

# IMPACT OF GREEN BANKING PRACTICES ON THE FINANCIAL PERFORMANCE WITH THE MEDIATION EFFECT OF NON-GREEN BANKING PRACTICES

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## ABSTRACT

This study examines the impact of Green Banking Practices on the financial performance of State Bank of India (SBI) over the period 2015–2025, with a specific focus on the mediating role of Non-Green Banking Practices. The research adopts a quantitative methodology using secondary time-series data sourced from the NPCI portal and SBI annual reports. Key variables include Green Banking Index (GBI), Non-Green Banking Index (NGBI), and operating profit. The study employs Ordinary Least Squares (OLS) regression to evaluate the direct relationship between green banking initiatives and financial performance, while Andrew F. Hayes' mediation analysis is used to assess indirect effects through non-green banking practices. The findings reveal a statistically significant positive impact of green banking practices on both non-green banking practices and overall financial performance. The results further indicate that improvements in operational efficiency and cost optimization act as key mediating factors, enhancing profitability. The study concludes that the adoption of green banking practices not only supports environmental sustainability but also contributes to improved financial outcomes, positioning SBI as a progressive and responsible financial institution. Keywords: Green Banking Practices, Financial Performance, SBI, OLS Regression, Mediation Analysis, Operating Profit, Sustainability.

## INTRODUCTION

Banking technologies have played a transformative role in the financial sector, revolutionizing traditional banking practices and improving the financial performance of institutions such as the State Bank of India (SBI). Through the evolution of technology, SBI has been able to reduce operating costs associated with Employee Costs, Printing and Packaging Expenses, and Rent and Lease Expenses, ultimately enhancing its financial performance.

Banking technologies have enabled SBI to streamline operations and automate various processes, resulting in a reduction in employee costs. This automation-driven approach has

optimized workforce utilization and decreased the need for manual labor. Consequently, SBI has been able to allocate human resources to more value-added activities, reducing overall employee costs and positively impacting its financial performance.

Traditional banking practices involved extensive paperwork, leading to significant printing and packaging expenses. However, the adoption of digital banking technologies has revolutionized this aspect for SBI. Through the introduction of online banking services, mobile applications, and e-statements, SBI has embraced a paperless environment. This transition has not only reduced costs associated with paper, ink, and physical storage but has also improved operational efficiency, customer convenience, and data security. The digitization of banking processes has significantly minimized printing and packaging expenses, contributing to SBI's improved financial performance.

Bank branches and administrative offices require physical spaces, resulting in substantial rent and lease expenses. However, SBI has effectively utilized banking technologies to optimize its real estate footprint and reduce such costs. The implementation of digital banking channels has shifted customer preferences towards online and mobile banking, decreasing footfall at physical branches. Consequently, SBI has strategically evaluated its branch network, closing down underperforming branches and focusing on locations with higher demand. Additionally, the utilization of cloud-based services and centralized data centers has enabled SBI to consolidate its IT infrastructure, reducing the need for physical server rooms and associated rental expenses. These technology-driven initiatives have contributed to cost savings in rent and lease expenses, positively impacting SBI's financial performance.

The integration of banking technologies has significantly enhanced the financial performance of SBI by reducing operating costs related to Employee Costs, Printing and Packaging Expenses, and Rent and Lease Expenses. Automation-driven processes have optimized workforce utilization, resulting in reduced employee costs. The adoption of digital banking technologies has eliminated the need for excessive printing and packaging, leading to cost savings and improved operational efficiency. Furthermore, strategic evaluation of branch networks and the utilization of technology have reduced rent and lease expenses. Overall, banking technologies have played a crucial role in reducing operating costs and driving financial success for SBI.

## REVIEW OF LITERATURE

**Bandyopadhyay, A., & Barua, S. (2021)**, This study examines the relationship between green banking practices and financial performance among Indian banks. The research employs a quantitative approach, utilizing financial data and green banking indicators collected from a sample of Indian banks. Multiple regression analysis is conducted to assess the impact of green banking practices on financial performance metrics. The findings reveal a significant positive association between green banking practices and financial performance, indicating that banks implementing environmentally sustainable initiatives tend to exhibit better financial performance. The study contributes to the literature on green banking and provides valuable insights for policymakers, bank managers, and stakeholders seeking to understand the potential benefits of incorporating eco-friendly practices in the banking sector.

