

# GREEN BANKING APPLICATION BY COMMERCIAL BANKS IN KATHMANDU DISTRICT

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## ABSTRACT

*The purpose of this paper is to determine the impact of green banking practices on the established financial standing of commercial banks in Kathmandu valley. The study employed a descriptive and causal comparative research design with 225 respondents from commercial banks. Structured questionnaires were utilized and analyzed using AMOS. It investigated green banking practices, focusing on the constructs of green (investment, business strategy, product/services). The result shows that the bank employees are mindful and are aware of green banking practices. Similarly, Green Investment, Green Product/Service, and Green Business Strategy have significant and positive relationship with the financial effectiveness of the bank. The study utilized cross-sectional data, but panel or longitudinal data could be used for more generalized data collection and more predictable results. This study is an initial attempt to fill the gap in published information about the green banking practices and its application in the commercial banking industry and their relationship with perceived financial performance in Nepal.*

**Keywords:** Green Investment, Green Product and Service, Green Business Strategy, Effectiveness

## INTRODUCTION

The concept of green banking is still in its early stages in most parts of the world. Tu & Yen (2015), it is a new type of banking that is aimed at protecting the environment and promoting sustainable development. Yang et al. (2009) stated that e-banking is beneficial for the promotion of this concept. Due to the increasing number of environmental issues and the need for banks to meet their social responsibility, they have started to consider green banking as a way to address these issues (Islam and Das, 2013). In addition to being beneficial for the environment, it is also expected to contribute to the sustainable development of the planet (Islam and Kamruzzaman, 2015). The early years of green banking are anticipated to be particularly expensive for the In our globalized world, the function of green banking is required to be observed at all stages of the business process while keeping in mind all the factors associated with environmental protection. The examination of the notion and necessity of green banking in business processes has received the majority of attention in an effort to improve our environment's livability and boost our economic output. As a result, the study papers detailed discussion of the necessity and relevance.

organization as a result of the significant capital expenses that will be incurred. Cost savings is also anticipated because there would be less paperwork and more recycling, which will improve profitability (Islam and Das, 2013). Similarly, in the Nepalese context, the first bank to introduce the green banking concept is Laxmi Bank (Mehta and Sharma, 2016). Banks are concentrating on a variety of environmental protection initiatives in these undertakings, such as promoting bicycles as an emission-free mode of transportation and providing enticing loan packages for environmentally friendly items that reward the client for eco-friendly habits (Mehta and Sharma, 2016).

The goal of this study is to further knowledge of how green banking practices affect the financial performance of Nepalese commercial banks (Joshi, 014). Commercial banks are having a difficult time managing the effects of the environment on their operations. The fundamental issue is that neither the clients nor the banks themselves have a sufficient understanding of the idea of a green banking system. An excellent instrument for assessing the financial performance of Nepalese businesses is the green banking survey.

When it comes to Nepal, financial institutions are lagging behind international trends in terms of green banking. Other than a select handful, these banks deny knowledge of sustainable banking methods and green banking practices. Thus, the statements of problem are:

- i. What green banking practices do Kathmandu's commercial banks use?
- ii. How has Kathmandu's commercial banks' financial performance been impacted by green banking practices?

The purpose of the study is to examine the issue of green banks through a comparison of the six commercial banks in the Kathmandu area. The study aims to identify which commercial banks in the Kathmandu District use green banking, to investigate the connection between green banking practices and how Kathmandu's commercial banks' customers see their financial success also to analyze the impact of green banking practices on the established financial standing of commercial banks in Kathmandu. The primary disadvantage of this study is that it only looks at green banking practices and ignores the opinions of all bank workers towards technology. The majority of the data from earlier studies that are now accessible might not fully reflect the context of the area in our nation. Through the analysis of various types of green banking practices, this research will assist in identifying the green banking practices of Nepalese Commercial Banks and their impact on the perceived financial performance of those banks. It will also assist in determining which green banking method is more important to increase the financial sustainability of the banks.

## REVIEW OF LITERATURE

### Conceptual Review of Green Banking Practices

The overall reduction of internal and external carbon emissions is aided by green banking. By implementing the following strategies, such as paperless banking, energy awareness, mass transit use, green building, going online, conserving paper, and using solar and wind energy, banks can lessen their carbon footprints (Chaurasia, 2014).

