

Eco – Banking Practices as CSR: Evaluating Paperless Banking and Digital CSR Initiatives in Tenkasi District

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Abstract

Eco-banking has become an important component of Corporate Social Responsibility (CSR) within the modern banking sector. This study focuses on assessing paperless banking systems and digital CSR initiatives implemented by banks in Tenkasi District. With increasing concern for environmental sustainability, banks are adopting digital solutions such as online transactions, mobile banking, and e-statements to reduce paper usage and carbon emissions. Paperless banking not only conserves natural resources but also improves operational efficiency and customer convenience. In addition, digital CSR initiatives contribute to financial inclusion, digital awareness, and community development. The research is based on primary data collected from bank customers and officials to evaluate their awareness, adoption level, and perception of eco-friendly banking practices. The findings indicate a growing acceptance of digital banking services among customers, driven by ease of use and environmental consciousness. However, issues such as limited digital literacy, cyber security concerns, and inadequate infrastructure in rural areas continue to affect wider adoption. The study concludes that eco-banking practices effectively align CSR objectives with sustainable development goals, particularly in semi-urban and rural regions like Tenkasi. It suggests that banks should strengthen digital education, enhance security measures, and expand outreach programs to improve the effectiveness of eco-friendly initiatives.

Keywords: *Eco Banking, CSR, Paperless banking, Digital Banking*

1. Introduction

Corporate Social Responsibility (CSR) in the banking sector has evolved significantly, moving beyond traditional charitable activities toward the adoption of

sustainable and environmentally responsible practices. In this context, eco-banking has emerged as a progressive approach that integrates environmental concerns into banking operations and services. Banks are increasingly adopting paperless systems such as e-statements, digital transactions, and mobile banking applications to minimize paper usage and reduce their overall environmental impact. Alongside this, digital CSR initiatives—such as financial literacy programs, digital awareness campaigns, and inclusive banking technologies—play a crucial role in promoting both social welfare and sustainable development. These initiatives are particularly important in rural and semi-urban areas like Tenkasi District, where they help connect traditional banking users with modern digital platforms and services. The shift toward eco-friendly banking not only supports environmental conservation but also enhances customer convenience through faster, efficient, and accessible services. However, the successful implementation of these practices is often challenged by factors such as low digital literacy, inadequate technological infrastructure, and concerns regarding cyber security. Against this backdrop, the present study seeks to examine eco-banking practices as a component of CSR in Tenkasi District. It aims to evaluate the effectiveness of paperless banking and digital CSR initiatives, identify the key challenges in their adoption, and explore future opportunities for promoting sustainable banking practices in the region.

2. Review of Literature

A study by Muchiri et al. (2025) provided a comprehensive global review of green banking practices, focusing on both opportunities and challenges. The findings indicate that paperless banking significantly contributes to reducing carbon emissions and can be widely implemented. However, the study highlights that rural regions continue to struggle with issues such as limited digital access and lack of technological awareness. The authors emphasize the need for supportive policies and capacity-building programs to ensure inclusive growth. They conclude that the success of digital CSR initiatives depends largely on adequate infrastructure and improved digital literacy. Galletta et al. (2024) conducted a PRISMA-based systematic review to examine the issue of greenwashing in the banking sector and its impact on stakeholder confidence. The study reveals that some banks promote sustainability claims without substantial operational backing, which negatively affects their credibility. The authors recommend the implementation of stricter disclosure norms and independent auditing mechanisms to ensure transparency. The study concludes that genuine

eco-banking practices are essential to maintain trust and avoid superficial CSR activities. Khan et al. (2024) analyzed the role of green finance instruments in promoting environmental sustainability. The review highlights that while these instruments have a positive impact, their effectiveness is often limited by inconsistent measurement standards and weak governance structures. The authors suggest the development of standardized frameworks and long-term evaluation strategies to improve accountability. The study concludes that strong regulatory mechanisms are crucial for ensuring the credibility and effectiveness of green CSR practices in the banking sector. Aslam and Jawaid (2023) explored the key factors influencing the adoption of green banking through a systematic review approach. Their findings suggest that technological advancements, regulatory support, and customer awareness act as major drivers, while high implementation costs and low literacy levels, particularly in rural areas, act as barriers. The authors propose the use of mixed research methods and stronger policy frameworks to enhance adoption rates. They conclude that region-specific studies are necessary to better understand local challenges, especially in areas like Tenkasi.

