The Expectation Disconfirmation Theory of Green Banking Practices of State Bank of India with special reference to Kerala - A Structural Equation Modeling Approach

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Abstract

In light of Agenda 2030, sustainability awareness is steadily growing worldwide. All institutions, including banks and financial institutions, are working to reduce their carbon footprints. Several indirect problems have arisen for India as a result of the banking process, such as global warming, climate change, irregular monsoon, air pollution, heavy rain, poor air quality, health problems, ozone depletion, fossil fuel use, recurrent destruction of forests for daily use, improper e-waste disposal. These issues can be overcome with sustainable banking practices (Green banking), which benefit the customer’s satisfaction and quality of life. However, sustainability can be achieved only when the customers accept green banking and are satisfied with it. In order to do that, the bank must understand the level of expectations and perception of its customers toward green initiatives and to what extent the initiatives satisfy their day-to-day needs. This paper provides an overview of Expectancy disconfirmations integrations into customer satisfaction of India’s largest public sector banks. As part of the present theoretical analysis, we first examine the level of awareness, expectations, and perception differences of customers to determine their satisfaction level. We then provide some evidence from SBI in Kerala regarding dissatisfying factors in green banking practices.

Keywords: Expectancy Disconfirmation model, Awareness, Expectation, Perception, Customer satisfaction, Green banking products and services

1. Introduction

The most important theme of the 21st century is green energy and the sustainable use of renewable energy sources for future growth and development. Being green, i.e., proactive toward the environment and protecting mother earth, has become an essential part of our lives today. Over the past few decades, the world has faced serious issues of global warming, climatic changes, irregular monsoons, air pollution, heavy rainfall, losing air quality, health issues, ozone layer depletion etc... Increasing energy consumption, excess carbon emissions, and the recurring destruction of forestlands for daily needs, as well as urbanization and improper e-waste disposal, are pushing us to the edge of danger.

The idea of green banking was first initiated in USA in 2003, and it practically came into existence after framing of constructive legislation by USA government in March 2009. Various legal acts, reframed policies, and representative bills were framed by the USA from time to time to ensure a smooth adoption of the green banking concept. Since 1991, when it released the first Community strategy to reduce carbon dioxide (CO₂) emissions and increase energy efficiency, the European Commission has taken numerous climate-related actions. These include a direction to encourage the use of renewable energy sources for power, voluntarily made commitments by automakers to cut CO₂ emissions by 25%, and ideas for taxing energy-related goods. As far India is considered, the RBI so far has not adopted any policy-related amendment related to green banking, but the nation has adopted international practices of green banking. Indian banks have not yet embraced the fundamental equator policy in order to maintain client records. In India, paperless banking is referred to as “green banking.” In order to
embrace norm-related green banking practices, the Reserve Bank of India founded the Institute of Development and Research in Banking Technology (IDRBT).

For a country like India which has huge population, catering the banking service needs of the various segments of the population and to strengthen the financial inclusion measurement & sustainability in banking activities has become reality only by adoption of green banking practices. Moreover, the importance of green banking is becoming increasingly apparent since it effectively supports the management of environmental issues in economic development process and by installation of renewable energy-efficient energy equipment, such as: LED equipment’s, solar ATM, solar panels, wind turbines, etc. Moreover, green banking practices encourage paperless practices by reducing paper usage to a minimum. The State Bank of India and ICICI were the first banks to adopt green initiatives for sustainable movements in the public sector and private sectors in India.