A green bank may not be exactly what is meant by an ethical bank, a socially conscious bank, or a sustainable bank, but it does share some of their practices and perceptions, and many banks throughout the globe have at least once eliminated green banking, Remus (2007). Green banking is similar to traditional banking in that it aims to preserve natural resources and safeguard the

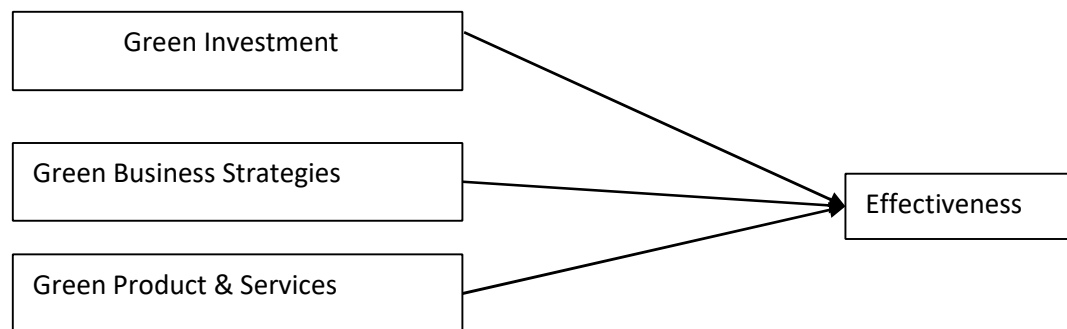
environment by taking into account all social, environmental, and ecological concerns. The term "green banking" describes a bank's environmental friendliness and commitment to ethical and green practices. According to Dr. Chinnadurai and Sudhalakshmi (2014), the green banking idea will be advantageous to customers, banks, companies, and the economy as a whole.

The term "green practices of banks," usually referred to as "green banking," describes the ecofriendly actions made by banks to decrease external carbon emissions and lower the carbon footprint of their daily operations. Similar to this, a sustainable bank is one that is concerned about the social and environmental effects of the investments and loans it makes. It refers to the steps taken by banks to support environmentally friendly investment and to offer priority lending to sectors of the economy that have already gone green or are attempting to do so and are so aiding in the restoration of the environment (Deka, 2015).

### Empirical Review

This section consists of a review of earlier literature conducted on green finance. It reviews the empirical works along with the major conclusions. Green Banking Strategies: Sustainability through Corporate Entrepreneurship by Rauth and Malhotra (2015). Analysis of the various green finance approaches used by Indian businesses to expand is the key goal. The case study approach is the foundation of the research methodology. The research study's findings demonstrate how adoption of green banking practices by banks affects the organization's performance. The research report by Risal and Joshi (2018) came to the conclusion that green policies and energy-efficient equipment had a substantial impact on a bank's environmental performance, but green loans and green projects did not. The environmental training had a minor positive impact on the bank's environmental performance. The study's findings indicated that promoting environmentally friendly technologies by banks and the government is crucial for improving banks' standing and consumers' awareness of them. According to Nath, Nayak, and Goel's (2014) research on green banking practices: The primary goal is to draw attention to the green grading criteria set forth by RBI. This methodology used secondary data that was gathered from sources like books, journal articles, annual reports, sustainability reports, company websites, etc. The use of paperless banking, online banking, mobile banking, public transit systems, and green cards made of recycled plastic, and resource efficient practices should modify how the banks do their daily business.

### Conceptual Framework of the Study



**Figure 1 Conceptual Framework**

#### **Green Investment**

Climate change presents risks and opportunities for the financial sector in both emerging and advanced economies. Financial institutions cannot afford to be outside of the transition path to low-carbon economies. Financial institutions will also need to understand the climate risks associated with their non-green assets and design measures to mitigate them. Yet there are also significant opportunities for financial institutions to provide innovative financing products for energy efficiency upgrades, renewable power generation, green buildings, green transport, and climate smart agriculture and architecture. Green Bonds are any type of bond instrument where the proceeds are applied to finance or re-finance new or existing green projects. Such projects generally include renewable energy, energy efficiency, clean transportation, sustainable water management, climate change adaptation, sustainable agriculture and forestry, and pollution prevention and control (Cappelli, 2017).

