

A FACTOR ANALYTIC INVESTIGATION OF GREEN BANKING ADOPTION IN CUSTOMER'S PERSPECTIVE

WITH SPECIAL REFERENCE TO TRINCOMALEE CAMPUS

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Abstract

Going green concept has become an obligatory trend within the global banking industry. The concept of green banking has motivated banks to introduce paperless, technology driven services while reducing environmental impact and to perform their role as a corporate citizen on sustainable development. It is necessary for banks to understand the demand side of green initiatives since the ultimate success or failures of such investments are influenced by perceived satisfaction of the customer. To achieve the goals of this research, the data were collected from convenience sample of 50 banking customers in Trincomalee Campus. The survey has used five (5) point Likert scale and 23 questions. The respondents provided the data by means of a close-ended questionnaire. Cronbach's alpha scale was used as a measure of reliability. Its value is estimated to be 0.895. Sophisticated statistical model as 'Exploratory Factor Analysis (EFA)' has been used. The results show that Green Banking Adoption in Customer's Perspective extracted from the analysis that together accounted 70.041 percent of the total variance. The results of factor score is Carbon Emission, Providing Service, Transaction Cost, Deposit Rate, Renewable Energy and Information Availability got the ranks of sixth, fifth, fourth, third, second and first respectively and

constitute the key dimension of Green Banking Adoption of Customer Perspective. The study helps an insight into what banks should do, being environmentally proactive, to create a strong customer base in future.

Keywords: Green Banking Adoption, Banking Industry and Customer Perspective

1. INTRODUCTION

Green Banking means any form of banking from that economies get environmental friendly outcomes (Lalon, 2015). In other words, it means promoting environment friendly activities and reducing carbon foot prints from banking operations. Financial institutions, the key area for the development of a country, can improve their service level along with increase social responsibility through the practice of green financing (Islam, Yousuf, Hossain & Islam, 2014). Many modern banks, locally and globally, are making genuine efforts to motivate different forms of technology driven, environmental friendly green banking initiatives in their day-to- day activities (Silva, 2015). Thus, green banking concept has become a popular topic in today's banking industry.

In Sri Lanka, banking industry can be considered as a monopolistic competitive market. Consequently, both public and private sector banks are following a variety of non-price competitive methods in order to win the market. In this context, the concept of green banking is becoming a new technology oriented strategic initiative for Sri Lankan banks to achieve triple bottom line business results. Under these circumstances, the banks are generally introducing paperless and information technology oriented banking services to their existing and prospective customers while promoting the banks' role as a responsible corporate citizen towards achieving sustainable development. The main strategy used in this scenario is the usage of the term "green banking" as a brand positioning factor where above mentioned set of paperless and information technology oriented banking services are introduced to its customers. Through this innovation the banks are able to gain cost effective advantages rather than contributing to the environmental sustainability (Fernando & Fernando, 2016).

Banks may not be the polluters themselves, but they usually have a financial relationship with some companies & investments, projects that are polluters are could be in future. Banks can use green banking as a way to gain competitive advantage in the market by creating a difference in their strategy making

process. Also, banks should be more active in communicating about the green banking concept and its associated benefits to the consumers.

Green banking is a pro-active way of energy conservation and environment protection. The main benefit of the green banking approach is the protection of the environment. Green banking avoids paper work to the optimum level and focuses on electronic transactions like use of ATM, mobile banking, online banking etc. for various banking transactions by the customers. Electronic transaction not only aids towards sustainability but also provides convenience to the customers as well as to the banks. Less paperwork means less cutting of trees. For implementing eco-friendly business, banks should adopt environmental standards of lending as it improves the asset quality of the banks. This activity of the bank also has a very significant influence on the environmental performance of its clients (Cholasseri, 2016). This is a new innovation in Sri Lanka; Green banking could be a worthy topic to review in order to increase the quality of services in Sri Lankan banking sector can be improved for the longer term.