Over 5000 SBI branches across India have introduced green channel counters and no queue banking, supporting the construction of wind farms in India, implementing policies to achieve carbon neutrality, implementing policies to achieve paperless transactions using mobile apps You Need One, SBI has the largest branch and customer base in India. The company also supports green initiatives by supporting the construction of wind farms in India, promoting green building standards to utilize natural light and recycled water, implementing policies to achieve carbon neutrality, and implementing policies for implementing paperless transactions, electronic salary payment systems among staff etc... But accessing of these green banking practices by the customers are different in different region due to the lack of sufficient network coverage, lack of awareness of the consumers, attitude of the stakeholders, proper monitoring and feedback from officials, lack of infrastructural development etc. are the reasons for the hindering of the free flow of the growth of green banking initiatives in Kerala. Banking officials are expecting lesser customer foot fall into the bank branches by engaging more on electronic banking and contributing their money on the sustainable use of resources. But the active contributions of the customers are more important for the satisfied acceptance of customers. So, the bank officials can frame policies after understanding the level of knowledge of customers and their perception and expectation of bank services.

This chapter outlines the two objective of the study that examining the awareness of customers and Expectancy Disconfirmation Theory of customer satisfaction with green banking products and services delivered by SBI Kerala using a structural equation modeling approach. The primary objective of this chapter is to build a theorized research model and test the model through the application of techniques such as structural equation modeling and covariance-based confirmatory factor analysis (CB-CFA and SEM). At the summary, a result of testing the hypotheses is provided.

**Objective**

1. To gauge the level of customer awareness regarding State Bank of India's green banking initiatives in the state of Kerala.
2. To study the disconfirmation and customer satisfaction with green banking products and services delivered by SBI Kerala.

To accomplish this objective, IBM SPSS AMOS 21 was employed to perform Co-variance Based Confirmatory Factor Analysis (CB-CFA) and Co-variance Based Structural Equation Modeling (CB-CFA & SEM) analyses.

**Demonstrates the working hypotheses of the model-building process**

Ho: Expectations will have a significant direct and indirect influence on satisfaction through perception and disconfirmation.

1. Awareness of green banking services positively influence the expectation of the customers.
2. Expectations about green banking services delivered by state bank of India will positively influence the customer satisfaction.
3. Expectations about green banking services delivered by state bank of India will negatively influence the disconfirmation.
4. Expectations about green banking products and services delivered by SBI will positively influence the satisfaction of customers.
5. Perception about green banking will positively influence disconfirmation.
6. Perception about green banking services and products delivered by SBI will positively influence the satisfaction of customers.
7. Positive Disconfirmation will lead to satisfaction with green baking services delivered by SBI.
Problem of Study

The banking sector plays a lesser role in directly creating environmental issues. However, indirectly they are operating traditionally, associating with the consumers and large business units that are creating the problem of emission of carbon and greenhouse gas impacts. Such uneven development without considering the existence and survival of the future generation is not accepted by the national and international world due to the unsustainable actions.

By adopting of green banking concept banks aim to promote an environmentally friendly banking practice among their clients. The concept of green banking is closely associated with saving time on customers and bank, transactions cost and efforts, excessive consumption of papers and energy. Without the customer’s satisfactions and sustainable movement no other system can survive the market. Green banking will be methods attain the social, economic and environmental sustainability of the country.

The largest commercial bank in India, SBI (state bank of India), took the initiative to establish sustainability requirements and to take the first step towards the "green banking" movement. With the promotion of green banking practices, bank authorities and policymakers expect less customer footfall into the physical bank branches and increase in the usage of electronic banking. But, in reality, now more and more customers still go to bank branches to accomplish their banking transactions. As per the World Bank Report, only 80 per cent of Indian adults maintain bank accounts and this number has increased especially after the introduction of the Prime Minister’s “Jan Dhan Yojana”. But only 49 per cent of male and 28 per cent of female are using electronic banking systems in India. Their level of satisfaction with green banking is essential for the attainment of the long-term objectives of green banking.

