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Exploring bankers' perspectives on Green Banking in commercial banks of the Kathmandu Valley

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Abstract

The perception of bankers on green banking practices in commercial banks in the Kathmandu Valley can provide valuable insights into the current state of sustainable practices. To effectively implement sustainable practices, banks must develop policies and strategies, provide training and education, and promote green products and services. However, developing nations face challenges such as lack of infrastructure and resources. In order to investigate the perception of Green Banking in developing country like Nepal, we chose banking professionals working in the Kathmandu Valley, the capital city of Nepal. Structured questionnaires were used to collect data and PLS-SEM was used to analyze bankers' perception on Green Banking in commercial banks of the Kathmandu Valley. A sample of 403 individuals was gathered using the KOBO toolbox from the Kathmandu Valley. Purposive sampling technique is used as a sampling technique of non-probability sampling. This study tested five hypotheses on the relationship between banking policy, daily operations, investment, and green banking practices in commercial banks in the Kathmandu Valley. Hypotheses H2, H3 and H4 are supported. The study identifies a lack of awareness among bankers in the Kathmandu Valley about green banking practices, highlighting the need for better education and training. Despite challenges such as trust issues and limited technology knowledge, green banking offers significant potential for enhancing business operations, customer loyalty, and environmental responsibility.

Keywords: Green banking, Kathmandu Valley, Commercial banks, Sustainability

1.0 Introduction

The banking industry, influenced by globalization, has witnessed significant changes, prompting the emergence of 'green banking' as a response to environmental challenges. Green banking aims to reduce the environmental impact of financial institutions and promote sustainable development (Sharma, 2021). This concept is relevant worldwide, adapting to the economic and environmental contexts of both developed and developing countries. In developed nations, green banking is often driven by customer demand for socially responsible investments and government regulations promoting sustainable practices (Ghosh & Majumdar, 2019). Challenges, however, arise due to existing infrastructure that may not align with environmental sustainability. Conversely, in developing countries, green banking is viewed as a strategy to address environmental challenges and enhance the institutions' image to attract socially conscious customers (Kumar & Kumar, 2018). The implementation faces hurdles such as limited resources, infrastructure, and government regulation.

In Nepal, the banking sector is adapting to the global concept of 'green banking', aimed at promoting sustainable development and mitigating the environmental impact of financial operations (Gautam & Adhikari, 2019). Several commercial banks in Nepal have responded to the growing demand for environmentally responsible practices by introducing green banking products and services, including loans for renewable energy and energy-efficient technologies, driven by a combination of customer demand, government policies, and international partnerships (Gautam & Adhikari, 2019). However, the implementation of green banking in Nepal faces challenges such as the lack of regulatory frameworks and standards for environmental and social risk management, a concern addressed by recent guidelines from the Nepal Rastra Bank (Shrestha, 2020). The study focuses on the perspective of bankers in commercial banks in the Kathmandu Valley, aiming to understand the motivations, challenges, and managerial solutions associated with green banking, with implications for the financial sector, environment, and the well-being of the population in Nepal.

Green banking faces challenges globally, encompassing high costs of green technologies and the need for regulatory frameworks in developed countries, and resource limitations, insufficient awareness, and lack of infrastructure in developing countries (Ghosh & Majumdar, 2019). In Nepal, key challenges include the absence of regulatory frameworks, limited awareness, and understanding of environmental issues, along with a lack of resources and infrastructure to support green banking practices (Gautam & Adhikari, 2019). Regulatory frameworks and clear guidelines from the government are essential to incentivize green banking practices in Nepal (Zhang et al., 2022). Overcoming these challenges requires collaborative efforts among financial institutions, governments, and stakeholders for transition towards eco-conscious economies.

The research questions address motivating factors, factors influencing bankers' perspectives, their understanding of green banking practices, and the associated challenges with managerial solutions. The objectives include assessing motivation, analyzing factors influencing perspectives, evaluating bankers' understanding, and examining challenges while suggesting effective managerial solutions (Zhang et al., 2022). These objectives aim to provide a nuanced understanding of the current state of green banking in Nepal, contributing insights for informed decision-making by banks and policymakers.

The significance of the study lies in the potential positive impacts of green banking on the population, economy, and environment. Green banking can contribute to sustainable growth, reduce the environmental footprint of financial institutions, and enhance employee well-being (Sharma, 2021). This research can identify areas requiring additional knowledge and training to

promote sustainable behavior. By evaluating the effects of green banking on the economy, including job creation and increased investment in environmentally friendly technology, the study can provide insights for policies that promote sustainable development and support a green economy. In the context of Nepal, the research holds importance as it can shape the financial sector, contribute to environmental conservation, and enhance the overall well-being of the population. Additionally, the research output will serve as a valuable resource for commercial banks, policymakers, and stakeholders, highlighting the importance of green banking for building trust and fostering sustainable practices.

2.0 Conceptual Framework and Hypothesis Formulation

This study explores various theories such as Socially Responsible Investment Theory (SRI), Legitimacy Theory, Sustainability Theory, Slack Resources Theory, and the Technological Acceptance Model (TAM) in the context of promoting sustainability and environmental responsibility within the banking sector. The SRI theory states ethical considerations and stakeholders' interests to guide banks in identifying investment opportunities aligned with sustainability goals. Legitimacy theory emphasizes the importance of adopting green banking practices to maintain a positive image and enhance legitimacy in the eyes of stakeholders. Sustainability theory advocates for a balance between economic, social, and environmental goals to achieve sustainable development in banking. Slack resources theory suggests that excess resources can facilitate investments in green projects, promoting environmental sustainability. TAM highlights the significance of user attitudes in the adoption of green banking technologies, with user-friendly interfaces, training, and a culture of innovation identified as crucial factors. The proposed theoretical framework is based on TAM, drawing on its application on bankers' attitudes toward green banking technologies in Nepal, emphasizing positive correlations with intentions and essential elements for success. The conceptual framework of this study focused on bankers' perspective towards green banking practices in Commercial Banks of Nepal.

