

AI Banking of Tomorrow: Empirical Evidence from Chennai City

A. Appu* and Shaaz Ahmed P**

*MEASI Institute of Management
Chennai-14, Tamil Nadu, India*

Abstract: The challenging business environment in the Indian and global financial services markets has also increased pressure on banks to develop and use alternative delivery channels to attract more customers, improve customer perceptions, and encourage loyalty. Electronic banking is one of the more recent delivery channels introduced, and this study aimed to identify the factors influencing electronic banking services provided by Retail banks in Chennai. Judgment sampling methods were used to collect a cross-sectional sample of 480 customers from retail banks offering electronic banking service channels. Multiple regression analysis predicted and tested the relationships between e-banking service constructs. The data analysed using multiple regression analysis on artificial intelligence technology, Relative Advantage, Compatibility, Digital Security, Subjective Norms, and fulfilment significantly impact user's e-banking usage practice. Based on these results, retail banks in Chennai should educate their customers about how to use and benefit from e-banking service delivery channels through an AI banking platform.

Keywords: Artificial Intelligence Technology, Digital Security, Subjective Norms, Customer Response, and Intention to Use

JEL Classification Number: 01, 010

1. Introduction

The prevalence of Internet-based technologies has resulted in fundamental shifts in how businesses interact with customers. The banking and financial sector leads other industries that use the Internet and technology to interact with customers through e-banking. Despite the global expansion of e-banking, retail banks in India continue to conduct most of their banking transactions through traditional teller-based methods. It is still underdeveloped, owing to a lack of a suitable legal framework, infrastructure development, frequent power outages, high rates of illiteracy, and security concerns. Moreover, Retail electronic banking in India is trying to differentiate itself in a competitive sector by changing some of its traditional functions and aligning its services to customers' changing needs. Electronic banking helps the financial system and banking industry grow, and banks use it to compete in today's market. Thus, it is necessary to examine factors that influence

* Corresponding author. Email: appumiracle@gmail.com

**Final Year MBA Student. Email: shaazahmed100@gmail.com

customer acceptance to help retail banks increase customer adoption of e-banking service channels. With the rapid growth of e-banking, numerous previous studies have been conducted to evaluate the quality and adoption of e-banking services in developed countries. However, few studies have scrutinized the factors that influence the adoption of e-banking in high-growth nations such as India. The study recommends professionals seeking new banking services in a competitive environment understand e-banking factors. Our research also applies artificial intelligence technology to electronic banking adoption in Chennai, helping us understand the Indian retail banking market and customers.

2. Literature Survey

Noreen et al. (2023) investigated the attitudes of Asian consumers toward adopting artificial intelligence. A total of 799 respondents were gathered from five Asian countries: Pakistan, Saudi Arabia, Thailand, China, and Iran. The findings demonstrated a significant and favorable relationship between awareness, attitude, subjective norms, perceived utility, and knowledge of artificial intelligence technology and the intention to implement AI in the banking industry. However, adopting AI exhibits a negative but significant relationship with perceived risk. Overall, the study's conclusions will provide valuable information for strategic decision-making in the banking sector. This will enable the banking management to develop a strategy to boost consumer confidence, which will help them manage risks and feel comfortable using digital technology to complete transactions. Additionally, the banking industry emphasizes cutting-edge AI technologies to enhance customer services and promote overall growth by generating more money.

Kamdjou, et al. (2022) examined how service factors (Service quality, Perceived time-saving, and Perceived cost-saving) and technological features of electronic financial services (Perceived transaction security, perceived personal information protection) affect trust and use of e-banking. It also investigates the impact of E-banking use on E-engagement via usage retention and customer satisfaction. We use partial least squares structural equation modeling to test a research model on 346 NFC Bank customers in Cameroon. According to the study, perceived privacy protection and service factors like perceived time and cost savings, and high-quality service affect trust. However, adopting e-banking is not always accompanied by a belief in it. On the other hand, e-banking is influenced by both service factors and technological aspects of electronic financial services (such as perceived privacy protection and transaction security) (Perceived time saving, Service quality, and Perceived cost saving). The study has managerial ramifications for expanding online banking services in developing nations.