2. PROBLEM STATEMENT AND OBJECTIVES OF THE STUDY

In Sri Lanka, banking sector is started to practice green banking concept recently. This sector consists of 25 licensed Commercial Banks (LCBs) and 7 licensed Specialized Banks (LSBs) in Sri Lanka (Central Bank of Sri Lanka-CBSL, 2015). Out of these 25 licensed Commercial Banks, 13 banks are domestic banks. Among these 13 domestic banks, most of the banks are private sector Commercial Banks. However, only few domestic banks (4-5) are formally initiated green banking concept in Sri Lanka. Among the private sector Commercial Banks, banks which are initiated green banking concepts are leading private sector Commercial Banks in Sri Lanka. These banks are pioneering banks in adopting green banking concept in Sri Lanka. Green banking concept is recently initiated and started to spread other Commercial Banks (including state sector banks) in Sri Lanka. Because environmental protection is a primary responsibility of everyone in this world. Hence, irrespective of the market power and competitive position of the banks, it is the fundamental duty and responsibility of every bank to practice green banking concept in order to contribute environmental protection and management. So, banks act as corporate citizens that are socially responsible in their activities (Mani, 2011).

In the future, adoption of green banking concept may also decide the market power and competitive position of Commercial Banks in Sri Lanka.

The problem is those few banks also discourage to imitate the green banking practices. Because the other banks are not imitate the green banking and customers are not comply with green banking technique. Customers in Sri Lanka are late adopters of the web and its applications with regards to green baking. It looks that green banking is facing difficulties in Sri Lanka. This is often not distinctive to Sri Lanka, but also developing countries have a similar problem.

According to Darwish (2016), some problems have mentioned as below:

I. Many banks customers are reluctant to use online banking. Some customers merely don't just like the technology in any respect, and others worry their computer will misrepresent their accounts.

II. Lack of internet awareness, as a result of this service is still widely unacceptable. It's believed that customers are still not absolutely assured with using ATM cards, and phone banking. Bigger awareness may show them the advantages of using new systems and will encourage them to adopt internet banking transactions.

IV. Customers are afraid to use internet banking and purchases through the internet because they assume that any mistake or error may mean a loss of cash.

V. Association costs and prices of building and managing site.

As mentioned on top of many developing countries have similar issues, not only Sri Lanka. The purpose of this study is to identify the influential factors on green banking adoption in customer perspective. This study considers only four private banks in Sri Lanka namely Commercial Bank PLC, HNB PLC, Sampath Bank PLC and Seylan Bank PLC & two state bank namely BOC, People's bank, because these are the only banks currently involved in practicing green banking concept in certain levels.

Research Question

This analysis is remedying the shortage of studies on the concept of Green banking in Sri Lanka. Accordingly, this study explores this as the problem to investigate empirically with the general research question:

"What are the Factors that influenced on Adoption of Green Banking in customer's perspective?"

This study considers selective banking customers in Trincomalee campus (Commercial Bank PLC ,X , HNB PLC, Sampath Bank PLC and Seylan Bank PLC, Bank of Ceylon , People's Bank Customers). Therefore, the specific research question of this study is:

“What are the factors that influenced on adoption of green banking in customer’s perspective with special reference to Trincomalee campus?”

Objective of the Study

The objective of this study is to find out the factors that influenced on bankers to adopt the green banking concept in customer’s perspective.

3. LITRATURE REVIEW

Basics of Green Banking

The concept of green banking has been developed by western countries and initially the concept was aimed at minimizing the paper use at banking since cutting trees cause to reduce green forestation, reduce oxygen and increase carbon-dioxide in globe. (Singh, 2015)

Green banking can conclude as, Organizational activities and outcomes which are harmful to environment have negative effects on the biodiversity and ecosystem integrity of nature. Being corporate citizens, banks have a vital corporate social responsibility to uphold green initiatives and remain “green” (Silva, 2015).

Green Banking and Bank’s Environmental Performance

Many authors state that green banking is environmental concern practice and it reduces the negative environmental impact (Bai, 2011; Azam, 2012; Singh & Singh, 2012). According to Azam (2012), green banking is an eco-friendly or environment friendly banking to stop environmental degradation to make this planet more habitable. It signifies encouraging environment friendly practices and plummeting carbon footprint by banking activities through various environment friendly acts (Singh & Singh, 2012).

Green Banking in a Sri Lankan context

The Hatton National Bank (HNB) has embarked on a massive 1.3-megawatt solar power project to carry out its operations in an environmentally

sustainable manner. This project is expected to generate two million kilowatt-hours of power per annum, which will enable HNB to cover 15% of its total power needs through solar energy which will reduce the carbon footprint of the bank by 850 metric tons (Daily Mirror, 2016).