*H1: Green investment has a significant and positive relation with banks effectiveness.*

#### **Green product and services**

Green Banking is a practical way of future sustainability and a long-term business strategy that aims for sustainable environmental conservation rather than profit. The study highlights that it is the banks' responsibility to educate their customers about

green products and greener financing options. It is only through more extensive provision of a wider variety of Green Banking products and services that the banks in Nepal will be able to increase awareness of and improve the general perception of customers regarding green banking. Although they have started implementing green practices, still a lot of channels are not used by the Nepalese banks to green their activities. They should expand the use of environmental information in their business operations, credit extension, and investment decisions. More commercial banks, not only the major ones, must go for Green Banking adoption. From the mean analysis obtained of the influence of Green Banking products and services on bank customers, it can be noticed that advertising for e-statements, internet banking, and mobile banking amongst others was not influenced greatly by respondents. Moreover, the majority of the respondents rated positively to the efficiency of green projects/CSR that is implemented by green banks in Mauritius (Cappelli, 2017).

*H2: Green products and services have a positive and significant relationship with effectiveness in bank performance.*

#### **Green Business Strategy**

The major form of green banking strategy to promote green image stems from the development of eco-friendly products and services to cater more for their

environmental responsibility and to the evolving customer’s expectation (Cappelli, 2017).

The major forms of green banking strategy to promote green image, eco-friendly, product and services, green investment are i. Major sources of natural energy such as -trees, water, wind, sunshine have been ensured in each floor through green  
*H3: Green business strategy shows a positive and significant relationship with banks effectiveness.*

**Effectiveness**

The degrees to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs, and, whereas efficiency means "doing the thing right," effectiveness means "doing the right thing." It is different from efficiency, which is measured by the volume of output or input used.

**RESEARCH METHODOLOGY**

**Research design.**

The study employed descriptive and causal comparative research design which aims to provide a concise and precise investigation of selected variables, generating quantitative information. In this study, structured questionnaires adopted from previously standardized scale (Micheal, 2008) were used to collect the relevant data. The simple random and convenient sampling method has been selected

**ANALYSIS OF DATA**

**Demographic characteristics of respondents**

**Table1- Demographic Characteristics**

| Variables         | Frequency (%) |
|-------------------|---------------|
| Gender            |               |
| Male              | 118 (52.4)    |
| Female            | 107 (47.6)    |
| Age               |               |
| 18-20             | 12            |
| 20-30             | 76            |
| 30-45             | 90            |
| Over 45           | 47            |
| Job Position      |               |
| Assistant         | 59 (26.2)     |
| Assistant Manager | 69(30.7)      |
| Manager           | 46(20.4)      |
| Officer           | 51(22.7)      |

building architecture and interior designing. ii. Using sensor lighting equipment for saving electricity and the environment. iii. Initiate the shared use of table stationery instead of individual use. iv. Use both sides of paper for internal consumption to reduce dust and waste. v. Introduce online communication in the best possible manner to all the concerned.

for the purpose of this study. The population of the study constitutes both officer (i.e. Manager, Assistant Manager, Chief Executive) and assistant level (i.e. Senior Assistant, supervisor, Junior Assistant) employees working in six banks operated in Kathmandu valley. The study has focused on green banking practices and perceives the financial performance of 225 employees in Global IME bank, NIC Asia bank, NIMB bank, Laxmi bank, RBB Bank, and ADBL banks. The study has used both descriptive and exploratory research design to test the research hypothesis. The overall research work is conducted through collection of primary data. Primary data were collected through a questionnaire filled in by employees. The questionnaire was simple and understandable to all levels of employees, which focused on the employees of selected banks only.

Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) were conducted to assess the reliability, model fitness, and validity issues. Similarly, Structural equation modeling (SEM) was used to evaluate the effect of green banking factors on the financial effectiveness of the bank.

|                        |           |
|------------------------|-----------|
| Academic Qualification |           |
| Bachelor's Level       | 64(28.4)  |
| Master's Level         | 139(61.8) |
| M Phil Level           | 18(8.0)   |
| PHD                    | 4(1.8)    |
| Work Experience        |           |
| 1-3 years              | 56        |
| 3-5 years              | 48        |
| Above 5 years          | 98        |
| Less than 1 year       | 23        |

From the above table 1, it is found that out of 225 respondents, 118 (52.4%) of the respondents are male and the remaining 107 (47.6%) of the respondents are female. It is found that most of the respondents 52.4 percentage is male. Likewise, it is found that out of 225 respondents, 12 (5.3%) of the respondents are in the age of 18-20 years, 76 (33.8%) of the respondents are in the age of 20-30 years, 90 (40.0%) of the respondents are in the age group of 30-45 years and the remaining 47 (20.9%) of the respondents are in the age of above 45 years. It is found that most of the respondents' 40 percentages are in the age group of 20-30 years. In particular, the data showed that out of 225 respondents, 59 (26.2%) of the respondents were assistants while 69 (30.7%) were assistant managers, 46 (20.4 %) were managers and 51(22.7%) are officers. It is found that most of the respondents, 30.7 percent, are assistant managers, which was presented in the table above. The researcher has classified the respondents based on their educational qualification. It is found that out of 225 respondents, 64 (28.4%) of

the respondents are studied up to bachelor level of education, 18 (8.0%) of the respondents are studied up to M Phill, 139 (61.8%) of the respondents are studied up to master's level of education and the remaining 4 (1.8%) of the respondents are studied above master's level course. It is found that most of the respondent's 61.8 percent are studied up to master's level of education.