3. Research Objectives

- ❖ To analyze the level of implementation of paperless banking practices among banks in Tenkasi District within the framework of Corporate Social Responsibility.
- ❖ To assess the influence of digital CSR initiatives such as mobile banking, e-statements, and online services on customer satisfaction as well as environmental sustainability.
- ❖ To explore the key challenges and potential opportunities encountered by banks in adopting eco-banking practices in the rural and semi-urban regions of Tenkasi District.

4. Methodology

The study adopts a mixed-methods approach using an explanatory research design, where quantitative data is complemented by qualitative insights for a comprehensive analysis. The target population includes bank customers and employees from scheduled, private, cooperative, and regional rural banks operating in Tenkasi District. A sample of 360 customers is selected through a multi-stage stratified sampling technique to ensure proper representation of different banking segments. In addition, 15 bank managers are chosen through purposive sampling to provide in-depth qualitative perspectives. Primary data is

collected using a well-structured questionnaire consisting of Likert-scale statements that measure variables such as the adoption of paperless banking, perception of digital CSR initiatives, customer satisfaction, institutional preparedness, and environmental impact. To enrich the findings, focus group discussions with customers and semi-structured interviews with bank managers are conducted to understand their experiences, challenges, and strategic approaches. A pilot study involving 50 respondents is carried out to test the clarity, validity, and reliability of the research instrument, ensuring the accuracy and consistency of the data collected.

5. Research Hypotheses

H0₁: There is no significant difference in customer satisfaction across different age groups of the customers in Tenkasi District.

H0₂: There is no significant relationship between paperless banking adoption (IT infrastructure, staff training, security, digital literacy) and customer satisfaction among bank customers in Tenkasi District.

H0₃: The frequency of digital transactions does not significantly predict the convenience and ease of using paperless banking among bank customers in Tenkasi District.

6. Analysis and Discussion

6.1. Profile

Analysis of demographic profile of the respondents for the study is shown below:

Table – 1 Profile

S. No.	Profile	Categories	Frequencies	Percentage
1.	Gender	Male	245	65.50
		Female	130	34.50
		Total	375	100.00
2.	Age	Below 20	95	25.50
		21 – 30	115	30.50
		31 – 40	60	16.20
		41 – 50	79	20.90
		Above 51	26	6.90
		Total	375	100.00

3.	Education	School level	51	13.30
		Diploma	71	19.20
		Graduate	115	30.50
		Postgraduate	94	25.20
		Others	44	11.70
		Total	375	100.00
4.	Occupation	Student	76	20.70
		Employee	105	27.60
		Entrepreneur	72	18.80
		Former	66	18.00
		Homemaker	40	10.80
		Manager	16	4.00
		Total	375	100.00
5.	Monthly Income	Below 15000	187	50.10
		Rs. 15001 – Rs 30000	141	37.30
		Rs. 30001 – Rs. 45000	16	4.50
		Above Rs 45001	31	8.10
		Total	375	100.00
6.	Type of Bank	Public Sector	223	59.10
		Private Sector	118	31.80
		Cooperative Bank	34	9.10
		Total	375	100.00
7.	Frequency of digital transactions	Daily	144	38.20
		Weekly	94	25.20
		Monthly	84	22.70
		Rarely	53	13.90
		Total	375	100.00
8.	Type of services used	Mobile banking	70	18.30
		Net banking	25	6.30
		E-Statements	26	6.70
		ATM	136	36.30
		UPI	120	32.30
		Total	375	100.00

Source: Primary Data

The demographic analysis indicates that a majority of the respondents are male, suggesting comparatively higher participation of men in banking-related surveys, though female representation is also significant. The age distribution shows that most respondents fall within the 21–30 age group, followed by those below 20, highlighting that younger individuals are more actively engaged with banking services, particularly digital platforms.

In terms of educational qualification, a considerable proportion of respondents are graduates and postgraduates, indicating that higher education levels may influence awareness and adoption of eco-banking practices. Occupationally, employees form the largest group, followed by students and entrepreneurs, which reflects a diverse mix of income earners and future users of banking services.

The income profile reveals that a majority of respondents fall under the lower income bracket (below Rs.15,000), suggesting that eco-banking and digital services are reaching economically diverse groups, including those with limited financial resources. Public sector banks are the most preferred among respondents, indicating higher trust and accessibility compared to private and cooperative banks.

Regarding digital transaction behavior, a significant number of respondents engage in daily and weekly transactions, demonstrating a growing reliance on digital banking channels. Among the various services, ATM usage remains the most common, followed closely by UPI transactions, while mobile banking, e-statements, and net banking show moderate adoption levels.