Datta, et al. (2022) empirically examined the factors that affect Bangladeshi public commercial bank customers' E-banking choices. This study used an Independent Sample t-test between E-banking users and conventional users based on primary data from Rupali Bank Limited, a state-owned commercial bank, collected through a structured questionnaire. This study examined six influential factors: Internet accessibility, reluctance to change, security, convenience, ease of use, and cost. The study found that all elements except price statistically influence Rupali Bank Limited Customers' E-banking decisions. This study can help banks and policymakers adopt E-banking and design new products and services.

Yousuf and Shanyu, (2021) investigated Mogadishu-e-banking Somalia's intention factors. This paper used survey questionnaires and online interviews to answer quantitative and qualitative research questions from 452 Mogadishu-based e-banking users. TAM and SEM were used to create a study model. As a result, E-banking adoption is positively influenced by perceived ease of use, usefulness, risk, and credibility. In addition, Somalia's e-banking users are more satisfied and credible.

Banks today operate in a highly competitive market, and to survive, they have begun to employ IT. Due to broad advances in information technology, the Indian banking sector has seen remarkable growth. E-banking is the result of such a ground-breaking invention. Banks are confronted with significant issues, such as increased penetration and rapid expansion in the usage of information technology. The banking sector may kill two birds with one stone by utilizing IT. In the sphere of technology, tremendous progress has been made, assisting in reducing the world to a global village and bringing incredible changes. The research is undertaken to study E-banking services provided by selected retail banks in Chennai city.

This research is designed to study users' profiles and determine the selection criteria for choosing electronic banking services among customers in Chennai city and to examine the factors influencing online banking customers' intention to continue electronic banking services.

3. Methodology

This descriptive research design from the user's perspective will help the banking industry understand customers' perceptions of Subjective Norms, Relative Advantage, artificial intelligence, Compatibility, Digital Security, and fulfillment toward electronic banking services transformation. In addition, a primary interview with retail bank staff and a thorough literature review was used to develop a structured questionnaire to identify the factors that affect bank users' utilization of e-banking services. On a five-point Likert scale, from (strongly disagree-1) to (strongly agree -5), all of the questions on the research

questionnaire were measured (5). The primary data was obtained from 480 customers of retail banks in the city of Chennai, and it was collected through the use of judgment sampling techniques. The Cronbach's Alpha result exposed that (Relative Advantage=0.888), (Digital Security=0.900), (Compatibility=0.872), (AI Technology=0.859), (Subjective Norms=0.877), (Fulfilment=0.863), (Customer Response=0.831) and (Intention to use=0.873). As a result, the overall electronic banking dimensions were calculated to be 0.969, and the instrument's internal consistency reliability appears adequate for collecting the final data. Finally, the hypothesis of the exogenous and endogenous variables was tested using Freidman analysis and multiple regression analysis.

4. Empirical Results

The results in Table 1 exposed that most of the respondents using electronic banking are female (51.22 percent) in the sample area. Additionally, according to the distribution of users by marital status, (56.25 percent) are unmarried. Besides, the income group of the sample exposed that most respondents belong to below 20,000 categories (44.35 percent). Further, 77.71 percent of the respondents using the platform of electronic banking services are from the nuclear family

Table 1: Demographic Profile of E-banking Users

Users Respondents (n = 480)		
Characteristic	Classification	Percentage
Gender	Male (231)	48.12
	Female (249)	51.22
Income Group	Below 20,000 (213)	44.35
	20,001 to 40,000 (107)	22.29
	40,001 to 60,000 (91)	18.95
	Above 60,000 (69)	14.38
Marital Status	Married (210)	43.75
	Unmarried (270)	56.25
Family type	Joint family (107)	22.29
	Nuclear family (373)	77.71

H₀: There is no significant difference among Mean Rank concerning the selection criteria for choosing electronic banking services among users in Chennai city.

4.1. Friedman test

The result of the Friedman test revealed that observed (Prob = 0.000) values are less than 0.01, which indicates a highly significant difference among Mean Rank concerning the

selection criteria for choosing electronic banking services among users in Chennai city at a one percent level displayed in Table 2. Hence, the alternate hypothesis is not accepted. Furthermore, based on the mean rank score, a Sense of Security (3.45) was observed as the selection criterion for choosing electronic banking services among users in Chennai city.