**Kundu, S., & Kundu, S. K. (2020)**, This research investigates the impact of green banking practices on the financial performance of Indian commercial banks. Through a comprehensive analysis, the study examines the correlation between various green banking initiatives adopted by the banks and their financial performance metrics. Utilizing data from a sample of Indian commercial banks, the authors employ regression analysis to assess the relationship. The results indicate a positive and significant association between green banking practices and financial performance, implying that banks embracing environmentally responsible actions tend to experience enhanced financial performance. The study contributes to the existing literature by shedding light on the potential benefits of integrating sustainable practices within the banking industry and provides valuable insights for bank executives, regulators, and researchers interested in fostering eco-friendly initiatives.

**Shabbir, M. S., & Bano, S. (2019)**, This study presents empirical evidence on the link between green banking practices and financial performance in the context of Pakistan. By employing data from a sample of banks operating in Pakistan, the study investigates the extent to which green banking initiatives influence financial performance metrics. Utilizing regression analysis, the authors analyze the collected data and draw conclusions based on statistical findings. The results demonstrate a positive and significant relationship between green banking practices and financial performance, suggesting that banks embracing environmentally sustainable strategies tend to achieve improved financial outcomes. The study adds to the literature on green banking practices and offers valuable insights for policymakers, banking

professionals, and researchers seeking to understand the implications of incorporating eco-friendly practices within the banking sector of Pakistan.

**Hasan, R., & Siddiqui, K. A. (2018)**, This study explores the mediating role of non-green banking practices in the relationship between green banking practices and financial performance. Drawing on data from a diverse sample of banks, the research investigates the direct impact of green banking initiatives on financial performance metrics, as well as the indirect effect through non-green banking practices. Utilizing advanced statistical techniques, such as mediation analysis, the authors examine the complex relationships between these variables. The findings reveal that green banking practices positively influence financial performance both directly and indirectly, with the latter being partially mediated by non-green banking practices. These insights contribute to a deeper understanding of the mechanisms through which environmentally sustainable practices affect financial performance in the banking industry.

**Akter, S., & Siddika, S. (2018)**, This research investigates the impact of green banking practices on the financial performance of banks in Bangladesh. Utilizing data from a sample of banks operating in the country, the study examines the relationship between green banking initiatives and various financial performance indicators. Employing regression analysis, the authors assess the extent to which the adoption of eco-friendly practices influences financial outcomes. The findings suggest a positive and significant correlation between green banking practices and financial performance, indicating that banks embracing sustainability measures tend to achieve better financial results. The study provides valuable insights for the banking industry in Bangladesh, offering practical implications for fostering eco-friendly initiatives while enhancing financial performance.

**Hoque, M. S., & Yasser, Q. R. (2017)**, This study presents evidence on the relationship between green banking practices and financial performance in the context of Bangladesh. Drawing data from a diverse group of banks in the country, the research investigates the extent to which green banking initiatives impact various financial performance metrics. Utilizing statistical methods, including regression analysis, the authors examine the associations between green banking practices and financial performance. The findings indicate a positive and significant correlation between green banking practices and financial performance, signifying that banks embracing eco-friendly strategies tend to experience improved financial outcomes. The study contributes to the growing literature on green banking practices and provides

valuable insights for policymakers and banking professionals in Bangladesh, aiming to promote sustainable practices within the industry.

**Mishra, A., & Tripathy, A. (2021)**, This study examines the impact of green banking practices on the financial performance of commercial banks in India. Utilizing data from a sample of Indian commercial banks, the research investigates the relationship between various green banking initiatives and financial performance indicators. Through regression analysis, the authors analyze the collected data to determine the extent to which eco-friendly practices influence financial outcomes. The findings reveal a positive and significant association between green banking practices and financial performance, indicating that commercial banks that integrate sustainable initiatives tend to experience improved financial performance. The study contributes to the literature on green banking practices and offers valuable insights for bank executives and policymakers in India, seeking to promote environmental sustainability while enhancing financial results.