However, access to these green banking practices by the stakeholders are different in the different region due to the lack of sufficient network coverage, operating conservatively, lack of awareness of the consumers, the attitude of the stakeholders, proper monitoring and feedback from officials, lack of infrastructural development, population are moderately educated, usage of English language is minimal as the people learn in their state linguists, only marginal populations of the nation are white-collar employees, and significant populations found to middle-income class population etc. are the reasons for the hindering of the free flow of the growth of green banking initiatives in banking systems of Kerala. Present-day sustainability is the major focus of governmental and large corporations. A system has to be sustainable only when they have supported the people's health and maintains risk-free life, the economic feasibility of the transactions and is environmentally hazardous. The policy makers are executing the green initiatives and collecting feedback from their officials regarding the same. But they are not looking into the other side as how customers perceive the service and satisfied by the initiatives. The authorities have to understand the level of satisfaction of the customers and their expectation of the services of the bank. Expectancy Disconfirmation model helps to identify what extend the customers are satisfying to the existing green banking systems and what are the various services need further improvements in order to achieve the sustainable goal. In short, sustainability has gained more attention for the successful implementation and satisfaction of green banking practices in SBI.

2. Literature Review

Bowman, (2010). Recommended that banks, while incorporating sustainability into their operations, tended to focus more on social responsibility than the environment. As time passed, it became evident that banks have a significant impact on the natural environment, both through direct and indirect means. This increased stakeholder demand has made banks more likely to adopt environmentally friendly practices. In recent years, environmental friendly banking practices have gained momentum around the world.

FI, (2010) When the “United Nations Environment Programmed (UNEP) partnered with the industry to create strategies for environmental management, they recognized that the ongoing operations of the financial sector could have a substantial environmental impact. This marked the initial introduction of the concept of 'green finance.' Although this notion had been discussed for several years, it lacks a universally accepted definition from international bodies due to its reliance on a specific financial institution allocating capital for a particular purpose while incorporating environmental and sustainability considerations. There exist numerous significant environmental concerns, prompting organizations to monitor their activities to ensure compliance with environmental regulations. In India, there is currently no established framework for overseeing sustainability-related matters, and even principles akin to those found in the Equator Principles are not consistently adhered to. SBI Bank emphasizes that the pursuit of profit should not come at the expense of addressing critical environmental issues.

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Weber, & Sven, (2011). As part of its analysis, the paper identified social banking as a value-driven banking concept with positive sociological and ecological impacts. Most of the social banks came out of the crisis much stronger and bigger than they were before. Aside from that, no social banks were bailed out with public money. It draws customers looking for safe and practical ways to deposit their money as well as traditional banks who see the promise of a socially conscious banking approach. The ability to see things from diverse perspectives is a matter of consciousness. It is now imperative to comprehend the role of banks in the 21st century in light of the different roles that a bank performs in the contemporary environment.

Baumeister, & Vohs, (2007). In accordance with the Self-Regulatory Theory, customers consider the sacrifices they must make in order to achieve their goals. Promoting a favourable attitude towards Green Banking is not a costly endeavor. Accordingly, banking customers believe that being able to contribute to saving the environment would likely improve their attitude towards green banking, before evolving their intention to use green banking.

Ronny, & Sihotang, (2020). It was noted that a significant number of consumers were harmed by some banks’ financing of environmentally irresponsible initiatives. A bank’s support for eco-insensitive projects causes banking customers to feel guilty. Customers who feel guilty about contributing to environmental degradation spread negative word-of-mouth about environmentally negligent banking to allay their guilt. In this case, the customers indicate they are interested in acquiring green banking services. As the customer of a conventional bank, contributing to environmental degradation has create a negative impact about the bank in the minds of the customers. They believe that did not uphold the moral requirement to respect other people and living things. They consequently make the choice to assist a bank by refraining from unsustainable banking practices, which endanger the existence of numerous species.

Roger, (1996). Traditionally, marketing research has shown that customer satisfaction is a primary factor determining repurchase of various types of retail products. A variety of customer satisfaction measurements are used in order to illustrate the correlation between customer satisfaction and customer royalty and the relationship between customer loyalty and profitability.