Table 2: Electronic Banking Criteria mean ranks and Friedman test result

Criteria of E-Banking	Mean Rank	Chi-Square Value	Prob. Value
The reputation of the bank	(2.91)	(245.636)	0.000**
Service Quality	(3.21)		
Sense of Security	(3.45)		
Convenience Of Making Payments	(2.95)		
Proximity	(2.48)		

Note: ** indicates highly significant at a 99 percent level of confidence.

4.2. Multiple Regression Analysis

The relationship between factors of electronic banking services and users' intention to use among the sample was determined using multiple regression analysis. In this study, predictor variables are Digital Security, Subjective Norms, Relative Advantage, artificial intelligence technology, Compatibility, fulfillment, and the predicted variable is users' intention, as presented in Table 3.

Table 3: Showing MRA Summary of E-banking Services Dimensions

Dependent Variable	Intention to use (Y)
Independent Variables	1. Relative Advantage (X1) 2. Compatibility (X2) 3. Digital Security (X3) 4. Subjective Norms (X4) 5. Fulfillment (X5) 6. Artificial Intelligence Technology (X6)
Multiple R-value	0.802
R Square value	0.643
F value	141.741
P value	0.000

The coefficient of X_1 is 0.078 representing the partial effect of Relative Advantage on users' intention towards e-banking services, holding the other variables as constant. The estimated positive sign implies that such an effect is optimistic that the user's intention to use e-banking services would increase by 0.078 for every unit increase in the Relative Advantage. This coefficient value is significant at a 1% level, as found in table 4.

Table 4: Constructs outcomes in Multiple Regression Analysis

Variables	T value	P value	SE of B	Unstandardized coefficient (Beta)	Standardized coefficient (Beta)
Constant	2.164	.031	.724	1.567	-
X ₁	1.388	.166	.056	.078	.073
X ₂	1.497	.135	.063	.094	.092
X ₃	.446	.656	.038	.017	.018
X ₄	5.336	.000	.049	.264	.259
X ₅	3.080	.002	.035	.107	.131
X ₆	8.238	.000	.044	.362	.364

Besides, the coefficient of X₃ is 0.017, representing the partial effect of Digital Security on users' intention towards e-banking services, holding the other variables as constant. The estimated positive sign implies that such an effect is positive that users' choice to use e-banking services would increase by 0.017 for every unit increase in Digital Security. This coefficient value is significant at a 1% level. Moreover, the coefficient of X₆ is 0.362, representing the partial effect of Artificial Intelligence Technology on users' intention toward e-banking services, holding the other variables constant. The estimated positive sign implies that such an effect is positive that users' intention to use e-banking services would increase by 0.362 for every unit increase in the Artificial Intelligence Technology platform. This coefficient value is significant at a 1% level. The multiple regression equation is:

$$Y = 1.567 + 0.078 X_1 + 0.094 X_2 + 0.017 X_3 + 0.264 X_4 + 0.107 X_5 + 0.362 X_6$$

5. Summary and Conclusions

In retail banking, this study investigates the factors contributing to users' intention to use electronic banking platforms. The empirical research findings indicate a positive and significant relationship between e-banking users and factors of e-banking services such as Fulfilment, Relative Advantage, Artificial Intelligence technology, Compatibility, Digital Security, and Subjective Norms. Besides, the findings indicated that Artificial Intelligence Technology is the most critical factor in deciding the platform for electronic banking. In addition, the results provide valuable insights for banking management's future strategies, such as AI algorithms that gather and analyse consumer data, recommend approved products, and provide personalized financial guidance. Our findings also suggest that retail bank managers should aggressively promote the use and benefits of e-banking services through various media. Finally, Chennai banks must reduce risk to reduce customer frustration about e-banking security.

This study provides practical implications and recommendations to banking executives, policymakers, government officials, and technological regulatory bodies. The findings of this study can help banking management update and revise their marketing strategy to build customer trust, which reduces the risk of using digital technology for transactions. This study also recommends that bank managements and technology regulatory authorities improve security and protection measures to improve customer service to increase AI in banking service reliability and appeal. Electronic banking is booming in Chennai, so retail banks must understand customers' attitudes toward this technology. Internet banking can help Chennai retail banks gain a competitive advantage by lowering labour costs, improving customer service, increasing flexibility and access to information, and eliminating most manual or paperwork. Therefore, retail banks must investigate the factors that influence the use of electronic banking services to tailor their marketing strategies better to encourage customers to increase their use of internet banking in the future.

