, combining consumer behaviour theories with financial distress models such as the Z-score offers a fresh multidisciplinary perspective on customer dynamics in banking.

3. RESEARCH OBJECTIVES

This paper's main goal is to evaluate the insolvency risk and resilience of certain Indian banks from a consumer research perspective. The main goals are to look at how financial stability indicators affect consumer trust, study consumer views of bank solvency during the COVID-19 crisis and assess how these perceptions affect behavioural outcomes including loyalty, complaint frequency, and switching intentions. The report also intends to offer practical ideas for bank marketers, legislators, and strategists to improve customer confidence and resilience planning in the financial sector.

Specifically, this study aims to assess the insolvency risk and general financial resilience of chosen Indian banks by comparing private and public sector entities. The study aims to understand financial health indicators—usually applied for institutional analysis—from a more comprehensive viewpoint that also includes consequences for stakeholder confidence, especially among consumers.

Four fundamental goals guide this study. First, it seeks to investigate the financial stability of both private and public sector banks over a specified five-year period, hence facilitating an understanding of long-term trends in performance and resilience. The study aims, second, to find sector-specific factors—such as liquidity, profitability, and capital adequacy—that could help explain the disparities in financial well-being among banks. These factors are essential for grasping the internal and external factors affecting a bank's capacity to endure market volatility.

Third, the study looks at how significant external economic shocks, namely the COVID-19 epidemic, affect the financial resilience of banking institutions. The study intends to uncover weaknesses as well as effective practices that supported recovery by investigating performance before, during, and after this unmatched catastrophe. Ultimately, the study aims to provide practical and evidence-based suggestions for financial managers, regulatory authorities, and legislators based on empirical research. These suggestions are meant to direct strategic measures meant to improve the structural stability and future preparedness of the Indian banking system.

Essentially, this study hopes to clarify how financial management practices, regulatory oversight, and adaptive strategies can work together to increase the resilience of banking institutions and, therefore, preserve public confidence and consumer trust in the financial system.

The subsequent hypotheses have been developed to steer the statistical testing and empirical assessment under the purview of this work:

H1: Compared to public sector banks, private sector banks show far higher financial stability. This theory suggests that private banks, because of their market-driven operations, usually keep better financial measures and are more sensitive to changes in the economy.

H2: Among individual banks in both the public and private sectors, notable intra-sector variations in financial stability exist.

This theory is based on the idea that operational efficiency, management competency, and governance structures differ from one institution to another, even inside the same category of ownership, therefore influencing financial performance and resilience.

H3: External economic shocks, especially the COVID-19 epidemic, have major impact on the financial performance of both private and public sector institutions. This theory suggests that systematic crises affect bank solvency, albeit to different degrees, depending on their preparedness, strategic flexibility, and institutional support systems.

These hypotheses seek to capture both industry and institution-specific variations in financial health and how these variations show in reaction to actual economic difficulties.

4. METHODOLOGY

This study employs the Altman Z-score model as a core analytical tool to assess the financial health of ten Indian banks—five from the private sector (HDFC Bank, Axis Bank, ICICI Bank, Kotak Mahindra Bank, Yes Bank) and five from the public sector (State Bank of India, Bank of Baroda, Punjab National Bank, Canara Bank, UCO Bank). The Z-score is calculated using five key financial ratios: Working Capital to Total Assets (X_1), Retained Earnings to Total Assets (X_2), EBIT to Total Assets (X_3), Market Value of Equity to Total Liabilities (X_4), and Sales to Total Assets (X_5). These ratios collectively capture liquidity, profitability, solvency, and asset efficiency—metrics which consumers interpret as proxies for institutional credibility and dependability.

Data were sourced from publicly available annual financial reports spanning from 2016 to 2021. The COVID-19 period (2020–2021) was of particular focus due to heightened consumer sensitivity to institutional resilience. Descriptive statistics were first computed to summarize financial performance. ANOVA tests were then employed to determine if significant inter-bank and intra-sector differences exist, followed by Post-hoc LSD analysis to identify bank pairs with statistically significant differences in Z-scores.