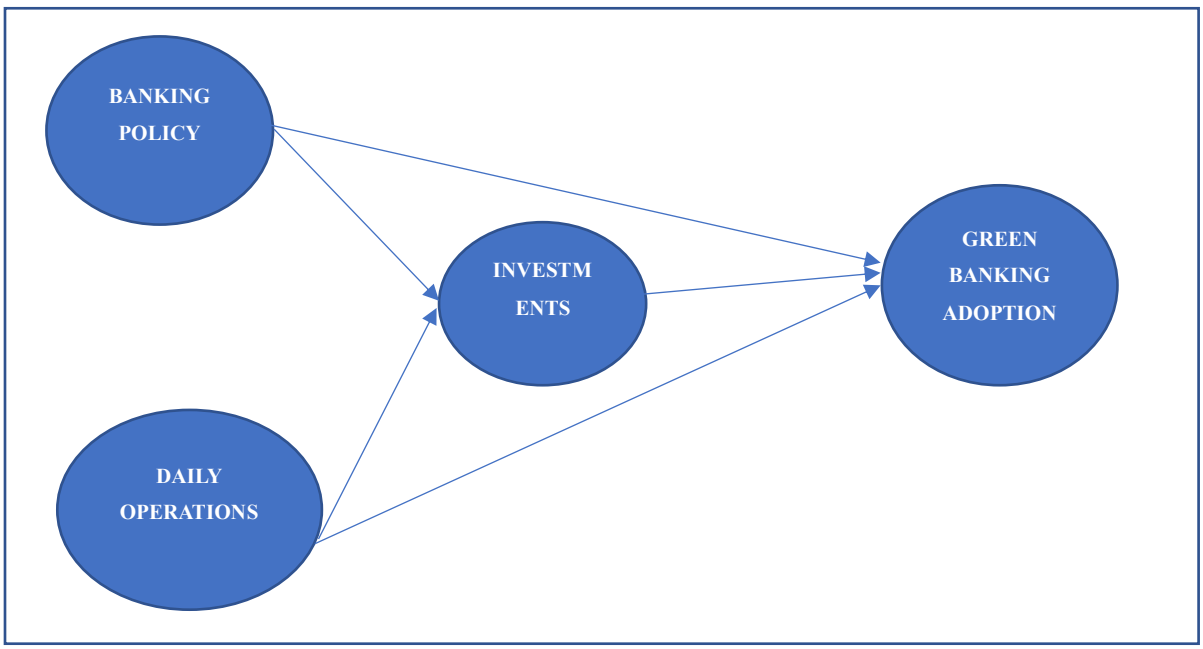

Figure 1: Green Banking Adoption Conceptual Framework.
Source: Adopted and modified from Rehman et al. (2021)

The following hypotheses are proposed based on the given conceptual framework.

2.1 Daily Operations and Green Banking Adoption

Daily operations refer to the day-to-day activities of a commercial bank, such as lending practices, investment decisions, and internal policies and procedures (Chen et al., 2022). The relationship between daily operations and green banking adoption is expected to be positive (Rehman et al., 2021). When these activities are aligned with the principles of green banking, such as reducing carbon footprint, promoting sustainability, and minimizing negative environmental impacts, the bank is more likely to adopt green banking practices (Park & Kim, 2020). Additionally, bankers who perceive their daily operations as aligned with green banking are more likely to adopt green banking practices, as their perception of daily operations influences their attitudes and behaviors towards environmental sustainability, which in turn affects their decision-making processes (Rubel et al., 2021). This is an important factor to consider when promoting green banking practices in commercial banks.

The daily operations have a positive impact on Green Banking adoption. Therefore, the following hypothesis is proposed.

H1: Daily Operations will have a significant impact on Green Banking adoption.

2.2 Investment in Green Projects and Green Banking Adoption

There is a positive relationship between investment in green projects and green banking adoption. When commercial banks allocate financial resources towards environmentally sustainable projects, they demonstrate their commitment to environmental sustainability and promote the adoption of green banking practices (Mir & Bhat, 2022). This can lead to innovations in green banking practices, as banks gain knowledge and expertise in financing environmentally sustainable projects. Additionally, investment in green projects can help to build trust and credibility with environmentally conscious customers and stakeholders and reduce the carbon footprint and negative environmental impacts of commercial banks (Rehman et al., 2021). Therefore, investment in green projects is an important factor to consider when promoting green banking practices in commercial banks.

Investment on green projects have a positive impact on Green Banking adoption. Therefore, the following hypothesis is proposed.

H2: Investments on green projects will have a significant impact on Green Banking adoption.

2.3 Bank Related Policies and Green Banking Adoption.

Bank-related policies such as green lending guidelines, carbon risk management policies, and sustainability reporting requirements can have a positive impact on the adoption of green banking practices by commercial banks (Weber & Chowdury, 2020). These policies can provide a framework for banks to evaluate the environmental and social impact of their lending activities, help banks identify and manage the risks associated with climate change, and provide transparency and accountability regarding banks' environmental and social performance (Weber & Chowdury, 2020). Additionally, they can create a favorable regulatory and business environment for green banking, which can incentivize commercial banks to adopt green banking practices and lead to increased investment in environmentally sustainable projects and the development of new green banking products and services (Park & Kim, 2020). Accordingly, it is hypothesized that:

H3: Bank policy related practices will have a significant impact on Green Banking adoption.