Krebsbach, (2005). According to the study, banks that embrace socially and environmentally conscious lending and investing practices modify their corporate lending, bond underwriting, and investment banking procedures. Due to societal awareness of environmental issues, these banks were at an advantage over their rivals. The author advised banks to use green lending concepts in a way that won’t impact their clientele. According to the author, trustworthiness is a result of having high standards. He came to the conclusion that because environmental management lowers credit risk, enhances asset quality, and boosts enterprise value, it is similar to risk management in the banking industry.

Richard & Wayne, (1988). According to this argument, perceived utility (perception), awareness, attitude, expectancy, and perceived behavioral control are the next strongest indicators of users’ desire to stick around. According to the ECM, a person's intention to continue using IT depends on three factors: their level of happiness with the technology, the degree to which their expectations were confirmed, and their post-adoption expectations, which take the shape of perceived utility. According to the disconfirmation hypothesis, contentment is an evaluation result of the discrepancy between performance and expectations Ming, (2010).

Oliver & Swan, (1989). A theory of expectation disconfirmation stated that expectations are formed by personal experiences and an understanding of the environment combined with considerations for practicability, according to Oliver. Based on objective judgment rather than emotional reactions, perceived performance is relatively less influenced by emotion. There are three forms of expectation disconfirmation: Positive disconfirmation occurs when perceived performance is higher than expected. The situation is confirmed when the observed performance meets expectations. Disconfirmation of negative performance occurs when perceived performance falls short of expectations. The quality-of-service performance is more likely to satisfy customers when it meets (confirmation) or exceeds (positive confirmation) their expectations.

Yen, & Lu, (2008). The study specified that a consumer's disconfirmation occurs when the product or service does not meet their expectations, performance is perceived as a result of cognitive processes. Besides, buyers' disconfirmation of E-services is positively associated with their satisfaction. Peter, Ashworth, & Kelley, (2010). Based on the disconfirmation theory, product evaluation is determined by how well the product performs compared to initial expectations. Disconfirmation was interpreted as a discrepancy between initial expectations and actual product performance. Additionally, disconfirmation-sensitive consumers are more satisfied or unsatisfied when products perform better.
than expected Yi & La, (2004). It was argued that perceived performance may sometimes be the only factor affecting satisfaction and could also directly affect it. Expectancy Disconfirmation Theory was used to examine consumer pleasure, repurchase intentions, post-purchase behavior, service marketing, and to anticipate consumers’ product repurchase and service continual use.

3. Materials And Methods

Research Gap

The expectation disconfirmation model is used to understand the level of satisfaction of customers for serving them better than what they have. According to the disconfirmation theory, the difference between performance and expectations leads to satisfaction as an evaluative consequence. In Kerala context such studies are absent. So it is difficult to assess the correct attitude of customers for accessing the green banking products, purpose and practices of green banking. Without that no idea about the improvement of customer level of satisfaction and introducing new products and services to customers. This study aimed to conduct a micro level and macro level study in Kerala to assess the awareness, expectation, perception, and sustainable development among SBI customers regarding green banking.

Theory and Hypothesis

Developed from organizational behavior & social psychology, expectations disconfirmation theory focuses on studying the consumer behavior and satisfaction. “A product's performance is differing from what consumers initially expected before buying or using it. As a result of the actual performance of the product combined with expectations, consumer satisfaction is impacted. There is disconfirmation when expectations are different from the perceived performance of goods or services. Disconfirming performance can be positive (exceeding expectations) or negative (not meeting expectations). Disconfirmation, according to Oliver, is essential since expectations might shift over time.”