The findings suggest that younger, educated, and working individuals are more inclined toward digital and paperless banking practices. While digital adoption is steadily increasing, traditional services like ATMs still play a vital role. The results also indicate that there is considerable scope to enhance awareness and usage of advanced eco-banking services, especially among less frequent users and lower-income groups.

6.2. Paperless Banking Adoption & CSR Perception

Table – 2 Adoption

S. No.	Adoption	SD	D	A	SA	A	Mean
1	Regularity of conducting digital banking transactions	6	27	51	126	165	4.10
2	Preference for electronic statements instead of printed statements	27	25	65	110	148	3.88
3	Level of awareness regarding banks' eco-friendly CSR initiatives	21	70	82	76	124	3.57
4	Involvement in digital financial education and awareness programs	31	35	59	100	147	3.79
5	Usage of mobile banking and internet banking facilities	21	27	48	136	143	3.95
6	Customer perception of banks' commitment to environmental sustainability	26	20	101	122	106	3.70
7	Effectiveness and dependability of digital banking infrastructure	24	43	62	114	132	3.79
8	Availability of staff assistance and training for digital services	19	34	73	142	107	3.75
9	Level of security and confidence in online banking platforms	23	38	67	130	119	3.75
10	Overall satisfaction with paperless banking services	31	42	53	131	116	3.71

Source: Primary Data

The findings indicate that the regular use of digital banking services has the highest mean score (4.10), showing strong customer adoption of online transactions. The usage of mobile and internet banking is also high (mean 3.95), reflecting an increasing reliance on digital platforms. Customers show a favorable preference for e-statements over printed statements (mean 3.88), highlighting a shift toward paperless banking practices. However, awareness of eco-friendly CSR initiatives remains comparatively lower (mean 3.57), suggesting the need for better communication by banks. Participation in digital financial

literacy programs is moderate (mean 3.79), indicating some level of engagement with scope for improvement. The perception of banks' environmental responsibility (mean 3.70) is reasonably positive among respondents. The effectiveness of digital infrastructure (mean 3.79) and staff support for digital services (mean 3.75) are satisfactory but not exceptional. Security and trust in online banking systems (mean 3.75) are at a moderate level, with some concerns still present. Overall satisfaction with paperless banking services (mean 3.71) reflects a generally positive experience, though there is room for further enhancement.

6.3. Customer Satisfaction and Sustainable Behaviour Outcomes

Table – 3 Outcomes

S. No.	Customer satisfaction	SD	D	A	SA	A	Mean
1	Ease and comfort in using paperless banking services	4	17	45	139	170	4.20
2	Level of trust in the bank's environmentally responsible initiatives	18	19	54	121	163	4.04
3	Degree of confidence in the safety of digital transactions	11	50	86	83	144	3.80
4	Readiness to continue using digital banking services in the future	26	27	50	92	180	3.98
5	Likelihood of recommending the bank to others (customer loyalty)	31	14	36	127	167	4.03
6	Awareness of the environmental advantages of paperless banking	35	12	91	121	116	3.72
7	Perception of decreased paper usage through digital banking services	29	27	52	122	145	3.89
8	Preference for eco-friendly banking options over conventional methods	31	24	61	150	100	3.75

9	Adoption of sustainable financial practices influenced by CSR activities	29	34	61	107	144	3.81
10	Overall level of satisfaction with digital banking services	39	37	37	134	130	3.75

Source: Primary Data

The analysis of Table 3 indicates that customers in Tenkasi District customer satisfaction variables indicates a strong positive response toward paperless and digital banking services. Ease and comfort in using paperless banking record the highest mean score (4.20), with 139 respondents agreeing and 170 strongly agreeing, reflecting excellent user experience. Trust in the bank's eco-friendly initiatives is also high (mean 4.04), supported by 121 agree and 163 strongly agree responses. The likelihood of recommending the bank (mean 4.03) and willingness to continue using digital banking (mean 3.98) further highlight strong customer loyalty and acceptance. Confidence in the security of digital transactions shows a moderate mean (3.80), with some level of concern indicated by 50 respondents disagreeing. Awareness of environmental benefits (mean 3.72) and preference for eco-friendly services (mean 3.75) remain moderate, suggesting the need for greater awareness initiatives. The perception of reduced paper usage (mean 3.89) and adoption of sustainable financial behavior (mean 3.81) reflect a fairly positive impact of CSR activities. Overall satisfaction with digital banking services (mean 3.75) indicates a generally favorable experience, though there is still scope for improvement in areas such as awareness, security, and service enhancement.