2.4 Daily Operations and Investment on Green Projects

Studies have shown that the effectiveness of a company's daily operations can have a significant impact on investment behavior. For example, Sridhar et al. (2014) found that businesses with superior inventory management techniques typically spend more on R&D and are more profitable. Lin and Shao (2000) found a favorable relationship between production efficiency and capital investment. Filbeck and Krueger (2005) found that firms with effective cost control practices tend to have higher levels of investment. Overall, these studies provide evidence supporting the hypothesis that companies which are able to manage their inventory, production processes, and costs effectively, are more likely to have the resources to invest in new projects and grow their businesses.

H4: Daily operations in banking has significant impact on investments on green projects.

2.5 Bank Related Policies and Investment.

The hypothesis relating Bank-related policies and investment can be stated as follows: "Changes in bank-related policies, such as interest rate fluctuations, lending regulations, and liquidity requirements, have a significant impact on investment behavior, including investment decisions, capital allocation, and risk-taking behavior." Several studies have examined the relationship between bank-related policies and investment behavior. For example, a study by Cetorelli and Goldberg (2012) found that tighter bank lending standards were associated with lower levels of investment by small businesses. Similarly, a study by Demirguc-Kunt and Huizinga (2010) found that higher bank liquidity requirements were associated with lower levels of investment by firms.

Furthermore, a study by Erel, Jang, and Weisbach (2015) found that the availability of bank credit affects the investment decisions of firms. The study found that firms with better access to bank credit are more likely to undertake investment projects than those with limited access to credit.

Overall, these studies provide evidence supporting the hypothesis that changes in bank-related policies can have a significant impact on investment behavior.

H5: Banking related policies have significant impact on investments on green projects.

3.0 Variables and Definitions

Table 1: Variable and Definitions

Construct	**Variable Notation**	**Observed Variable**	**Explanation**
	indicators		
Daily Operations **Rehman et al. (2021)**	DO_1	Decrease paper consumption	To make paperless industry
	DO_2	Energy-saving equipment	To decrease use of electricity
	DO_3	E-waste management practices	To create more sustainable environment
	DO_4*	Environmentally friendly banking	To contribute to sustainability

	DO_5*	Environmentally responsible financial methods	To engage in better environmentally sustainability
	DO_6	Holds seminars and workshops	To increase knowledge on Green Banking
Investment **Rehman et al. (2021)**	IN_1*	Financing to initiatives associated to environmental preservation and energy conservation.	To help to attain sustainable development goals
	IN_2*	Environmentally conscious business	Reduce their negative impact on the environment and contribute to global sustainability efforts.
	IN_3*	Project proposals using a social and environmental management system or other approaches	Cost savings through increased efficiency and reduced resource consumption, as well as improved reputation and stakeholder engagement
	IN_4	Special schemes	To attract customers to increase engagement for online banking.
	IN_5	Environmental counseling to boost green initiatives	To contribute to broader environmental and social goals, such as reducing greenhouse gas emissions and promoting sustainable development.
	IN_6	Green credit lines	To incentivize businesses to adopt environmentally responsible practices and technologies
	IN_7	Specific subsidies and other incentives	To make it more economically viable to invest in environmental initiatives,
Banking Policy **Rehman et al. (2021)**	BP_1	Green branches (energy-efficient/green buildings)	To mitigate climate change and promote sustainability
	BP_2	Green (environmental) policy.	create new opportunities for businesses and industries by encouraging the development of new technologies, products, and services that are more environmentally friendly

	BP_3	Agreements signed with relevant parties/stakeholders	To promote sustainable business practices contributing to the transition towards a more sustainable future.
	BP_4	Environmental protection planning and implementation	Senior management is involved in environmental protection planning and implementation.
	BP_5	Environmentally responsible company approach	Promotion of an environmentally responsible company approach.
	BP_6	Purchases stationery, equipment, and other products from ecologically friendly firms	To ensure that policies are developed and implemented in a way that is inclusive, effective, and responsive to the needs and concerns of all stakeholders.
Green Banking **Rehman et al. (2021)**	GB_1	Green initiatives programs	To increase knowledge of its users
	GB_2	Communicate via digital connectivity	To save time and energy
	GB_3	Reducing paper consumption	To have a paperless business
	GB_4	Social and environmental management system or other techniques	Helps banks reduce risks, identify opportunities for sustainable growth, and build trust and credibility with stakeholders.
	GB_5*	Environmental strategy development and implementation	Developing and implementing an environmental strategy can help organizations minimize their impact on the environment, comply with regulations, avoid penalties, and maintain their license to operate. It can also lead to cost savings.
	GB_6*	Environmentally sustainable operations	To reduce environmental impact, maintain regulatory compliance, reduce costs, and build a positive reputation

*= Items deleted during data analysis

4.0 Research Methods

Research methods are the various techniques and procedures used to collect and analyze data to answer research questions or test hypotheses (Babbie, 2022). They include all of the techniques that a researcher employs while examining the research problem. There are numerous research methods, and the method(s) used are determined by the nature of the research question, the type of data to be collected, and the available resources. This section discusses the study region and population, sample size determination, and research instrument.