Expectation disconfirmation model assumptions predict that prior expectations are significant variables that influence subsequent perceptions directly and indirectly. A negative relationship exists between expectation and disconfirmation. The disconfirmation rate decreases (increases) as expectations rise (fall), or high expectations result in negative disconfirmation. Perception and disconfirmation are positively correlated, which means that a high perception will lead to a positive disconfirmation, and the other way around. Positive relationships exist between disconfirmation and satisfaction. A higher perception of performance leads to more satisfaction, whereas a lower perception of performance leads to lower satisfaction. Expectations and perception are positively correlated, with higher expectations leading to higher responses, though the causal direction of this relationship is not clearly stated. In order to achieve higher levels of satisfaction, there has to be a direct correlation between performance and satisfaction, implying that performance directly affects satisfaction. In other words, expectations can either have a positive or negative effect on satisfaction”. Previous expectations are used as a benchmark for evaluating satisfaction, if unclear about the service being evaluated.
Figure 1: The effect of the Expectation Disconfirmation Theory of green banking practices of SBI on customer satisfaction - A Structural Equation modeling approach.

3. Results and Discussion

The results of SEM Hypothesis testing.

The results in Figure 1 demonstrate that “EDM is used for green banking in SBI, with the model performing as expected. The parameter estimates reveal a positive association between expectations and perceived performance that is both substantial and consistent with expectations (ß 0.59, p 0.001). This implies that greater consumer expectations positively affect how well the quality of the service is viewed for SBI’s green banking.

A significant relationship exists between expectations and perceived disconfirmation (ß - 0.13, p < 0.001), with a lesser degree of influence in line with the theory. Furthermore, perception and perceived disconfirmation are positively correlated with each other (ß 0.81, p < 0.001). The three EDM variables also have a direct impact on customer satisfaction. Expectations are strongly and positively associated to satisfaction (ß 0.34, p < 0.001), demonstrating that, as predicted by the model, customers who believed that perceived green banking services went above and beyond their expectations were less satisfied with the level of customer service. Perceived disconfirmation is the most potent predictor of satisfaction in our model of SBI green banking services (ß 0.32 vs. ß 0.67, ß 0.49), however it is not as strong as in Van Ryzin’s study model. Finally, as predicted by the EDM, there was a positive and substantial association between perception and satisfaction (ß 0.46, p < 0.001),” indicating that a better perceived service quality would result in higher contentment in the minds of bank customers.

Table 2: Path analysis values and R² values of the SEM

<table>
<thead>
<tr>
<th>Constructs path index</th>
<th>Standardized co-efficient (Beta)</th>
<th>R² Value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expectation</td>
<td>Awareness</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>Expectation</td>
<td>0.34</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disconfirmation</td>
<td>Expectation</td>
<td>-0.13</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Perception</td>
<td>Expectation</td>
<td>0.59</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Disconfirmation</td>
<td>Perception</td>
<td>0.81</td>
<td>&lt;0.001**</td>
</tr>
</tbody>
</table>
The Expectation Disconfirmation Theory of Green Banking Practices of State Bank of India with special reference to Kerala - A Structural Equation Modeling Approach

Findings of the study
The Expectation Disconfirmation Theory was applied to rural public services in China and United State, used to understand the level of awareness and satisfaction of customers. As a result, it was possible to identify a vacuum in the research where EDM has predominantly been used to study customer satisfaction levels at State Bank of India. Here it was focusing on the application of EDM on green banking services of the bank. Additionally, when it is difficult to increase the service quality in EDM, we supplement the theoretical support of tactics to affect expectations. An expanded version of this model, which takes into account green banking economic services, professional and efficient services, social service responsiveness, and environmental service responsiveness, has been examined by the researcher. The findings demonstrate that the EDM model is strongly supported by research on green banking, and that the model's findings diverge from earlier studies on green banking products. Instead of increasing satisfaction after disconfirmation (i.e., positive disconfirmation), here it is decreasing the customer satisfaction due to the level of awareness and expectation about the green banking services. A good perspective for studying expectation influences can be gained from the extended EDM for banking services as well. It would be helpful to the researchers and managers can better understand customer intentions with green banking services by presenting the cognitive process with EDM, which helps present the cognitive process by which customers judge their satisfaction.