A statement published by the Bank of Ceylon witnesses the positive response of Sri Lankan banking industry towards “greening of industry”. BOC has also stepped up its focus on responsible lending in all categories. Environmentally driven projects are given preference and incentives, while SMEs are encouraged to inculcate better environmental practices in their business operations including product development, marketing and packaging.

Similarly, Commercial Bank of Ceylon has already generated 40kW of solar power for its four branches and will increase this figure to 240kW when the installation of solar power systems at another five branches in Sri Lanka is complete (Daily News, 2015).

4. METHODOLOGY

In this study use both primary data and secondary data. Primary data are collected throughout structured questionnaires with closed statements measured with five points Likert’s scale (1-5 as strongly disagree, disagree, marginal, agree and strongly agree, respectively), which included 23 statements determining six dimensions adopted from previous researchers. Study based on six leading banks (BOC, Peoples Bank, Commercial Bank, HNB, Seylan Bank and Sampath Bank, Other) in Sri Lanka. In the Trincomalee campus, population is 1480 students. Among that about 50 respondents who consume such popular banking services for their personal consumption have been identified using convenient sampling technique (see Table 1).

Table 1: Sampling Framework

Study Setting	Banking Customers in Trincomalee District
Time Horizon	Cross Sectional Research
Unit of Analysis	Banking Customers in Trincomalee Campus
Sample Size	Fifty (50) Banking Customers
Sample Method	Convenient Sampling Technique

4. RESULTS/ANALYSIS AND DISCUSSION

I. Reliability

The reliability value of surveyed data was 0.895 for green banking variables. If compare this reliability value with the standard value alpha of 0.6 as recommended by Bagozzi & Yi's (1988). Researchers find that the scales used by researchers are relevant for data analysis (see Table 2).

Table 2: Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	Number of Items
.895	23

Source: Author developed

Bank Choice

There are several well-known banks available in the banking sector in Sri Lanka. Among these banks, Bank of Ceylon, Peoples Bank, Commercial Bank, Hatton National Bank, Seylan Bank and Sampth Bank are selected. Apart from these banks other option also use for this research purpose. Out of 50 respondents 40% of user's bank choice is BOC while 42% of user's bank choice is People's Bank, 6% of user's bank choice is Commercial Bank 2% of user's bank choice is HNB, 6% of user's bank choice is Sampath Bank and 2% of user's bank choice is Seylan Bank & 2% of user's bank choice is other banks (see Table 3).

Table 3: Bank Choice Distribution

	BOC	PB	Com. Bank	HNB	Sampath Bank	seylan Bank	Other
Frequency	20	21	3	1	3	1	1
Percent	40%	42%	6%	2%	6%	2%	2%

(Source: Survey Data)

Correlation Matrix

After checking the reliability of scale, an examination of the correlation matrix reveals moderately correlations between variables. But no correlation comes

out as damaging as to cause multicollinearity and so, the matrix is suitable for factoring (see Table 4).

