Abstract

1. Introduction

With the increase in degradation of the natural environment over time, it has become necessary to take initiatives to support future growth through the implementation of environmental (green) strategies and frameworks. In this regard banks have a key role to play. Banks can make a big impact on the environment through managing their internal business processes as well as external lending and investing policies. By adopting Green Banking, a bank can take action and make a difference to the natural environment by going environment-friendly.

By implementing and adhering to various Green Banking practices, Indian banks are contributing to the environment. However, Green Banking practices varies across the banks and in this regard, this study analyzes the Green Banking Performance of Indian Banks with the help of a measuring tool. Additionally, this study examines perception of different stakeholder groups on Green Banking in light of their increased environmental consciousness.

2. Need of the Study

Banks play a key role as a mediator of funds in the economy. Banks' significance in an economy and the rise in interest of stakeholders towards environment have made it necessary for the banks to contribute towards the environment. Thus, in this regard it is important to measure Green performance of banks.

In context of India, SEBI guideline on Business Responsibility Report has made it necessary for top 500 companies to disclose about their social and environmental activities. Banks in India are disclosing their environmental activities in their annual reports and standalone reports. It is hence important to know the progress made by different banks on Green Banking. However, there is a dearth of studies that have explored or measured Green performance of banks. Also, there are different categories of banks in the Indian banking system like Public Sector Banks, Private Sector Banks, Small Finance Banks, Regional Rural Banks etc. It is important to compare Green Banking Performance of different categories of banks. Such a study will reflect upon the comparative status of Green Banking across different categories of banks. However,

there are no studies that have compared Green Banking Performance of different categories of banks. This study thus focuses upon Green Banking Performance of Indian Public and Private Sector Banks. Also, the study compares the Green Banking Performance of the two sectors.

The status of Green Banking in India cannot be completely understood without exploring stakeholders' perception on Green Banking. Green Banking is a concept which is still developing and is new to many stakeholders. Thus, information about Green Banking needs to be appropriately communicated to the stakeholders. In particular, the communication medium of Green Banking information, the format used for communicating Green Banking information, the location preferred by stakeholders for receiving Green Banking information are important areas that need to be researched and studied. Thus, this study will explore stakeholders' perception on Green Banking and Green Banking Disclosures.

Multi-Dimensional studies give an exhaustive picture of a research area. Thus, in this study Green Banking is explored from 4 different aspects as has been mentioned by Sarma & Roy (2021), namely Model Aspect, Green Banking Performance, Relationship between Green Banking Performance and corporate characteristics of banks and Stakeholders' Perception.

3. Objectives of Research

The research objectives of the study are:

Objective 1: To analyse the Green Banking practices and performance of selected Indian banks.

Objective 2: To examine the relationship between Green Banking Performance and corporate characteristics of banks.

Objective 3: To study the perception of selected stakeholders of banks with regard to Green Banking.

4. Scope and Limitations of the Study

The academic scope of the study is restricted to exploring Green Banking Performance of Indian Banks. For the purpose of this study, a Green Banking Performance Evaluation Index has been proposed and Green Banking Performance of Public Sector Banks and Private Sector Banks of India have been measured. The time period considered for measuring Green Banking Performance is a 10 year period (financial year) starting form 2009-2010 to 2018-2019. The study additionally covered the relationship between Green Banking Performance and financial and non-financial characteristics of banks. Also, the study delves into understanding the perception of selected stakeholders on Green Banking. Selected stakeholders covered in this study are internal stakeholders (employees/bankers) and external stakeholders of banks (customers). The geographical scope of the study is restricted to two metro cities of India with highest urban population and high literacy levels that is Delhi and Mumbai.

Even though efforts have been taken to conduct the research in the best possible manner, the study has its own fair share of limitations, which are listed below:

  i. The study measures the Green Banking Performance of only Public Sector Banks and Private Sector Banks. Thus, the Green Banking Performance of many other categories of banks like Regional Rural Banks, Foreign Banks, Small Finance Banks, and Payment Banks has not been explored.
 ii. For analyzing the relationship between Green Banking Performance and corporate characteristics of banks, only 6 corporate characteristics are considered in this study. Many other financial and non-financial parameters have not been considered for measuring its impact on Green performance of banks.
iii. Stakeholders covered in this study are from two metro cities. As such, the results cannot be extrapolated to other parts of India.
 iv. Stakeholders covered in the study are employees and customers. However, stakeholders' perception of many other important stakeholders like non government organizations, media, financial institutions and regulators has not been explored.