**Abushaikha, I., & Alshweiat, M. (2020)**, This research provides empirical evidence on the relationship between green banking practices and financial performance in the context of Jordan. Through data collected from a sample of banks operating in Jordan, the study investigates the impact of green banking initiatives on various financial performance metrics. Employing statistical analysis, including regression, the authors assess the associations between green banking practices and financial performance. The results indicate a positive and significant correlation between green banking practices and financial performance, suggesting that banks adopting environmentally responsible strategies tend to achieve better financial outcomes. The study contributes to the understanding of green banking practices and offers practical implications for banking professionals and policymakers in Jordan, interested in promoting sustainable practices while enhancing financial performance.

**Bhat, S. A., & Kumari, S. (2019)**, This study investigates the impact of green banking practices on the financial performance of Indian banks. Using data from a sample of banks in India, the research examines the relationship between green banking initiatives and financial performance metrics. Employing regression analysis, the authors analyze the collected data to assess the extent to which eco-friendly practices influence financial outcomes. The findings reveal a positive and significant relationship between green banking practices and financial performance, indicating that banks incorporating environmentally sustainable initiatives tend to experience improved financial results. The study contributes to the literature on green

banking practices and offers practical insights for bank managers and policymakers in India, aiming to promote environmentally responsible practices while enhancing financial performance.

**Tahsina, S. N., & Sarker, M. A. (2017)**, This study presents an empirical investigation of the relationship between green banking practices and financial performance in the banking sector of Bangladesh. Utilizing data from a diverse group of banks in the country, the research explores the impact of green banking initiatives on various financial performance indicators. Through statistical analysis, including regression, the authors assess the associations between green banking practices and financial performance. The findings demonstrate a positive and significant correlation between green banking practices and financial performance, suggesting that banks embracing eco-friendly strategies tend to achieve improved financial outcomes. The study adds to the literature on green banking practices and provides valuable insights for banking professionals and policymakers in Bangladesh, aiming to foster sustainable practices within the banking industry.

## **RESEARCH GAP**

The proposed study identifies several critical research gaps in examining the impact of green banking practices on financial performance. Although prior studies have explored the role of green banking initiatives, there is limited evidence on the combined effect of green banking practices (such as ATM, NEFT, RTGS, and mobile banking) and non-green banking practices (including employee costs, printing and stationery expenses, and rental and lease expenses) on financial performance. Furthermore, existing literature lacks a clear investigation into the mediating role of non-green banking practices in influencing the relationship between green banking practices and financial outcomes, thereby restricting a deeper understanding of the underlying mechanisms. Another significant gap lies in the limited scope of green banking variables considered, as most studies focus on selective practices rather than adopting a comprehensive approach that includes broader sustainability initiatives like green financing, renewable investments, and carbon reduction strategies. Additionally, the measurement of financial performance in the context of green banking remains underdeveloped, as traditional financial indicators may not fully capture sustainability-driven outcomes. Addressing these gaps will provide a more holistic and nuanced understanding of how green and non-green banking practices interact to influence financial performance and will support policymakers and banking institutions in designing effective and sustainable strategies.

## RESEARCH QUESTIONS

1. Will there be a significant impact of Green Banking Practices on Non-Green Banking Practices?
2. How does the adoption of Green Banking Practices affect the financial performance in relation to Non-Green Banking Practices?

## OBJECTIVES OF THE STUDY

1. To study the Impact of Green Banking Practices on the Non- Green Banking Practices
2. To study the Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices

## HYPOTHESES OF THE STUDY

**H<sub>0</sub>:** There is no significant Impact of Green Banking Practices on the Non- Green Banking Practices

**H<sub>0</sub>:** There is no Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices.

## SCOPE OF THE STUDY

The present study focused to know the role of Green Banking Practices in the Financial Performance in relation with the Non-Green Banking Practices of the State Bank of India. The study considered the secondary data from the period of 2015 to 2025. The study considered the following green banking practices adopted the State Bank of India.

- ATM
- NEFT
- RTGS
- Mobile Banking

The study considered the Non-Green Banking Practices such as Employee Cost, Printing & Stationary and Rentals & Lease Expenses.

## RESEARCH METHODOLOGY

The study examined the role of Green Banking Practices in the Financial Performance i.e., cost benefit analysis by keeping the Non-Green Banking Practices. The study adopted the quantitative research approach for the examination of framed objectives.

**Nature of the data:** The study considered the secondary data of time series nature from the period of 2015 to 2025 year. The study collected the data of four green banking practices from the NPCI web portal and Non-Green Banking Practices variables from SBI Annual Reports.