4.1 Study Area and Population

The study area is the Kathmandu Valley, Nepal. The latitude of Kathmandu Valley lies between 27° 32' 13" and 27° 49' 10" north and longitudes 85° 11' 31" and 85° 31' 38" east and is located at a mean elevation of about 1,300 meters (4,265 feet) above the sea level (Rajbhandari et al., 2022). The primary audience for this study is bankers from the Kathmandu Valley commercial banks. The Kathmandu Valley was chosen as the research area because it houses the corporate offices of all 21 commercial banks of Nepal (NRB, 2022). Another important reason for selecting the Kathmandu Valley is that data collection may be more convenient and cost-effective. The Kathmandu Valley is Nepal's financial and commercial hub. As a result, it is likely that most bankers in Nepal work in the Kathmandu Valley.

4.2 Sampling Technique and Sample Size Determination

In this study conducted in the Kathmandu Valley on bankers' perspectives regarding green banking, a non-probability sampling method was employed due to an undefined sample size and a variable number of bankers. Cochran's Equation was utilized to determine a representative sample size for proportions in large populations, with the formula $n_0 = (Z^2pq)/e^2$, where Z represents the standard tabulated value for a 5% level of significance (1.96), p and q denote the prevalence or proportion of an event (both set at 0.5), and e signifies the allowable error (5%). The calculated sample size based on this equation was 384.16, and considering a non-response error of 5%, the final sample size for the study was determined to be 403.368, rounded to approximately 403 participants.

4.3 Research Instrument and Data Collection

The structured questionnaire with interview is the primary research instrument used for this study's data collection process. For data collection, a structured questionnaire has been developed and devised to conduct a survey as well as obtain primary data for a study of bankers' perspectives on green banking on commercial banks in the Kathmandu Valley. To address the study's issue, closed-ended questions are included in the survey questionnaire. Following the preparation of the research questionnaire, the structured questionnaires are administered using the KOBO toolbox form for data collection. In-person interviews were conducted with 403 selected bankers using closed-ended questions. The consents for data collection were obtained from the respective organizations. The research utilized both descriptive analysis and inferential analysis, employing structural equation modeling based on latent components. Each piece of field data was thoroughly analyzed to derive specific findings and discoveries. Microsoft Excel facilitated data entry and tally, while KOBO Toolbox and Smart PLS were utilized for data analysis.

5.0 Results

5.1 Socio Demographic Analysis

The Socio-Demographic variables of the survey are included in this section. Data are collected from 403 respondents. In this part gender, marital status, age, education level, income level,

location of banking employees are presented in a tabulated form, which help to clearly interpret them.

Table 2: Socio-Demographic Variable

Title	Category	Number	Percentage (%)
Gender	**Male**	**235**	**58.31**
	Female	168	41.69
Marital Status	**Married**	**287**	**71.22**
	Unmarried	107	26.55
	Single	9	02.33
Age	18-30	88	21.84
	41-50	**253**	**62.78**
	39-49	61	15.14
	51-60	1	0.25
Education Level	Above Masters	2	0.5
	Masters	**202**	**50.12**
	Bachelors	199	49.38
Income Level	Below 25000	7	1.74
	25000-50000	81	20.1
	50000-75000	**226**	**56.08**
	75000-100000	82	20.35
	100000 and above	7	1.74
Location	**Kathmandu**	**206**	**51.12**
	Lalitpur	135	33.5
	Bhaktapur	62	15.38
Experience	Below 3 Years	27	6.7
	4-6 Years	130	32.26

	6-8 Years	**136**	**33.75**
	8-10 Years	70	17.37
	10 Years and above	40	9.93

Source: Survey data

Table 2 presents the socio-demographic characteristics of the 403 respondents in the survey, revealing a balanced gender distribution with 58.31% male and 41.69% female respondents, contrasting with a significant gender gap observed in a previous study by Rehman et al. (2021). Most respondents are married (71.22%), followed by unmarried individuals (26.55%) and single respondents (2.23%). In terms of age distribution, the study indicates that 62.78% of respondents fall in the (41-50) age group, with 21.84% in the 18-30 age group and 15.14% in the 39-49 age group. Educational attainment shows that 50.12% have a master's level education, 49.38% have a bachelor's level education, and 0.50% have education beyond the master's level. Geographically, most respondents are from Kathmandu District (51.12%), followed by Lalitpur District (33.50%) and Bhaktapur District (15.38%). Regarding monthly income, over half of the respondents (56.08%) earn between Rs. 50,000-75,000, with 20.35% earning between Rs. 75,000-100,000, 20.10% between Rs. 25,000-50,000, and smaller percentages earning below Rs. 25,000 or Rs. 100,000 and above. Regarding the number of years' experience in banking sector 33.75% have been working for 6-8 years, 32.26% have been working for 4-6 years, 17.37% have been working for 8-10 years, 6.70% have been working for 10 years and above and 6.70% have been working for below 3 years. In a similar study, Rehman et al. (2021) examined the number of years of experience in the banking sector. Five percent of the respondents indicated that they had been working at their bank for less than 3 years, 35% had been working for 4–6 years, and 40% for 7–9 years, 17.5% for 10–14 years, and 2% had been with the banks for 15 years or more.

5.2 Customers' Understanding Level on Green Banking

This study tries to measure the bankers' understanding level on the Green Banking activities. It is necessity to ensure that the bankers' understanding level of Green Banking activities by the banks as it helps to define customer behavior, opinion, approach, judgment and attitude towards the company (Aracil, 2019). Aracil (2019), reveals that 48.88% respondent have observed bank engagement in the Green Banking activities in their locality. In this study, when the respondents were asked about their understanding on green banking, the respondents responded as, Sustainable Environmental Banking: 314 respondents (77.92%) perceived this type of banking positively or were aware of it as a concept. Social Responsibility Banking: 249 respondents (61.79%) perceived this type of banking positively or were aware of it as a concept. Sharing Based Banking: 127 respondents (31.51%) perceived this type of banking positively or were aware of it as a concept. Ethical Banking: 123 respondents (30.52%) perceived this type of banking positively or were aware of it as a concept.