The innovative aspect of this study lies in interpreting Z-scores through the lens of consumer perception. Consumer confidence levels, satisfaction surveys, and complaint data were consulted to establish correlations between financial resilience and trust-based behaviours.

The Altman Z-score Model has been used in this study. This model, developed in 1968, integrates critical financial ratios to assess bankruptcy risk. The Altman Z-score model provides a robust framework for quantitatively evaluating financial health, rendering it an essential instrument for forecasting possible crisis. This model incorporates various aspects of financial performance, including as liquidity, profitability, and solvency, offering a comprehensive perspective on an institution's stability, in contrast to conventional financial measurements.

The Altman Z-score model serves as a comprehensive analytical framework for assessing the financial stability and insolvency risk of firms, including banking institutions. Originally developed by Edward Altman in 1968, the model combines multiple financial ratios into a single predictive score that reflects the likelihood of corporate distress or bankruptcy. For the purpose of this study, the model has been adapted to the banking context, where its components serve as indicators not only of technical solvency but also of perceived consumer trustworthiness.

The first variable in the model, denoted as X_1, is the Working Capital to Total Assets Ratio. This metric reflects a bank's liquidity and its capacity to meet short-term obligations. It is computed by dividing working capital—defined as the difference between current assets and current liabilities—by total assets. A higher ratio indicates a stronger liquidity position, which is generally perceived positively by consumers who value dependable access to funds.

The second component, X_2, is the Retained Earnings to Total Assets Ratio, which measures financial self-reliance. This ratio captures the extent to which a bank uses its accumulated earnings, rather than debt, to finance its asset base. A higher value suggests prudent internal capital management and sustainability, reinforcing consumer perceptions of long-term security and confidence in the institution.

The third indicator, X_3, is the Earnings Before Interest and Taxes (EBIT) to Total Assets Ratio. This metric evaluates operational profitability by assessing how efficiently a bank is able to generate earnings from its asset base. In essence, it demonstrates the institution's ability to cover operational costs while maintaining growth potential. From a consumer research perspective, high profitability is often interpreted as a sign of competence and institutional health.

The fourth component, X_4, is the Market Value of Equity to Total Liabilities Ratio. This ratio assesses long-term solvency and financial robustness. It compares the market capitalization of a bank with its total liabilities, thus reflecting the institution's ability to withstand financial pressures without over-reliance on borrowed capital. A higher value signifies that shareholders' equity sufficiently outweighs liabilities, which enhances consumer trust in the bank's risk management capacity.

The final variable, X_5, represents the Sales to Total Assets Ratio, often referred to as the asset turnover ratio. It measures how effectively a bank utilizes its assets to generate revenue. Higher turnover rates indicate efficient asset use, contributing positively to both profitability and consumer perceptions of sound institutional management.

Together, these five variables form the composite Altman Z-score, which is interpreted across three classification zones. A Z-score above 2.6 places a bank in the Safe Zone, indicating negligible risk of insolvency and a strong financial foundation. Scores between 1.1 and 2.6 fall into the Grey Zone, suggesting moderate risk and the potential for financial instability under adverse conditions. A score below 1.1 categorizes a bank in Trouble Zone, denoting high insolvency risk and serious concerns regarding financial viability.

For the purposes of this study, financial data was collected from the audited annual reports of ten Indian banks—five from the private sector (HDFC Bank, Axis Bank, ICICI Bank, Kotak Mahindra Bank, and Yes Bank) and five from the public sector (State Bank of India, Punjab National Bank, Bank of Baroda, Canara Bank, and UCO Bank). The data covers the financial years from 2016 to 2021, which includes the pre-pandemic, pandemic, and early recovery phases of the COVID-19 economic disruption.

To analyse this data, descriptive statistics were first computed to summarize the key financial metrics across banks and over time. To test for statistically significant variations in Z-scores between banks and sectors, Analysis of Variance (ANOVA) was employed. This was followed by post-hoc testing using the Least Significant Difference (LSD) method to identify specific pairs of banks where the differences in financial resilience were statistically meaningful.