Table 4: Correlation Matrix

	PS	PI	IW	DR	ES	MF	TC	EA	PC	EB	RE	WP	EM	CE	SE	SP	BP	ST	CF	AE	PC	BI	LP	
PS	1.000																							
PI	.057	1.000																						
IW	.099	.458	1.000																					
DR	-.316	-.018	-.132	1.000																				
ES	.715	-.039	-.106	.345	1.000																			
MF	.414	-.127	-.052	.204	.337	1.000																		
TC	.566	.068	.118	.271	.629	.486	1.000																	
EA	.472	.020	.168	.169	.460	.281	.335	1.000																
PC	.544	.109	.180	.090	.491	.395	.529	.345	1.000															
EB	.276	.114	.187	.255	.483	.344	.495	.564	.389	1.000														
RE	-.238	-.075	-.233	.142	.302	.577	.168	.278	.329	.339	1.000													
WP	.122	.063	.082	.083	.264	.229	.206	.379	.270	.320	.318	1.000												
EM	.384	-.049	-.073	.201	.386	.253	.129	.389	.282	.282	.301	.386	1.000											
CE	.126	-.068	-.064	-.100	.033	.314	.086	.256	.171	.311	.347	.513	.505	1.000										
SE	.292	-.227	.059	-.079	.255	.372	.172	.431	.290	.358	.328	.337	.548	.618	1.000									
SP	.431	-.318	-.067	.000	.505	.444	.403	.351	.415	.398	.519	.266	.430	.539	.595	1.000								
BP	.341	-.062	.196	.327	.489	.472	.245	.375	.147	.527	.342	.327	.390	.312	.245	.403	1.000							
ST	.494	-.014	.076	.146	.504	.344	.152	.357	.208	.405	.434	.064	.253	.250	.421	.545	.404	1.000						
CF	.457	-.098	.122	.211	.370	.258	.084	.261	.213	.020	.128	-.173	.243	.045	.211	.351	.308	.443	1.000					
AE	.488	.087	.178	.167	.540	.327	.261	.450	.442	.597	.528	.298	.538	.359	.485	.540	.543	.634	.317	1.000				
PC	.532	.021	.073	.215	.527	.322	.419	.350	.198	.293	.279	-.054	.309	.188	.248	.420	.370	.411	.427	.482	1.000			
BI	.431	-.003	.159	.297	.533	.201	.189	.155	.232	.380	.243	.238	.428	.181	.382	.447	.543	.467	.245	.604	.295	1.000		
LP	.270	-.237	.082	.101	.295	.311	.043	.206	-.110	.148	.159	.289	.355	.501	.400	.455	.494	.428	.371	.410	.359	.596	1.000	

Source: Author developed

KMO and Bartlett's Test

The appropriateness of factor analysis depends upon the sample size. In this connection, Kaiser-Meyer- Olkin (KMO) measure of sampling adequacy is still another useful method to show the appropriateness of data for factor analysis. The KMO statistics varies between 0 and 1. Kasier (1974) recommends that values greater than 0.5 are acceptable. Between 0.5 and 0.7 are mediocre, between 0.7 and 0.8 are good, between 0.8 and 0.9 are superb (Field, 2000). In this study, the value of KMO for overall matrix is 0.660, thereby indicating that the sample taken to process the factor analysis is in moderate level (see Table 5).

Table 5: KMO and Bartlett's Test

KAISER-MEYER-OLKIN MEASURE OF SAMPLING ADEQUACY.		.660
BARTLETT'S TEST OF SPHERICITY	Approx. Chi-Square	668.237
	Df	253
	Sig.	.000

Total Variance Explained

Six variables extracted from the analysis with an Eigen value of greater than 1

Table 6: Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.90	34.37	34.37	3.67	15.98	15.98
2	2.30	10.01	44.39	3.24	14.10	30.09
3	1.87	8.15	52.54	3.02	13.16	43.25
4	1.65	7.18	59.72	2.31	10.07	53.32
5	1.31	5.72	65.45	2.07	9.00	62.33
6	1.05	4.58	70.04	1.77	7.70	70.04

Source: Author developed

(i.e., 'rule of thumb'), which explained 70.041 percent of the total variance. The first component explains the most and about 15.985 percent, second component explains 14.108 percent, third component explains 13.160 percent, fourth component explains 10.071 percent, fifth component explains 9.008 percent and sixth component explains 7.709 percent. The remaining variance, as we know, is explained by other components (see Table 6).

Rotated Component Matrix

The PCA (Principal Component Analysis) are further Orthogonally Rotated using Varimax with Kaiser Normalization algorithm. It is worth mentioning out here that factors loading greater than 0.30 are considered significant. 0.40 are considered more important and 0.50 or greater are considered very significant. The rotated (Varimax) component loadings for the six components (factors) are presented in table. For parsimony, only those factors with loadings above 0.50 were considered significant (Pal, 1986; Pal & Bagi, 1987; Hair, Anderson, Tatham, & Black, 2003) (see Table 7).