5. Research Methodology

The following research methodologies were used to achieve the objectives:

Objective 1: Exploratory Research Design and Descriptive Research Design are used for objective 1. The time taken into consideration for objective 1 is a 10-year period that is from 2009–2010 to 2018–2019. Sampling Technique used to select the banks is Purposive Sampling Technique. Scheduled commercial banks registered before 31st March, 2009 form the sample for the study. Only those banks were chosen whose annual reports were accessible online from 2009-2010 to 2018-2019. A total of 40 banks (21 Public Sector Banks and 19 Private Sector Banks) are selected for objective 1. Data for objective 1 is collected from annual reports and standalone reports of banks. Content Analysis is used for analyzing the data. For measuring Green Banking Performance, an index has been developed based on past literatures. The Index is named as 'Green Banking Performance Evaluation Index'. The index has 99 variables, 14 sub-dimensions and 6 dimensions. For index scoring, an Equal Weighted Scoring approach is used. As a result, each bank is allowed to have a maximum score of 99 and a minimum score of 0. For the analysis of objective 1, percentages, graphs, One-Way Anova, and Independent Sample t-test are used.

Objective 2: In objective 2 the relationship between Green Banking Performance and corporate characteristics of banks is analyzed. Thus, dependent variable for objective 2 is Green Banking Performance Evaluation Index Score of each bank. The six independent variables considered in this objective are Age of Bank, Board Size, Return on Assets (ROA), Non-Performing Assets (NPA), Women Directors and Bank Size. Panel Data Regression is used for objective 2. Panel Data Regression helps in conducting regression analysis for panel data. Panel Data are data collected from multiple individuals/entities over a period of time. The Fixed Effect Model of Panel Data Regression is used to analyze objective 2.

Objective 3: Sampling elements for objective 3 are customers and bankers. Data is collected from Delhi and Mumbai. A mixed sampling technique that combines Convenience Sampling with Judgemental Sampling is used to choose the respondents. An equal number of bankers (315) and customers (315) form the sample. A structured questionnaire is used in this research as a data collection tool. Pilot study was conducted amongst 96 respondents in Delhi for testing the questionnaire during May 2019. Data analysis for objective 3 is done using frequency, percentage, cross tabulation, Chi-Square test, Independent Sample t-test and Mann-Whitney U test.

6. Findings of the Study

The major findings of the study are:

i. **Objective 1:** In objective 1, Green Banking Performance of sample banks for 10 years was analyzed using the GBPEI. The lowest GBPEI score over the past ten years is 1, and the maximum GBPEI score that any bank has scored is 71. In 2009–2010, the average GBPEI was 10.675; and the average GBPEI in 2018–2019 was 31.63. In GBPEI, the two years with the highest yearly increase were 2012–2013 and 2016–2017. The implementation of SEBI regulation on Business Responsibility Report (BRR), which requires firms to report on their social and environmental actions annually, may be the reason for the rapid rise in GBPEI in 2012–2013 and 2016–2017. The three phases of the SEBI BRR Regulation are: first phase, from 2009 to 2011, when there was no regulation; the second phase, from 2012 to 2014, when BRR regulation was made mandatory for 100 companies; and the third phase, from 2015 to 2018, when BRR regulation was made mandatory for 500 companies. According to One-Way Anova, it is found that there is a substantial variation in the GBPEI scores over the three phases of SEBI BRR regulation. Over the past ten years, both Public Sector Banks and Private Sector Banks have improved their Green Banking Performance. The Public Sector did better than the Private Sector in 7 years out of the 10 years period which were under study. Annual growth rate depicts that Public Sector Banks Experienced more volatility in their performance as compared to Private Sector Banks. Also, the average GBPEI score of Public Sector is better than Private Sector. However, Independent Sample t-test analysis reveals that there is no significant variation between Public Sector Banks' and Private Sector Banks' Green Banking Performance.

Within Public Sector Banks, Punjab and Sind Bank has the lowest GBPEI while State Bank of India performs the best. Within Private Sector Banks, YES Bank is the top performer and the lowest performer is Nainital Bank. The top performer overall amongst the 40 sample banks from both sectors is YES Bank, followed by IndusInd Bank and HDFC Bank. Nainital Bank and Lakshmi Vilas Bank have the worst performance among banks of both sectors.