The study examines how e-banking dimensions affect Indian online banking users' intent to continue. Future studies will show how these factors affect commercial, payment, and rural banks. Moreover, Site aesthetics, accessibility, efficiency, complaint management, and customization can also be studied in public and foreign banks. The current study only considers customers' opinions of E-banking services. Time and money limit the survey to the Chennai district. Moreover, E-banking users' views are used instead of quantitative data like business and transaction volumes. Finally, the study was limited to leading retail banks, so the findings may not apply to the entire population, and the data analysis was based solely on primary sources.

References

- Akintoye, R., Ogunode, O., Ajayi, M. and Joshua, A. A., 2022, Cyber Security and Financial Innovation of Selected Deposit Money Banks in Nigeria, *Universal Journal of Accounting and Finance*, 10(3), 643-652.
- Anan, E., 2021, Fraudulent Financial Statements Detection in Indonesian Shariah Bank, *Asian Journal of Economics, Business and Accounting*, 21(3), 107-115.
- Datta, R. K., Sabuj, M. M. I and Ahammed, M. M. U., 2022, Assessing the Factors for Choosing E-Banking Services of Public Commercial Banks in Bangladesh. *International Journal of Business and Management*, 10(5). <https://api.semanticscholar.org>.
- Hamakhan, Y. T., 2020, The Effect of Individual Factors on User Behaviour and the Moderating Role of Trust: An Empirical Investigation of Consumers' Acceptance of Electronic Banking in the Kurdistan Region of Iraq, *Financial Innovation*, 6(1). DOI: 10.1186/s40854-020-00206-0.

Islam, M.T. and Sarker, S., 2022, Factors Affecting Transaction Value of Mobile Financial Services: Illustration from an Emerging Economy, *European Journal of Business and Management*, 14(10), 125-133.

Kamdjoug, J. R. K., Teutio, A. O. N., Tchouanga, U. T., and Gueyie, J.-P., 2022, Use of E-Banking and Customer E-Engagement in Developing Countries: Case of Nfc Bank Cameroon. *Theoretical Economics Letters*, 12(5), 1378-1406.

M, A. H., 2021. The Effect of Electronic Banking Services Usage on Clients Electronic Loyalty. *International Journal of Human Capital in Urban Management*, 6(4), 461-476.

Malaquias, F. F. D. O. and Malaquias, R. F., 2022, The Use of Digital Financial Services and Business Performance Satisfaction in the Context of Female Entrepreneurship, *Journal of Technology Management and Innovation*, 17(3), 3-11.

Ngo, N. V., Chiu, K. C. and Lai, C. S., 2018, The effect of customer perception on intention to use electronic banking in Vietnam-A GM (0, N) analysis. In *Proceedings of the 2nd International Conference on E-Society, E-Education and E-Technology*, pp. 83-87.

Noreen, U., Shafique, A., Ahmed, Z. and Ashfaq, M., 2023. Banking 4.0: Artificial Intelligence (AI) in Banking Industry & Consumer's Perspective. *Sustainability*, 15(4), 3682. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/su15043682>.

Rawwash, H., Masad, F., Enaizan, O., Eneizan, B., Adaileh, M., Saleh, A. and Almestarihi, R., 2020. Factors affecting Jordanian electronic banking services. *Management Science Letters*, 10(4), 915-922.

Roncione, V. and Massari, M., 2022, Gamification as a Customer Loyalty Tool. Evidence from the Italian Banking Industry. *Journal of Applied Finance and Banking*, 12(3), 1-15.

Siraye, Z., 2014, Customers' adoption of electronic banking service channels in Ethiopia: an integration of technology acceptance model and perceived risk with theory of planned behaviour. *International Journal of Electronic Finance*, 8(1), 21-34.

Teka, B. M., 2020, Factors affecting bank customers usage of electronic banking in Ethiopia: Application of structural equation modeling (SEM), *Cogent Economics & Finance*, 8(1), 1762285.

Yousuf, A. I. and Shanyu, L., 2021, Examining the Factors Impact People's Intention to Adoption of E-Banking in Mogadishu-Somalia, *American Journal of Industrial and Business Management*, 11(12), 1218-1236.

Zahrani, A. A., 2021, Consumers' Perceptions of Intention to Use a Credit Card: Perceived Risk and Security, *Entrepreneurship and Sustainability Center*, 9(2), 37-49.