5.3 Major Challenges and Managerial Solution to Adopt Green Banking

The figures and tables present insights into challenges faced during the adoption of Green Banking and strategies to address management challenges in online banking. When the respondents were asked about major challenges in green banking, the major challenges were identified to be lack of customer trust in online banking (92.80%), limited customer technology knowledge (84.86%), and insufficient customer guidance (84.37%). These challenges suggest significant hurdles for Green Banking adoption from the perspective of bankers. A study by Raza et al. (2019) supports these

findings, emphasizing trust issues and technology awareness as barriers to online banking adoption in Pakistan. The table enumerates values related to green banking, with "Provide knowledge on green banking" being the most frequently mentioned (61.04%), followed by "Increase trust of customer towards online banking" (85.36%) and "Provide proper guidance to customers" (81.14%). While the latter two are not directly linked to green banking, they are crucial for managing challenges in online banking.

6.0 Data Analysis

6.1 Inferential Analysis

6.1.1 Measurement Model

In the first step, the measurement model's validity and reliability were evaluated, with Table 3 presenting robust results. Initially, internal consistency reliability was evaluated using composite reliability, which should be greater than 0.7 (Hair et al., 2019) guidelines. In the second step, convergent validity was assessed using the average variance extracted (AVE), with a threshold criterion set above 0.5. Third, discriminant validity was scrutinized using the HTMT criterion proposed by Henseler et al. (2015) and refined by Franke and Sarstedt (2019). Moreover, the Fornell-Larcker criterion and cross-loading were also used to confirm the distinctiveness of the constructs.

Table 3: Reliability, Convergent Validity and AVE

Constructs	Items	Loadings	AVE	VIF	CR
BP	BP1	0.719	0.503	1.07	0.858
	BP2	0.722			
	BP3	0.706			
	BP4	0.700			
	BP5	0.725			
	BP6	0.681			
IN	IN1*	NA	0.564	1.019	0.838
	IN2*	NA			
	IN3*	NA			
	IN4	0.693			
	IN5	0.769			
	IN6	0.751			
	IN7	0.746			
DO	DO1	0.766	0.501	1.09	0.800

	DO2	0.748			
	DO3	0.74			
	DO4*	NA			
	DO5*	NA			
	DO6	0.748			
GB	GB1	0.723	0.548	1.022	0.829
	GB2	0.744			
	GB3	0.719			
	GB4	0.641			

Note: BP = Banking Policy, DO= Daily Operations, IN = Investment, GB = Green Banking Adoption. *= Items deleted during data analysis

In Table 3, all composite reliability values are above 0.7, indicating strong internal consistency reliability. Additionally, the average variance extracted (AVE) values for all constructs are above 0.5, confirming no issues with convergent validity.

Table 4: Discriminant Validity (HTMT)

	Banking Policy	**Daily Operations**	**Green Banking**	**Investment**
Banking Policy				
Daily Operations	**0.856**			
Green Banking	0.779	**0.659**		
Investment	0.636	0.546	**0.513**	

HTMT values, presented in Table 4, are consistently below the stricter criterion of ≤ 0.90 (Zhong et al., 2021), affirming that respondents perceived the four constructs as distinct entities. The

Table 5: Fornell-Larcker (FNL) Criterion

	Banking Policy	**Daily Operations**	**Green Banking**	**Investment**
Banking Policy	0.709			
Daily Operations	0.660	0.751		
Green Banking	0.573	0.466	0.708	

Investment	0.518	0.443	0.388	0.740

comprehensive validity tests collectively affirm the robustness and credibility of the measurement items, establishing their validity and reliability for the constructs under the investigation. Moreover, to confirm the robustness of the HTMT ratio, the Fornell-Larcker criterion was applied. According to this criterion, the square root of the average variance extracted (AVE) for each construct should be greater than the inter-correlation between the constructs (Henseler et al., 2015). This criterion was satisfied in the study (Table 5).

Table 6: Cross Loadings

	BP	**DO**	**GB**	**IN**
BP1	0.719	0.543	0.395	0.341
BP2	0.722	0.480	0.437	0.342
BP3	0.706	0.433	0.337	0.383
BP4	0.700	0.441	0.414	0.374
BP5	0.725	0.432	0.432	0.375
BP6	0.681	0.478	0.416	0.386
DO1	0.485	0.766	0.399	0.282
DO2	0.501	0.748	0.312	0.393
DO3	0.466	0.740	0.321	0.360
DO6	0.529	0.748	0.368	0.290
GB1	0.431	0.383	0.723	0.285
GB2	0.404	0.272	0.744	0.285
GB3	0.391	0.311	0.719	0.209
GB4	0.392	0.343	0.641	0.313
IN4	0.284	0.183	0.167	0.693
IN5	0.417	0.408	0.277	0.769
IN6	0.305	0.205	0.250	0.751
IN7	0.462	0.417	0.386	0.746

In table 6, the cross-loadings are found to be lower than factor loadings, which reinforces that indicators are more strongly associated with their own constructs, thereby supporting discriminant validity and indicating that the model effectively represents distinct theoretical concepts.

6.1.2 Structural Model

PLS-SEM stands for Partial Least Squares Structural Equation Modeling. It is a statistical technique used to analyze the relationships between latent variables and their indicators, as well as the relationships between the latent variables themselves (Hair et al., 2019).