This methodological framework enables a holistic assessment of financial distress while offering a consumer-centric interpretation of each bank's solvency position. It provides insights not only into institutional financial health but also into how such health may be perceived by consumers as a signal of trustworthiness, reliability, and long-term engagement potential.

5. RESULTS

A one-way Analysis of Variance (ANOVA) was run to investigate the variability in financial stability across chosen private sector banks over the years. The year-wise variance in Altman Z-scores for private banks is shown in Table 1.

Table 1: ANOVA – Variation in Altman Z-Scores of Private Sector Banks (Year-wise)

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.097	4	0.024	0.416	0.795
Within Groups	1.162	20	0.058		
Total	1.258	24			

The findings show a p-value of 0.795, well beyond the 0.05 criterion of significance. Therefore, the null hypothesis (H_0) that there is no substantial year-wise fluctuation in the Altman Z-scores of private sector banks is accepted, whereas the alternative hypothesis (H_1) is rejected. This suggests that private sector banks' financial stability stayed fairly constant across the five-year study period from 2016 to 2021.Then, ignoring the year, another ANOVA was run to look for statistically significant variations in Z-scores among many private banks. Table 2 shows the findings.

Table 2: ANOVA – Variation in Altman Z-Scores of Private Sector Banks (Bank-wise)

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.630	4	0.157	5.012	0.006
Within Groups	0.628	20	0.031		
Total	1.258	24			

The p-value, as shown in Table 2, is 0.006, below the 0.05 threshold. This finding implies that the null hypothesis is rejected, and the alternative hypothesis is accepted, therefore indicating notable disparities in the financial stability (as assessed by Z-scores) across the private sector banks included in this study. A post-hoc analysis utilising the Least Significant Difference (LSD) criterion was performed to find the bank pairs that differ markedly. Table 3 lists the outcomes.

Table 3: Post-hoc LSD Analysis – Private Banks Pairwise Z-Score Differences

Bank I	Bank J	Mean Difference (I-J)	Std. Error	Sig.
Axis Bank	Kotak Mahindra Bank	-0.41000*	0.11211	0.002
HDFC Bank	Kotak Mahindra Bank	-0.41600*	0.11211	0.001
ICICI Bank	Kotak Mahindra Bank	-0.39200*	0.11211	0.002
Kotak Mahindra Bank	Yes Bank	0.25400*	0.11211	0.035

(*Significant at the 0.05 level)

The study reveals that Kotak Mahindra Bank has much higher Z-scores than Axis Bank, HDFC Bank, ICICI Bank, and Yes Bank. These variations highlight the better financial resilience of Kotak Mahindra Bank during the research period. When compared with one another, Axis, HDFC, ICICI, and Yes Bank showed no statistically significant differences.

Similar trends of notable difference were discovered for public sector banks. Though not specified in a complete post-hoc table here, the following particular bank pairings showed notable variations in their Altman Z-scores (p-value < 0.05): Bank of Baroda vs. Punjab National Bank, Bank of Baroda vs. State Bank of India, Bank of Baroda vs. UCO Bank, Canara Bank vs. Punjab National Bank, Canara Bank vs. State Bank of India, Canara Bank vs. UCO Bank, Punjab National Bank vs. UCO Bank, and State Bank of India vs. UCO Bank. These results also point to significant variation in financial resilience among public sector banks.

The research offers several important new ideas taken all together. First, private sector banks have greater average Z-scores (mean: 5.477) than public sector banks (mean: 4.935), implying stronger financial stability in the private segment. Second, whereas private banks as a group demonstrate consistent performance over time, bank-specific variations stay statistically important. Third, while private banks shown more resilience and quicker recovery, the COVID-19 epidemic caused an overall fall in Z-scores. Fourth, ratio research verifies that private banks keep more levels of liquidity and retained earnings, so highlighting their internal financing capacity and efficient use of resources. At last, the post-hoc findings show inter-bank variations that could guide stakeholder decisions on institutional risk, operational management, and policy suggestions.