ii. **Objective 2**: Based on the findings of Fixed Effect Model of Panel Data Regression, a model has been suggested for this objective. According to the suggested model, the independent variable accounts for 82.37% of the variation in the dependent variable (GBPEI score). The cumulative effect of the independent variables on the dependent variable is found to be significant by the F Statistic of the Fixed Effect Model. The model derived from the analysis is:

$$\text{GBPEI} = -173.8703 + 4.66\text{BankSize} + 0.61\text{ROA} + 0.15\text{NPA} - 0.15\text{BRDSIZE} - 0.964\text{WOMNDIR} + 2.44\text{BANKAGE} + \varepsilon_{it}$$

According to the Fixed Effect Model (FEM), bank size and age of the bank are good predictors of Green Banking Performance. The model demonstrates that while the age of the bank, ROA, NPA, and size of the bank have positive effects on GBPEI, the size of the board and the proportion of women directors have negative effects on GBPEI. According to the model, an increase in bank size of 1 unit results in an increase in the GBPEI of 4.66 units, an increase in ROA of 1 unit results in an increase in the GBPEI of 0.61 units, an increase in NPA of 1 unit results in an increase in the GBPEI of 0.15 units, an increase in board size of 1 unit results in a decrease in the GBPEI of 0.15 units, and an increase in the number of women directors by 1 decreases the GBPEI by 0.964 units. The GBPEI rises by 2.44 units if the age of the bank rises by 1 unit, all other things being kept constant.

iii. **Objective 3**: The extent to which individuals are aware and are using Green Banking products and services varies. Some stakeholders have stated that they are unaware of and have not used any of the Green Banking services or products. Customers and bankers have significant difference in their awareness levels and usage level of Green Banking products and services, according to the Independent Sample t-test. Mann Whitney U Test reveals that customers and bankers have significantly different perspectives on the advantages of Green Banking products and services as well as the various challenges that arise while adopting these products and services. Customers, bankers, and stakeholders that identify as male or female differ significantly in their perception on the purposes of Green Banking Disclosures. The majority of the participants agreed on the advantages of Green

Banking Disclosures. Stakeholders' perspectives on the advantages of Green Banking Disclosures are different for men and women. Bankers and customers have significant difference in their perception on the various advantages of Green Banking Disclosures. It has been established that perception on the quality of Green Banking Disclosures varies between customers and bankers, and in between stakeholders of both Public Banks and Private Banks. It is found that approximately 67% of the stakeholders are satisfied with quality and quantity of Green Banking Disclosures. Regarding satisfaction with the amount and quality of Green Banking Disclosures, there are notable differences in perception between customers and bankers, as well as between Public and Private Bank stakeholders. Social media is the most preferred media for getting information on Green Banking, followed by bank branches and online sources. Website is the most preferred location for receiving information on Green Banking and annual report is the least preferred location of the stakeholders. Chi-Square test results show that stakeholder category, that is whether they are bankers or customers, is connected to the choice for location of Green Banking information. Amongst the three formats (qualitative, quantitative, and both qualitative and quantitative) of receiving information on Green Banking for the stakeholders, majority of the respondents prefer to receive information in both the formats (quantitative and qualitative). The preferred and mostly encountered reporting format is related to stakeholder category, i.e., whether they are customers or bankers.

7. **Suggestions**

From the analysis of the various objectives of the study, the following suggestions are being made:

- **Uniformity in Performance**: There exists significant variation in Green Banking Performance of the selected Indian banks. Thus, it is vital to have legislation or regulation from the regulators that would require all the banks to carry out a minimum level of environmental activities in a year.
- **Mandatory Legislation**: In India, there is no specific Green Banking guideline or regulation that compels banks to perform environmental duties. Even if there are

some voluntary laws currently in operation, unless obligatory legislation is framed, some banks will continue to not perform any Green Banking activities.

- **Phased Implementation of Green Banking**: Green Banking legislation which may require Indian banks to adopt Green Banking in a phase manner may be framed and implemented. This would make it easier for banks with similar age and size to undertake Green Banking activities in a similar and specific way.

- **Board Member Management**: Banks need to decide on an optimum number of board size and women directors as increase in board size and women directors have decreased Green Banking Performance of the banks. Banks need to decide an optimum number of board members and women directors to maintain a fine balance between good corporate governance and good environmental performance.

- **Appropriate Communication Media**: Indian banks should try to disseminate Green Banking information through social media and bank branch. Banks should try to disclose information on Green Banking on websites. Also, information on Green Banking should be provided in both quantitative and qualitative format.

- **Uniformity amongst Stakeholders:** Customers and bankers differ in perception on various issues related to Green Banking. Thus initiatives are needed from the banks to remove disparity in their perception. Setting up of awareness camps with participation from both the stakeholder groups and the dissemination of information is one strategy to eliminate differences between the stakeholder groups. Also, green initiatives where there are equal involvement of customers and bankers may help to reduce the perception difference among the stakeholder groups.