PLS-SEM is a popular technique in various fields such as marketing, management, and social sciences, as it allows researchers to test complex models with small sample sizes (Sarstedt Jr. et al., 2022). We evaluated multivariate skewness and kurtosis in accordance with Hair et al. (2017)'s recommendations. The results revealed that the data collected were not multivariate normal, Mardia's multivariate skewness ($\beta = 406.9968$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 2285.7203$, $p < 0.01$). As a result, we reported the path coefficients, the standard errors, t-values, and p-values for the structural model using a 10,000-sample re-sample bootstrapping procedure, as recommended by Hair et al. (2019). Based on Hahn and Ang's (2017) criticism that p-values are

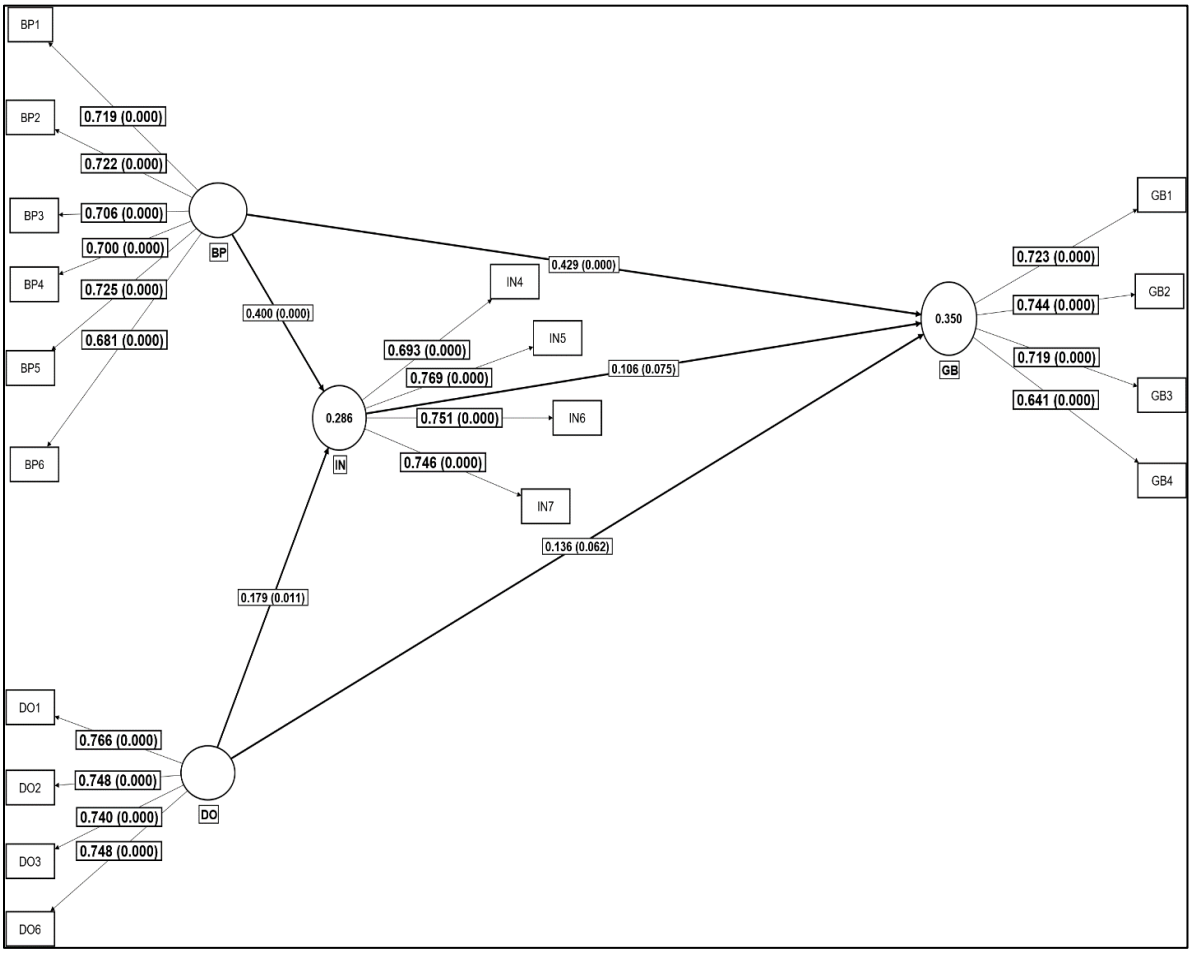

Figure 2: Structural Model Result

a poor criterion for determining the significance of a hypothesis, and their recommendation to employ a combination of criteria including p-values, confidence intervals, and effective sizes,

researchers should adopt a more comprehensive approach to statistical analysis to better interpret results and enhance the robustness of their findings.

Figure 2 shows the path coefficient and R2 value of the structural model developed. As illustrated in the figure, R2 -value depicts the predictive power of the model, as it denotes the amount of explained variance of the endogenous construct in the model (Hair et al., 2017). The figure shows the weak predictive power of Investment which has an R2 value of 0.286. It indicates that only 28.6% variation in Banking Policy and Daily Operation is explained by the independent variable. Likewise, path analysis shows the moderate predictive power of Green Banking with an R2 value of 0.350 indicating approximately 35.0% of the variance of Banking Policy and Daily Operation is explained by the model.

The PLS-SEM analysis's path coefficients illustrate how the latent constructs of Banking Policy (BP), Daily Operations (DO), Investment (IN), and Green Banking (GB) relate to one another in the context of commercial banks in the Kathmandu Valley.