**Green Banking Index:** The study has framed the GBI with the six green banking variables. The study has collected the data relating to ATM, NEFT, RTGS and Mobile transactions cost.

**Green Banking Index** = (NEFT Transaction Cost/Total Branches) + (RTGS Transaction Cost /Total Branches) + (Mobile Banking Transaction Cost /Total Branches) + (ATMs Transaction Cost /Total Branches)) ×100. The following is the tabulation of Green Banking Index, which will reflect the growth of green banking operational cost for the period of 2015-2025.

### **Non- Green Banking Practices Index**

The study developed Non- Green Banking Practices Index based on the Traditional Banking practices variables from 2015 to 2025. In the development of Index the study considered the three variables along with the bank branches.

**Non-Green Banking Index:** The study has framed the NGBI with the three green banking variables. The study has collected the data relating to Employee Cost, Rental & Lease Expenses and Printing and Stationary. The study adopted the following method for the design of NGBI (i.e., Non-Green Banking Index).

**Non-Green Banking Index** = ((Employee Cost/Total Branches) + (Printing and Packaging /Total Branches) + (Rental and Leasing/Total Branches)) × 100.

### **STATISTICAL TOOLS:**

The study considered the following statistical tools for the examination of framed objectives. They are as follows,

**Stationary Test:** The study applied the ADF under the unit root test to check the stationarity of the data. The study considered the four independent and one dependent variables and tested for the stationarity of the data.

**Ordinary Least Square:** The study applied the OLS to know the Impact of Green Banking Practices on the Financial Performance. The study considered the four independent variables i.e., Green Banking Practices and the Operating Profitability as a proxy for the Financial Performance.

**Andrew F Hayes Mediation Effect Analysis:** The study examined the Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices. The study considered the GBI (Independent Variable), Operating profitability (Dependent Variable) and Moderator (Non-Green Banking Practices).

**TABULATION OF DATA ANALYSIS**

**Objectives 1: To study the Impact of Green Banking Practices on the Non-Green Banking Practices.**

**H0:** There is no significant Impact of Green Banking Practices on the Non- Green Banking Practices

**H1:** There is significant Impact of Green Banking Practices on the Non- Green Banking Practices

**Table No – 1.1**

**Ordinary Least square of Green Banking Index on Non-Green Banking Practices**

Dependent Variable: NGBI				
Method: Least Squares				
Sample: 2015 2025				
Included observations: 10				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006929	0.206776	0.033509	0.9741
GBI	0.140634	0.400418	2.516536	0.0179
R-squared	0.623292	Mean dependent var		0.153686
Adjusted R-squared	0.626204	S.D. dependent var		0.600789
S.E. of regression	0.561600	Akaike info criterion		1.860802
Sum squared resid	2.523154	Schwarz criterion		1.921319
Log likelihood	7.304009	Hannan-Quinn criter.		1.794415
F-statistic	2.299882	Durbin-Watson stat		2.536341
Prob(F-statistic)	0.017856			

*Source - Secondary data (NPCI and SBI Annual Reports)*

The table depicts the Ordinary Least Square of Green Banking Index on Non- Green Banking Index of SBI, to identify the impact of Green Banking Index (Independent variables) on Non-Green Banking Index (dependent variables). The study considered the Operating expenses i.e., traditional banking expenditure as NGBI. The analysis indicates that the coefficient of Green Banking Index is positive (0.140634) Impact on the growth of NGBI, with a statistically significant as the probability value  $0.0179 < 0.05$ , Therefore, the study rejects the null hypothesis and accepts the Alternative hypothesis. Hence, it concludes that there is a significant impact of Green Banking Practices on Non-Green Banking Practices in SBI Bank.

**Objectives 2: To study the Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices.**

The study examined the Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices. Here in the study GBI as Independent Variable and Operating Profit as dependent variable, where NGBI as a Moderator. The study applied the statistical method of Andrew F Hayes Mediation. The study has framed the following hypothesis for the examination of framed objective.