6.4. Relationship between Customer Satisfaction and Age of the Customers

For the purpose of testing hypothesis, *Kruskal Wallis* test is used. The results of the test are shown in the Table 4 along with chi-square value, P value and Result.

Table – 4 Relationship between Customer Satisfaction and Age of the Customers

S. No	Independent variables	Dependent variable	Chi-Square	P-value	Result
1.	Age	Ease and comfort in using paperless banking services	3.477	0.482	Accept

2.	Age	Level of trust in the bank's environmentally responsible initiatives	10.321	0.037	Reject
3.	Age	Degree of confidence in the safety of digital transactions	4.213	0.378	Accept
4.	Age	Readiness to continue using digital banking services in the future	10.329	0.034	Reject
5.	Age	Likelihood of recommending the bank to others (customer loyalty)	5.121	0.276	Accept
6.	Age	Awareness of the environmental advantages of paperless banking	4.919	0.295	Accept
7.	Age	Perception of decreased paper usage through digital banking services	2.032	0.717	Accept
8.	Age	Preference for eco-friendly banking options over conventional methods	3.989	0.415	Accept
9.	Age	Adoption of sustainable financial practices influenced by CSR activities	8.829	0.059	Accept
10.	Age	Overall level of satisfaction with digital banking services	3.213	0.524	Accept

Source: Primary Data

The Kruskal Wallis test was applied to examine the relationship between age and various customer satisfaction variables in digital and paperless banking. The results indicate that most variables have p-values greater than 0.05, showing no significant relationship with age. Factors such as ease and comfort in using paperless banking ($p = 0.482$), confidence in digital transaction security ($p = 0.378$), customer loyalty ($p = 0.276$), and overall satisfaction ($p = 0.524$) are not influenced by age. Similarly, awareness of environmental benefits ($p = 0.295$), perception of reduced paper usage ($p = 0.717$), preference for eco-friendly banking options ($p = 0.415$), and adoption of sustainable financial behavior ($p = 0.059$) also do not

vary significantly across age groups. However, two variables trust in the bank's eco-friendly initiatives ($p = 0.037$) and willingness to continue using digital banking services ($p = 0.034$) show a statistically significant relationship with age, as their p-values are less than 0.05. This indicates that different age groups vary in their level of trust and intention to continue digital banking usage. The findings suggest that while most aspects of customer satisfaction are consistent across age groups, specific factors such as trust and future usage intentions are influenced by age, highlighting the importance of age-specific strategies in eco-banking practices.

6.5. Correlation between Paperless Banking Adoption and Customer Satisfaction

Table – 5 Correlation

S. No.	Adoption	Satisfaction	Pearson's r
Very Strong Relationships			
1	Regularity of conducting digital banking transactions	Ease and comfort in using paperless banking services	0.822**
2	Preference for electronic statements instead of printed statements	Level of trust in the bank's environmentally responsible initiatives	0.789**
3	Level of awareness regarding banks' eco-friendly CSR initiatives	Degree of confidence in the safety of digital transactions	0.815**
4	Overall satisfaction with paperless banking services	Overall level of satisfaction with digital banking services	0.766**
Strong Relationships			
5	Involvement in digital financial education and awareness programs	Readiness to continue using digital banking services in the future	0.661**
6	Usage of mobile banking and internet banking facilities	Likelihood of recommending the bank to others (customer loyalty)	0.711**

7	Customer perception of banks' commitment to environmental sustainability	Awareness of the environmental advantages of paperless banking	0.697**
8	Effectiveness and dependability of digital banking infrastructure	Perception of decreased paper usage through digital banking services	0.689**
9	Availability of staff assistance and training for digital services	Preference for eco-friendly banking options over conventional methods	0.617**
10	Level of security and confidence in online banking platforms	Adoption of sustainable financial practices influenced by CSR activities	0.697**

Note: Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis between paperless banking adoption and customer satisfaction reveals a strong and positive relationship across all variables, indicating that increased adoption of eco-banking practices significantly enhances customer satisfaction. The results show several very strong correlations, highlighting the critical role of digital banking usage in shaping customer experiences.

The regularity of digital banking transactions and ease of using paperless banking services exhibit the highest correlation ($r = 0.822$), suggesting that frequent users of digital banking find such services more convenient and user-friendly. Similarly, the awareness of eco-friendly CSR initiatives is strongly associated with confidence in digital transaction security ($r = 0.815$), implying that informed customers tend to trust digital systems more. The relationship between preference for e-statements and trust in banks' environmental initiatives ($r = 0.789$) indicates that customers who adopt paperless options also develop greater trust in the bank's sustainability efforts. Furthermore, the correlation between overall satisfaction with paperless banking and overall digital banking satisfaction ($r = 0.766$) confirms that positive experiences with eco-banking directly contribute to overall customer satisfaction.