6.1.3 Goodness of Fit

The Standardized Root-Mean-Square Residual (SRMR) serves as a metric for assessing the fit of a statistical model. A favorable fit is typically indicated by an SRMR value below 0.1. In this instance, the model demonstrates a robust fit to the data with an SRMR of 0.085, meeting the criteria set by Cangur and Ercan (2015) for a strong model fit.

Table 7: Hypothesis Testing

Hypothesis						Confidence Interval (95%)		
		Beta	**SD**	**T values**	**P values**	**UL 2.5%**	**LL 97.5%**	**Decision**
H1	**DO -> GB**	0.136	0.073	1.865	0.062	-0.01	0.278	Not Supported
H2	**BP -> IN**	0.4	0.068	5.871	0.000	0.265	0.533	Supported
H3	**BP -> GB**	0.429	0.069	6.178	0.000	0.293	0.566	Supported
H4	**DO -> IN**	0.179	0.07	2.547	0.011	0.043	0.32	Supported
H5	**IN -> GB**	0.106	0.059	1.78	0.075	-0.015	0.216	Not Supported

Note: We use 95% confidence interval with a bootstrapping of 10,000 BP= Banking Policy, GB= Green Banking, DO= Daily Operation, IN= Investment, UL= Upper Limit, LL= Lower Limit

The analysis reveals that hypotheses H2, H3, and H4 are supported, indicating significant relationships between BP and IN, BP and GB, and DO and IN, respectively. Conversely, H1 and H5 are not supported, suggesting that DO does not significantly impact GB and that IN does not effectively mediate the relationship between DO and GB.

7.0 Discussions

The study aims to explore bankers' perspectives on green banking in the commercial banks of Kathmandu Valley. It addresses research questions related to motivating factors, influences on bankers' views in their comprehension of green banking practices, and the challenges they face along with potential managerial solutions. The objectives involve assessing motivations, analyzing factors that shape perspectives, evaluating bankers' understanding, and examining challenges while proposing effective managerial strategies. Palacios-florencio et al. (2018) mentioned that the organization engaged in Green Banking activities not only create loyalty of the customer but also create trust. Studies including Pomering and Dolnicar (2007) have revealed that there were low awareness level regrading Green Banking initiatives.

Among the five hypotheses studied, H1 is rejected, while H2, H3, and H4 are significant. Hypothesis H5 is not significant. The findings from the analysis reveal that both Banking Policy (BP) and Daily Operation (DO) significantly influence the intermediary variable Investment (IN), with Banking Policy also having a direct positive impact on Green Banking (GB). This indicates that the analysis found that both Banking Policy (BP) and Daily Operation (DO) play important roles in influencing Investment (IN). Specifically, it suggests that changes or strategies in Banking Policy directly enhance Green Banking (GB), in addition to its effect on Investment. Essentially, better banking policies not only boost investments but also promote environmentally friendly banking practices.

The strong support for H2 and H3 indicates that Banking Policy is a crucial determinant of both Green Banking and Investment, highlighting its importance in fostering green banking practices. In contrast, the lack of support in H1 suggests that Daily Operation does not directly affect Green Banking. This indicates that the analysis found no significant evidence supporting the idea that Daily Operation (DO) has a direct influence on Green Banking (GB). In other words, unlike Banking Policy, which positively impacts Green Banking, Daily Operation does not appear to contribute directly to environmentally friendly banking practices. This implies that improvements or changes in daily operations alone may not lead to better outcomes for Green Banking.

However, H4 indicates that Daily Operation positively influences Investment. Despite Daily Operation (DO) not having a direct effect on Green Banking (GB), it does positively influence Investment (IN). This means that effective daily operations can enhance investment activities, potentially leading to greater financial outcomes. Lastly, H5 is not supported, indicating that Investment does not influence Green Banking. In other words, increase in investment do not lead to improvements in environmentally friendly banking practices. This suggests that simply investing more money is not enough to foster sustainability in banking; other factors, such as policy changes or operational practices, might be necessary to drive progress in Green Banking.

8.0 Conclusion

The study reveals a lack of awareness among bankers in the Kathmandu Valley regarding Green Banking practices, emphasizing the need for enhanced education and training. Despite this, Green Banking holds substantial potential to impact regular business operations positively, offering benefits such as increased social and environmental responsibility, enhanced reputation, customer loyalty, and potential cost savings. Challenges in adoption include a significant lack of trust in the security of online banking, while organizational policies, competition, and competitor pressure drive the uptake of Green Banking practices.

The study concludes that Banking Policy significantly influences both Investment and Green Banking, highlighting its critical role in promoting sustainable practices. Daily Operation, while enhancing Investment, does not directly affect Green Banking, indicating that operational

improvements alone are insufficient for fostering environmental sustainability. Additionally, the lack of support for the idea that Investment impacts Green Banking suggests that merely increasing financial input is inadequate for driving green initiatives. Therefore, a comprehensive approach that combines strong policies and effective operations is essential for advancing both investment outcomes and sustainability in banking.

References

Aracil, E. (2019). Corporate social responsibility of Islamic and conventional banks: The influence of institutions in emerging countries. *International Journal of Emerging Markets*, *14*(4), 582-600.

Babbie, E. R. (2016). *The practice of social research* (14th ed.). Cengage Learning.

Cangür, Ş., & Ercan, I. (2015). Comparison of model fit indices used in structural equation modeling under multivariate normality. *Journal of Modern Applied Statistical Methods*, *14*(1), 152-168.