Explanatory power of R² value
The capability of the SEM to explain dependent factor is evaluated by calculating the R² value of the elements that are being explained. The coefficient of determination, R², for the degree to which customers are satisfied is 0.90. This value suggests that around 90 percent of the variation in customer satisfaction can be explained to differences in expectation, perception and disconfirmation constructs. This value leads to the conclusion that in addition to these independent constructs, there are additional independent factors that are required for the purpose of predicting the level of customer satisfaction. The remaining 10% of the variation in customer satisfaction is not explained by these independent constructs.

Table 3: demonstrates the results of hypotheses derived through SEM analysis

<table>
<thead>
<tr>
<th>Hypotheses No.</th>
<th>Hypotheses</th>
<th>Result of Hypotheses testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM.H1</td>
<td>Awareness has a positive effect on customer satisfaction</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H2</td>
<td>Expectation has a positive effect on customer satisfaction</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H3</td>
<td>Expectation has a negative effect on disconfirmation</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H4</td>
<td>Expectation has a positive effect on Perception</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H5</td>
<td>Perception has a positive effect on disconfirmation</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H6</td>
<td>Perception has a positive effect on customer satisfaction</td>
<td>Supported</td>
</tr>
<tr>
<td>SM.H7</td>
<td>Disconfirmation has a positive effect on customer satisfaction</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>

SM.H1 to SM.H7 indicates Structural Model Hypotheses

Suggestions of the study
• With regard to the awareness level of green banking, it is clearly understood that the customers have moderately-aware of the green banking practices (GBP) and products and services (GBPS). But when we consider the purpose of green banking (PGB) like Paperless transactions, Energy Consciousness, Reward for debit and credit card transactions, green home loan, green car loan, green bond, the customers need more awareness.

• The level of satisfaction of Environmental Sustainability factors are very less among SBI customers because of 24x7 usage of ATM, cumbersome procedure for application bank loan, absence of a regulatory system, lack of interest to expand for green loan and branch banking transaction. It is recommended to go for solar installed ATM, a separate green banking unit (like Piraeus bank in Greece), lower interest rate green loan and intense advertisement and promotion of usage of green banking products and services to imbibe the usefulness of green banking practices among SBI customers for the achievement of sustainable goal.

• Among the customer’s, technically qualified customers are highly aware about green banking practices (Mean 3.95) followed by Post Graduate and Graduate customers. High level of
promotion must be given to the high school and higher secondary customers by the deployment of more female bankers. The female bankers may be much more beneficial in enrolling the student’s customers for green banking as they are generally much more social and friendly.

- Rural and urban customers are facing problem of deployment of green banking practices. So the bank may design green banking services for ease of use for those group of people. Bank may facilitate by providing user-friendly mobile phones to customers for operating accounts in initial stage with a particular focus on local languages. Complex and sophisticated procedures and practices should be avoided, which must discourage customers from adopting green banking practices.

- To retain and increase customer satisfaction, banks must understand the knowledge of the customer holding the account or product and their expectations from green banking services individually.

- To change the attitude of customers towards green banking practices and environmental sustainability, the bank should implement "best customer awards" and "customer rewards" based on the green banking services availed by them.

- There is a great need to create awareness about the impact of environment degradation in the minds of customers. Educational institutions play key role in educating students about the damage done to the environment due to the conventional banking practices. Those customers must be given insight into green banking that helps maintain environmental sustainability and Environmental Protection to ensure the satisfied acceptance of green initiatives of the bank.

4. Conclusion

Environmental concern has been recognized as a source of competitive advantage by financial institutions, who have designed products with a green image. But the success of any initiatives depends upon how well introduced among the customers and their whole hearted acceptance of the same. If they are satisfied with the services of the bank, then go ahead with the same. The current work contributes by assessing the perception and expectation of green banking services and how it will help to use the service in their daily life. According to the research findings, Green banking customers are not satisfied with the green initiatives of the SBI” because of the absence of unsustainable practices. The study will greatly assist, in these constraints, the duty of the bank and government is to empower and educate the customers regarding the environment consciousness for the acceptance of green banking for the attainment of sustainable goal.

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