To know whether the selected experienced one study has been made and it is found that out of 225 respondents, 23 (10.2%) of the respondents have less than 1 year working experience, 56 (24.9%) of the respondents have 1-3 years of experience, 48 (21.3%) of the respondents have 3-5 years of experience and the remaining 98 (43.6 %) of the respondents have above 5 years of experience. It is found that most of the respondents, 43.6 percentage has above 5 years of experience as customers.

### Exploratory Factor Analysis

*Test of the appropriateness of the method and collected data (KMO and Bartlett's Test) Table 2 Sample adequacy table.*

| Table2-KMO and Bartlett's Test                   |                    |         |
|--------------------------------------------------|--------------------|---------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. |                    | 0.821   |
| Bartlett's Test of Sphericity                    | Approx. Chi-Square | 856.437 |
|                                                  | df                 | 66      |
|                                                  | Sig.               | 000     |

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is greater than 0.7 which shows that the sample was adequate, and the research should proceed with Exploratory Factor Analysis. Similarly,

it shows that the Bartlett's test of sphericity is significant as ( $p < 0.06$ ), which states that we should proceed with the exploratory factor analysis.

**Confirmatory Factor Analysis (CFA)**

**Reliability and Validity**

**Table 3- Reliability and Validity**

|                         | CR    | AVE   | MSV   | MaxR(H) | Green Banking | Green Investment | Green Product | Effectiveness |
|-------------------------|-------|-------|-------|---------|---------------|------------------|---------------|---------------|
| <b>Green Banking</b>    | 0.916 | 0.785 | 0.001 | 0.935   | <b>0.886</b>  |                  |               |               |
| <b>Green Investment</b> | 0.909 | 0.769 | 0.003 | 0.925   | -0.03         | <b>0.877</b>     |               |               |
| <b>Green Product</b>    | 0.872 | 0.697 | 0.003 | 0.92    | -0.036        | -0.051           | <b>0.835</b>  |               |
| <b>Effectiveness</b>    | 0.709 | 0.449 | 0.002 | 0.713   | -0.032        | 0.046            | -0.029        | <b>0.67</b>   |

To ensure the validity and reliability of latent factors, it is crucial to address convergent validity concerns. As per the guidelines by (Hair JR, Black, Babin, & Anderson, 2010), the following thresholds should be met for the parameters Composite Reliability (CR), Average Variance Expected (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV):

1. **Reliability:** CR should be greater than 0.70.

2. **Convergent Reliability:** CR should be greater than AVE, and AVE should be greater than 0.50.

3. **Discriminant Validity:** MSV should be less than AVE, and ASV should be less than AVE.

Meeting these criteria ensures that the latent factors are well-explained by their observed variables and that validity and reliability are achieved in the analysis.

**Model Fit**

**Table 4- Model Fit**

| Measure | Estimate | Threshold       | Interpretation |
|---------|----------|-----------------|----------------|
| CMIN    | 28.649   | -               | -              |
| DF      | 38       | -               | -              |
| CMIN/DF | 0.754    | Between 1 and 3 | Excellent      |
| CFI     | 1        | >0.95           | Excellent      |
| SRMR    | 0.04     | <0.08           | Excellent      |
| RMSEA   | 0        | <0.06           | Excellent      |
| PClose  | 0.998    | >0.05           | Excellent      |

The model demonstrated a good fit to the data, with all factors displaying high loading values. As a result, none of the factors needed to be removed from the analysis. The model fit indices, shown in the table; all exceeded the specified threshold and were reported as satisfactory.

**Correlation Table**

From the correlation analysis, it is found that all the independent variables are significantly related to dependent variable that is Effectiveness.

**Table 5-Correlation table**

| Effectiveness    | P-value   |
|------------------|-----------|
| Green Investment | 0.408 000 |
| Green banking    | 0.636 000 |
| Green Product    | 0.845 000 |

**Regression**

While running the regression analysis, statistical significance was given due care at.

p value of 0.05. In the regression summary, the variables are significantly related to each other and has shown a positive relation.