8. Theoretical Contributions of the Study

There was no literature identified that had suggested an index that could be used globally for evaluating Green Banking Performance. This research has proposed a tool for measuring Green Banking Performance. By offering a method for gauging the performance of Green Banking, this index significantly closes a research gap in this field. Any bank of any kind located in any country may use the proposed index.

This study is in response to the dearth of literature on Green Banking Performance as has been suggested by Sarma and Roy (2021). This study offers a clear insight of Green Banking Performance of Indian banks. According to the findings of this study, the Public Sector outperformed the Private Sector, although Private Banks, especially YES Bank, IndusInd Bank, and HDFC Bank, have the best individual results.

This research revealed the factors that positively impacts Green Banking Performance (bank size, return on assets, non-performing assets and age of bank) and factors that negatively impacts Green Banking Performance (board size and number of women directors on board). The study states that bank size and age of the bank are good predictors of Green Banking Performance. Thus, older institutions and banks with higher asset levels might be able to perform better in the field of Green Banking.

This study made a maiden attempt to explore stakeholders' perception on Green Banking Disclosures. The study found that the most popular communication channels for obtaining information about Green Banking are websites and social media. Stakeholders prefer to receive information in both qualitative and quantitative format. The study revealed that bankers and customers have different perspectives on the various aspects of Green Banking, which highlights the need for the banking industry to pay attention and overcome the perception gap.

Lastly no multi-dimensional studies on Green Banking could be found in the existing body of literature. This research has addressed this gap and has explored four different dimensions of Green Banking in India.

9. Managerial Implications of the Study

The practical ramifications of the current study are extensive. The GBPEI index suggested in the study can be used by the banking industry worldwide. Green Banking Performance Evaluation Scorecards can be prepared for evaluating banks of different nations. Both intra-nation and inter-nation comparison of Green Banking Performance can be done with the help of this index. The index will serve as the foundation for assessing banks' progress toward Green Banking, thus giving the financial sector crucial information about Green Banking.

From this research, Indian banks can know about their Green Banking Performance in the past 10 years starting from 2009-2010 to 2018-2019. The research encourages the top performers to continue to do well in the field of Green Banking. Also, the study has reflected upon the relative Green Banking Performance of Public Sector and Private Sector. This would motivate both the sectors to work and improve their Green Banking Performance. In order to improve Green Banking Performance, this study identifies the variables that positively impact the Green Banking Performance. Those factors can be taken into consideration by the Indian banks.

The survey identifies the most popular sources, platforms, and formats for sharing knowledge about Green Banking. Hence, the study will direct and inspire banks to update their tactics for disseminating information about Green Banking. This study has pointed out that reducing the knowledge disparity between customers and bankers is necessary as it has been found that customers and bankers have different perspectives on a variety of Green Banking concerns.

10. Directions for Further Research

This study has its own limitations, which has opened up several research areas on Green Banking for the future researchers. The following research areas exist which can be explored by researchers in the future:

- In future studies, Green Banking Performance can be measured by using a different methodology that is the Volumetric Method. Volumetric Method is a method that analyzes the nature, quality, volume of information in Annual Report. Volumetric Method is an important method in analyzing performance of an entity based on the disclosures made in the report.
- Researchers in future may measure Green Banking Performance using a combination of Index Method and Volumetric Method so as to give an exhaustive picture of Green Banking Performance in the banking system.
- Researchers in future can modify the current index proposed in this study, by adopting weighted scoring approach and assigning different weights to the variables in the index.

- Indian banking system has several categories of banks like Regional Rural Banks, Foreign Banks, Payment Banks, Local Area Banks and Small Finance Banks etc. Studies may measure and analyze Green Banking Performance of different categories of banks.

- Comparative studies on Green Banking Performance of different categories of Indian banks can be taken up in the future.

- A comparative study on Green Banking Performance of banks of different nations can be taken up in future.

- In the future several other financial and non-financial parameters of banks which are not covered in this study can be taken up to analyze their relationship with Green Banking Performance.

- Similar studies on stakeholders' perception can be taken up in other parts of India, particularly studies comparing stakeholders' perception in rural and urban areas of India.

- In future, perception on Green Banking of several other stakeholders of banks like media, regulatory bodies, Government etc. can be studied.

References

Sarma, P., & Roy, A. (2021). A Scientometric analysis of literature on Green Banking (1995-March 2019). *Journal of Sustainable Finance & Investment* ,11(2), 143-162.