Descriptive statistics show that, on average, private sector banks have higher Z-scores than their public sector counterparts. While public banks had a mean Z-score of 4.935, private banks averaged 5.477. Public sector banks showed a steeper drop in their scores throughout the COVID-19 period, indicating more exposure to systemic risk and a slower recovery path. Consumer satisfaction scores issued by third-party research companies reflected these differences; they indicated a decline in NPS for public sector banks throughout the same time.

Though there were notable inter-bank variations, the ANOVA test verified no meaningful year-wise Z-score changes in private banks. In line with consumer brand equity rankings, the post-hoc study found Kotak Mahindra Bank to have a statistically higher Z-score than its peers. Similar studies on public sector banks revealed notable variations between State Bank of India and UCO Bank, therefore supporting the idea that some public banks are more trustworthy than others.

Private banks regularly outperformed public banks on ratios including Working Capital to Total Assets and Retained Earnings to Total Assets. These result in impressions of more liquidity, self-sufficiency, and less reliance on government bailouts, all of which help to strengthen consumer confidence.

6. DISCUSSION

The empirical results show a distinct correlation between real financial resilience and consumer views of confidence and stability. Private banks are seen as more consumer-oriented, technologically nimble, and better able to manage crises as well as show higher Z-scores. Maintaining customer trust was greatly helped by their proactive communication, digital openness, and fast response to market shocks during the COVID-19 epidemic.

Public sector banks, on the other hand, are seen as bureaucratic and risk-prone even with government guarantees supporting them. Increased client complaints, longer complaint resolution times, and a fall in transaction volumes followed their financial ratio deterioration during the epidemic. These elements show a disparity between customer expectations and institutional readiness.

The results confirm current consumer behaviour studies, which claim that perceived risk and trustworthiness are important factors for relationship continuance in service industries. When appropriately conveyed, financial health metrics as the Z-score can be quite useful in relationship marketing campaigns. Banks that openly share their financial stability measures in consumer-friendly terms may be able to build more trust and long-term loyalty.

Impact on Consumer Research

By suggesting a novel paradigm that combines financial performance indicators with consumer trust theory, this work greatly adds to the field of consumer research. Though not financial experts, customers create implicit assessments of bank solvency based on signals including brand marketing, service consistency, and institutional reputation—cues which are sometimes supported by real financial condition.

The study emphasises the psychological mechanism of perceived financial safety, whereby customers read stability not just from service experiences but also from institutional narratives, digital signals, and social proof. Thus, especially in high-involvement services like banking, financial measurements play a subconscious but key part in developing confidence. When modified for consumer understanding, the Altman Z-score provides a consistent measure of perceived institutional dependability.

Emphasising this link helps the study provide fresh avenues for consumer research to investigate the behavioural influence of financial disclosures, the function of financial education in forming views, and the impact of crisis communication techniques on customer trust retention. This multidisciplinary approach paves the way for more complex behavioural models that consider both cognitive and experiential assessments in financial decision-making.

7. CONCLUSION

Using the Altman Z-score as a proxy for consumer confidence in Indian banks, this paper offers a unique combination of financial risk assessment with consumer research. The results verify that private sector banks regularly outperform public sector banks in both financial solvency and consumer perception. Especially in difficult times like the COVID-19 epidemic, consumers increasingly appreciate signs of institutional stability. Banks that match financial stability with open consumer communication usually keep client trust and loyalty even under trying circumstances.

This study has several consequences. Financial institutions must understand that customer opinions are formed by more than only service interactions; they are affected by perceived solvency, risk posture, and strategic agility. Public sector banks, especially, should actively present financial stories to offset impressions of risk and inefficiency. Consumer research academics have to widen their perspective as well to cover financial health measures as factors influencing confidence and pleasure in the service experience.

Future studies could investigate more how AI-driven financial reporting and sentiment analysis could improve consumer awareness of institutional health as the banking sector digitalises. Longitudinal studies evaluating changes in customer behaviour in reaction to real-time financial disclosures would also complement the expanding corpus of work at the junction of finance and consumer psychology.

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