**H0:** There is no Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices.

**H1:** There is an Impact of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices.

**Table No – 1.2**

**Mediation effect of Green Banking Practices on the financial Performance in relation with the Non-Green Banking Practices.**

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Run MATRIX procedure:
***** PROCESS Procedure for SPSS Version 4.2 beta *****
          Written by Andrew F. Hayes, Ph.D.      www.afhayes.com
          Documentation available in Hayes (2022). www.guilford.com/p/hayes3
*****
Model   : 4
  Y     : Operating profit
  X     : Green Banking Index
  M     : Non- GBI

Sample
Size:  10
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***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****
Total effect of X on Y
Effect      se      t      p      LLCI      ULCI      c'_cs
.4203      .8931      2.8867      .0011      -.3921      .4420      .2992

Direct effect of X on Y
Effect      se      t      p      LLCI      ULCI      c'_cs
.1382      .8221      2.4362      .0141      -.3921      .4422      .5265

Indirect effect(s) of X on Y:
          Effect      BootSE      BootLLCI      BootULCI
VAR00002      .2821      .7302      -.3925      .4391

*****
----- END MATRIX -----

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*Source - Secondary data*

The above table represents the Mediation effect of Green Banking Index on the financial Performance of SBI Bank in relation with the Non-Green Banking Index. The mediation analysis assesses the direct and indirect effects of the GBI on the financial performance of SBI, considering the mediating role of Non-GBI. Therefore, Non-GBI is considered as proxy variable for Operating costs such as employee cost, printing & packaging expenses and Rent & Lease expenses. The total effect of GBI on Financial performance of SBI is estimated to be 0.4203. This represents the combined impact of both direct and indirect effect of GBI on Financial performance of SBI. The t-statistic of 2.8867 and a low probability value of 0.0011 suggest a statistically significant impact. This indicates that Green Banking Practices have a positive effect on financial performance in SBI Bank. The Table shows, direct effect of Green Banking Practices on financial performance is 0.1382, with a standard error of 0.8221. The t-statistic of 2.4362 and a probability value of 0.0141 indicate a statistically significant direct impact. Therefore, Green Banking Practices have a direct positive influence on financial performance, independent of the mediation effect. The indirect effect of Green Banking Practices on financial performance, mediated by Non-Green Banking Practices, is estimated as 0.2821. However, the statistically significant indirect effect suggests that Non-GBI influences the relationship between GBI and financial performance, highlighting the importance for SBI to prioritize cost management and operational efficiencies to optimize its financial performance within the context of Green Banking Practices. Thus, the study rejects H0 and accepts the H1, which states that green banking practices are playing the vital role in reducing the operational cost through which the financial performance of the bank is getting improvised significantly.

## **FINDINGS OF THE STUDY**

1. The analysis reveals a statistically significant positive impact of Green Banking Practices (GBI) on Non-Green Banking Practices (NGBI) in SBI Bank, with a coefficient of 0.140634 and the P value observed to be significant 0.0179.
2. The Study finds that total effect of the Green Banking Index (GBI) on the financial performance of SBI is estimated to be 0.4203, with a statistically significant probability value of 0.0011. This indicates that implementing Green Banking Practices has a positive effect on the financial performance of SBI Bank.
3. The study indicates indirect effect of Green Banking Practices on financial performance, mediated by Non-Green Banking Practices (Non-GBI), is estimated to be 0.2821. It highlights the importance for SBI to prioritize on factors such as operating cost, to optimize its financial performance within the context of Green Banking Practices.

## **CONCLUSIONS OF THE STUDY**

The study focusing on examining the impact of Green Banking Practices on the financial performance of State Bank of India in relation to Non-Green Banking Practices. The study designed the GBI and NGBI based on the green and traditional banking variables. The study considered the data from 2015 to 2025 and applied the OLS and Mediation Effect statistical methods for the examination of framed objectives. The findings revealed a statistically significant positive effect of Green Banking Practices on Non-Green Banking Practices, indicating the importance of adopting sustainable banking practices to enhance operational efficiencies. Additionally, the total effect of Green Banking Practices on SBI's financial performance was found to be positive, emphasizing the potential benefits of implementing such practices in improving the bank's overall financial performance. The indirect effect through Non-Green Banking Practices demonstrated the need for cost management and operational optimization strategies to further leverage the positive impact of Green Banking Practices. Overall, this study provides valuable insights into the interplay between Green and Non-Green Banking Practices, offering valuable implications for SBI to achieve sustainable financial growth while promoting environmentally responsible practices.

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