Cetorelli, N., & Goldberg, L. S. (2012). Banking globalization, monetary transmission, and the lending channel. *Journal of International Economics*, *88*(2), 320-335.

Chen, J., Siddik, A. B., Zheng, G. W., Masukujjaman, M., & Bekhzod, S. (2022). The effect of green banking practices on banks' environmental performance and green financing: an empirical study. *Energies*, *15*(4), 1292. https://doi.org/10.3390/en15041292

Demirguc-Kunt, A., & Huizinga, H. (2010). Bank activity and funding strategies: The impact on risk and return. *Journal of Financial Economics*, *98*(3), 626-650.

Erel, I., Jang, Y., & Weisbach, M. S. (2015). Do acquisitions relieve target firms' financial constraints? *The Journal of Finance*, *70*(1), 289-328.

Filbeck, G., & Krueger, T. (2005). Industry Related Differences in Working Capital Management: Mid-American. *Business Economics*, 167480696. https://api.semanticscholar.org/CorpusID:167480696

Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing:a comparison of four procedures. *Internet Research*, *29*(3), 430-447.

Gautam, K., & Adhikari, D. (2019). Green banking practices in Nepal. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, *4*(2), 48-60.

Ghosh, S., & Majumdar, S. (2019). Green banking: A review of literature and future research directions. *Journal of Cleaner Production*, *232*, 131-143.

Hahn, E. D., & Ang, S. H. (2017). From the editors: New directions in the reporting of statistical results. *Journal of World Business*, *52*(2), 125-126.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (p. 197). Springer Nature.

Hair, J., Risher, J., Sarstedt, M., & Ringle, C. (2019), When to use and how to report the resultsof PLS-SEM. *European Business Review*, *31*(1), 2-24.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, *43*, 115-135. https://doi.org/10.1007/s11747-014-0403-8.

Kumar, R., & Kumar, R. (2018). Green banking and sustainable development in the era of globalization. In *Handbook of research on entrepreneurship and marketing for global reach in the digital economy* (pp. 1–21). IGI Global.

Lin, W. T., & Shao, B. (2000). Relative sizes of information technology investments and productive efficiency: their linkage and empirical evidence. *Journal of the Association for Information Systems*, *1*(1), 7.

Mir, A. A., & Bhat, A. A. (2022). Green banking and sustainability–a review. *Arab Gulf Journal of Scientific Research*, *40*(3), 247-263. https://doi.org/10.1108/AGJSR-04-2022-0017

Nepal Rastra Bank. (2022). List of Banks and Financial Institutions. Retrieved from https://www.nrb.org.np/contents/uploads/2022/02/List-of-Banks-and-Financial-Institutions-2078-79-Mid-Feb.pdf

Palacios-Florencio, B., Garcia del Junco, J., Castellanos-Verdugo, M., & Rosa-Díaz, I. M. (2018). Trust as mediator of corporate social responsibility, image and loyalty in the hotel sector. *Journal of Sustainable Tourism*, *26*(7), 1273-1289.

Park, H., & Kim, J. D. (2020). Transition towards green banking: role of financial regulators and financial institutions. *Asian Journal of Sustainability and Social Responsibility*, *5*(1), 1-25.

Pomering, A., & Dolnicar, S. (2007). Consumer response to corporate social responsibility initiatives: An investigation of two necessary awareness states. *University of Wollongong Research Online*. https://ro.uow.edu.au/commpapers/422

Rajbhandari, S., Devkota, N., Khanal, G., Mahato, S., & Paudel, U. R. (2022). Assessing the industrial readiness for adoption of industry 4.0 in Nepal: A structural equation model analysis. *Heliyon*, *8*(2), 1-11.

Raza, S. A., Shah, N., & Ali, M. (2019). Acceptance of mobile banking in Islamic banks: evidence from modified UTAUT model. *Journal of Islamic marketing*, *10*(1), 357-376.

Rehman, A., Ullah, I., Afridi, F.-A., Ullah, Z., Zeeshan, M., Hussain, A., & Rahman, H. U. (2021). Adoption of green banking practices and environmental performance in Pakistan: a demonstration of structural equation modelling. *Environment, Development and Sustainability*, *23*(9), 13200–13220. doi:10.1007/s10668-020-01206-x

Rubel, M. R. B., Kee, D. M. H., & Rimi, N. N. (2021). The influence of green HRM practices on green service behaviors: the mediating effect of green knowledge sharing. Employee Relations. *The International Journal*, *43*(5), 996-1015.

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2022). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.

Sharma, S. (2021). Green banking practices: An overview. In *Handbook of green finance* (pp. 271-292). Springer.

Shrestha, S. (2020). Implementation of environmental and social risk management in banking sector in Nepal. *Journal of Banking and Financial Services*, *14*(2), 25-36.

Sridhar, S., Narayanan, S., & Srinivasan, R. (2014). Dynamic relationships among R&D, advertising, inventory and firm performance. *Journal of the Academy of Marketing Science*, *42*, 277-290.

Weber, O., & Chowdury, R. K. (2020). Corporate sustainability in Bangladeshi Banks: Proactive or reactive ethical behavior? *Sustainability*, *12*(19), 7999.

Zhang, X., Wang, Z., Zhong, X., Yang, S., & Siddik, A. B. (2022). Do green banking activities improve the banks' environmental performance? The mediating effect of green financing. *Sustainability*, *14*(2), 989.

Zhong, L., Zhang, X., Rong, J., Chan, H. K., Xiao, J., & Kong, H. (2021). Construction and empirical research on acceptance model of service robots applied in hotel industry. *Industrial Management & Data Systems*, *121*(6), 1325-1352.