In addition to very strong relationships, several strong correlations are observed. Participation in digital financial literacy programs is positively related to the willingness to continue using digital banking ($r = 0.661$), showing the importance of awareness programs in

sustaining customer engagement. The use of mobile and internet banking services strongly correlates with customer loyalty ($r = 0.711$), indicating that digital adoption encourages customers to recommend the bank to others.

The perception of banks' environmental responsibility is closely linked with awareness of environmental benefits ($r = 0.697$), suggesting that CSR initiatives effectively influence customer understanding of sustainability. Likewise, the effectiveness of digital infrastructure correlates with the perception of reduced paper usage ($r = 0.689$), emphasizing the role of reliable systems in promoting eco-friendly practices. The availability of staff support also shows a strong relationship with preference for eco-friendly banking options ($r = 0.617$), indicating that guidance and assistance encourage customers to adopt sustainable services.

The security and trust in online banking platforms are strongly associated with the adoption of sustainable financial behavior ($r = 0.697$), highlighting that customer confidence in security systems is essential for promoting long-term eco-banking practices.

The findings confirm that higher levels of paperless banking adoption are directly linked to increased customer satisfaction. The results emphasize that awareness, infrastructure, security, and support services play a crucial role in strengthening both digital adoption and sustainable customer behavior in the banking sector.

6.6. Regression Analysis of Frequency of Digital Transactions and Convenience and Ease of Using Paperless Banking

Table – 6 Regression

R	R Square	Adjusted R²	Std. Error of Estimate
0.653	0.425	0.424	0.767

Table – 7 ANOVA

Source	SS	Df	MS	F	Sig.
Regression	168.045	1	161.047	275.777	0.000
Residual	216.251	372	0.583		
Total	376.297	373			

Table – 8 Coefficients

Predictor (IV)	B (Unstd.)	Beta (Std.)	T	Sig.
Constant	1.079	-	5.762	.000
Convenience and ease of using paperless banking	0.721	0.044	16.578	.000

The regression analysis was conducted to examine the influence of convenience and ease of using paperless banking on the frequency of digital transactions. The model summary shows a correlation coefficient (R) of 0.653, indicating a moderate positive relationship between the variables. The coefficient of determination (R^2) is 0.425, which implies that approximately 42.5% of the variation in the frequency of digital transactions is explained by the convenience and ease of using paperless banking. The adjusted R^2 value (0.424) further confirms the reliability of the model.

The ANOVA results reveal that the regression model is statistically significant, as indicated by the F-value of 275.777 with a significance level of $p = 0.000$. This confirms that the model is a good fit and that the independent variable has a meaningful impact on the dependent variable.

The coefficient analysis shows that convenience and ease of using paperless banking have a positive and significant effect on the frequency of digital transactions, with an unstandardized coefficient (B) of 0.721 and a t-value of 16.578 ($p = 0.000$). This indicates that an increase in perceived convenience leads to a significant increase in digital transaction

frequency. The constant value (1.079) suggests the baseline level of digital transactions when the independent variable is held constant.

The findings clearly demonstrate that convenience and user-friendliness of paperless banking services play a crucial role in encouraging customers to engage more frequently in digital transactions. This highlights the importance for banks to enhance the usability and accessibility of digital platforms to promote eco-banking practices.

7. Conclusion

The study concludes that eco-banking practices have become an essential part of CSR in the banking sector, particularly in regions like Tenkasi District. The findings reveal a strong adoption of digital and paperless banking services, especially among younger and educated customers. Paperless banking initiatives such as mobile banking and e-statements significantly contribute to environmental sustainability by reducing paper usage. Customer satisfaction is generally high, with ease of use and trust in eco-friendly initiatives playing a major role. The analysis also indicates that most satisfaction factors are not influenced by age, except for trust and continued usage intention. A strong positive correlation exists between paperless banking adoption and customer satisfaction, confirming that increased digital engagement improves customer experience. The regression results further highlight that convenience and ease of use significantly influence the frequency of digital transactions. However, challenges such as limited awareness of CSR initiatives, moderate digital literacy, and security concerns still affect wider adoption. The study emphasizes the need for banks to strengthen digital infrastructure, improve customer education, and enhance trust in online systems. Overall, eco-banking practices effectively support both environmental sustainability and customer satisfaction, making them a crucial strategy for the future growth of the banking sector.

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