**Table 6 -Regression table**

|               |     |                  | Estimate | S.E.  | C.R.   | P   | Label |
|---------------|-----|------------------|----------|-------|--------|-----|-------|
| Effectiveness | <-- | Green investment | 1.002    | 0.052 | 19.311 | *** | par_1 |
| Effectiveness | <-- | Green banking    | 0.858    | 0.041 | 20.945 | *** | par_2 |
| Effectiveness | <-- | Green product    | 0.821    | 0.062 | 13.317 | *** | par_3 |

Table 6 shows that there is a significant association between the experiences of the bankers and their opinion about adoption of green banking system in commercial banks. That is the bankers differ significantly in their opinion about adoption of green banking system in their banks when they are classified based on their experience. Hence it is inferred that the opinion about adoption of green banking system of commercial banks differs among the bankers when they are classified based on their experience in the study area. This study found that employees are getting diverted from traditional banking activities and replacing traditional banking by adopting Green Banking services like internet banking, mobile banking, Banking through ATMs.

This study was found that their commercial banks provide almost all kinds of Green Banking services ranging from Online Banking, Mobile Banking, Banking through ATMs, Green Deposits, Green Mortgages, and Loans to Green Credit Cards and Green Reward Checking Accounts. Green Banking services that are provided by their banks. They said

that Green Banking services save them a lot of time and save them all the paperwork which makes their activities and bank work a complex procedure. Further, they also said that as the Green Banking services are available 24\*7 it can be easily accessible at any time even during holidays. Banks are adopting Green Banking services to save the environment from carbon footprints from banking activities.

Green Investment and Green Business Strategy are having highest degree of relationship with non-financial performance. Green Investment, Green Product / Services, and Green Business Strategy have having highest degree of relationship with efficiency (E).

**CONCLUSION, IMPLICATIONS, AND SCOPE FOR FUTURE RESEARCH**

**Conclusion**

The study is finished by giving all the answers to the research questions raised. This means the research objectives are done. Based on the findings of this

study, recommendations have been given on the green banking practice and performance of commercial banks in Nepal. The limitations of the study as well as suggestions for further research have also been discussed. The following part gives the conclusions for the study by presenting the main points to answer the research questions.

The first objective of the research was to identify of the green banking practices of commercial banks in Nepal. The findings of the research state that green banking promotes environmentally friendly practices and reduces carbon footprints from banking activities. This comes in many forms using online banking instead of branch banking, paying bills online, instead of mailing them open CDs and money market counts at online banks (Mobile banking, internet banking, ATM card, Credit card, online fund transfer, etc.), support green initiatives. Green banking helps to create effective, time saving, easy to use of banking services and far-reaching market-based solution to address a range of environmental problems, including climate change, deforestation, air quality issues, and biodiversity loss while at the same time identifying and securing opportunities that benefit to banking customers.

The second objective was to examine the relationship between green banking practices and performance of commercial banks in Nepal. Which determinants of green banking have more impact among to perceived financial performance. The result has shown a positive and significant contribution by influencing factors such as green investment, green product/services, and green business strategy.

The third objective was to examine the green banking practice influence on the perceived financial performance of commercial banks in Nepal. This finding of research states that perceive financial performance is influenced by green investment, green product/service, and green business strategy. Out of

them perceive financial performance was highly influenced by green product/services and green business strategy.

### **Scope for further research**

Several issues in this topic have been missed and left behind. Few contents can be added like including other independent variables in the study, adding mediating/moderating variables, large number of sample size as well as wide study location. Likewise, problems and implications of green banking sector in rural parts of the country can be further researched and can be studied.

### **Managerial implication**

While the banking sector is acknowledging the importance of perceiving financial performance globally, Nepalese banking sector remains a challenge to be greener and sustainable. These banks should emphasize the implementation of an effective strategy to achieve a financial performance state in terms of green banking practices. In this empirical study of the Nepalese commercial banks, the integrated implementation of the studied components of the model proposed by this study are indispensable to implement the integrated perceive financial performance in terms of the social, ecological, and economic aspects.

The implementation of green banking practices should be embedded deeply to foster a culture of perceiving financial performance. The green banking practice should be initiated with social, ecological, and economic visions and goals. Research has shown that an organization's culture operates at multiple levels and developing and maintaining a culture of perceiving financial performance requires leaders to address each of these levels. The commercial banks should also focus on environmental policies and strategically divine with perceive financial performance.



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