Table 7: Rotated Component Matrix^a

	Component					
	1	2	3	4	5	6
CE	.808					
SE	.775					
EM	.679					

WP	.657					
LP	.570		.503			
SP	.532					
TC		.821				
PC		.772				
PS		.680	.503			
ES		.646				
EA						
CF			.790			
ST			.644			
PC			.609			
RE				.848		
MF				.624		
EB						
AE						
DR					.780	
BP					.608	
BI					.548	
IW						.817
PI						.787
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. ^a						

Source: Author developed

Table 8: Ranking of Characteristics according to their importance

Dimensions of Green Banking Adoption	No. of Variables	Factor Score ¹	Rank
Green Banking – I(Carbon Emission)	06	0.158	6
Green Banking – II (Transaction Cost)	04	0.208	4
Green Banking – III (Providing Service)	03	0.194	5
Green Banking – IV (Renewable Energy)	02	0.337	2
Green Banking – V (Deposit Rates)	03	0.243	3
Green Banking – VI (Information Availability)	02	0.371	1

Source: Author developed

Green Banking – I: (Carbon Emission) - These are represented by six variables with factor loadings ranging from 0.808 to 0.532. They are less carbon emission tools, eco-friendly technology with multi-functionality, usage of recycled water and paper, complimentary to lifestyle, interest rate and personal goal, high level usage of space and power efficient server.

Green Banking – II: (Transaction Cost) - Four variables ranging from 0.821 to 0.646 belongs to transaction cost; lower transaction cost, lower habit of paper consumption, eco-friendly products and services and maintaining high degree of ethical standards.

Green Banking – III: (Providing Service) - These are represented by three variables with factor loadings ranging from 0.790 to 0.609, gives convenient and flexible service, speedy transaction and provides personalized communication.

Green Banking – IV: (Renewable Energy) - Two variables ranging from 0.848 to 0.624 belongs to high level usage of renewable energy and lower maintenance fees.

Green Banking – V: (Deposit Rates) - Three variables ranging from 0.780 to 0.548 belongs to better deposit rate, bundle package options and high level integration between branches and internet.

Green Banking –VI: (Information Availability) Two variables ranging from 0.817 to 0.787 belongs to available information in website and understandable and accessible product information.

5. CONCLUSION AND RECOMMENDATION

Conclusion

In this study, one of the sophisticated statistical models named ‘Exploratory Factor Analysis (EFA)’ has been used for this study. The results show that Green Banking Adoption in Customer Perspective (with special reference to Trincomalee Casmpus) extracted from the analysis that together accounted 70.041 percent of the total variance. The results of factor score is, Carbon Emission, Providing Service, Transaction Cost, Deposit Rate, Renewable Energy and Information Availability got the ranks of sixth, fifth, fourth, third, second and first respectively and constitute the key dimension of green banking adoption of customer perspective. This study reveals that the customers are pursuing green

banking because of the 06 mentioned factors. Furthermore, after identifying the findings recommendations are provided to help to improving the practices of Green banking by commercial banks based on the customer perspective. Thus, banks must monitor the observance of green banking guidelines by giving respectively priority to sixth, fifth, fourth, third, second and first respectively to Carbon Emission, Providing Service, Transaction Cost, Deposit Rate, Renewable Energy and Information Availability

Recommendations

Customers are known as backbone of every business. Every organization's responsibility is to satisfy customer needs to meet their expectation and only then, organizations will be able to build powerful customer base. In present customers are more aware on environment so, banks should perform in a positive way to identify their expectations on environment. Through this study try to boosts customers 'expectations with bank's green strategies to ensure sustainable development and conservation of environment. To represent as a proactive "green banker" banks should know clearly customer perspective towards the green banking concept, only then banks can adopt their strategies successfully. Therefore, this study will help to banks to understand how priority should be given by customers regarding various dimensions.

As well this study contributes to understand the impact of green banking practices on bank's environmental performance and findings of the study also contribute to green banking literature and this study is useful to banks that are intended to become greener banks as well as to achieve environmental goals. Firstly, it helps other banks which may have plans to implement green banking practices in future more effectively. Secondly, the banks which are practicing green banking concept can compare with other green banks and understand the strength and weakness of their own green practices and performance through this study. Thirdly, this study also promotes and motivates green banking practices of banking sector in Sri Lanka.

Bankers must refer the conditions regarding the customer's loan, project. Bankers can control the environment polluted investment through their credit conditions and environmental evaluations. Customer related practices are most important for controlling adverse investment to environment.

According to the findings of this study it was identified there is a problem with regarding to sampling. Without getting the sample as whole by getting section of the population the further researchers can avoid mentioned problem.

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