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DEVELOPMENT OF MODEL ON ADOPTION OF GREEN BANKING IN INDIAN BANKING SECTOR

VIKAS NATH, ANKIT GOEL & NANCY SINGHAL

Research Scholar BharatiVidhyapeeth Institute of Management and Research, New Delhi, India

ABSTARCT

The world is facing an immense challenge of degradation of the environment during the course of economic development. In India, which is one of the emerging economies, management of the environment should be the prime focus for all the business organizations and particularly the banking sector, which plays a major and important role for the development of the nation. This step will help the companies in the emerging economies to utilize their limited and inadequate resources in more efficient way without harming the environment and will also help them in facing the global challenge of environmental sustainability in more effective and successful manner. Out of all the sectors in the emerging economies, banking sector can act as responsible participant in this regards and can make influential and important contribution towards achieving the environmental sustainability by adopting various green banking practices. So in this regard, this study investigates some factors that influence the adoption and intention of adopting green banking practices in India. Technology Acceptance Model (TAM) is the prime basis of this empirical research paper. In this researcher has tried to develop a theoretical model linking Technology Acceptance Model (TAM) factors with environmental sustainability.

KEYWORDS: Green Banking, Indian Banking Sector, TAM, Environmental Sustainability

INTRODUCTION

In the era of Liberalization, Privatization, globalization and industrialization, a bane ‘global warming’ is resulting from the increased pollution and negative externalities created by the industries and firms. India stands at a critical stage in surmounting renewable resources of energy to supply these in access to the growing cities and rural communes. Financing is one of the chief blockades to the rapid growth of India’s market of clean energy that is needed to meet the national target of 175 gig watts (GW) of wind, solar and other renewable sources of energy by the year 2022, as well as the bigger aims of the Climate Agreement of Paris. Financing function must not be abundant only, but it should also be cheap, so that this clean energy from renewable sources can compete with the energy generated from the fossil fuels i.e. the non - renewable sources of energy. Therefore, abundant and low-cost capital will allow India to switch to a clean energy platform while continuing the economic growth.

The formation of strong policies and incentive structures must be adopted,so as to enable renewable resources of energy investment to increase to match up the increasing demand levels in India. Dedicated “green” financial institutions which are popularly established as green banks are substantiating at the state and national level at leveraging public money to fetch in the private capital in the banking sector. An Indian green bank (or banks) can help by boosting India’s wind andsolar energy markets and can support many projects which are energy-efficiency and climate resilience. Henceforth, the government has come forward to subsidethis menace as much as possible and levied the adoption of green banking on

bankers to abate the effect negative externality created by banker. Therefore, the banking sectorsrequire to play aconciliator role between the economic development of the country and protection of environment, for the promotion ofsustainable environment and social responsible investment.

According to Schultz (2010) "Green Banking means promoting environmental-friendly practices and reducing your carbon footprint from your banking activities". As stated by Bahl (2012) green banking activities involves use of online banking instead of branch based banking, using online platform for the payments of bills instead of using mail, opening up of money market accounts via online systems, instead of having multiple branches of the banks now banks are available on your mobile and anytime and anywhere, that is taking the biggest steps to support local green initiatives.

There are basically two-pronged approaches used in green banking. Primarily, it focuses on alteration of banks internal operations which means to adopt sustainable practices in day to day activities like electronic and mobile banking, electronic statements, RTGS, NEFT and IMPS, instead of using cheques, using of energy saving equipment etc. Secondly, banks should focus on greening their investment and financing portfolios i.e. before entering into any projects they should weigh the environmental risk of the project (Millat, Chowdhury & Singha, 2013).

Green banking is the new concept designed to accelerate the growth of sustainable markets (Nelson David, 2012). Every country has started practicing this concept. It is adopted according to the country's sustainability goals, market opportunities, resource legacy and market risks. It is a transformative role which banks are playing by changing the traditional banking system which in turn will reduce carbon footprints from their activities.

Green banks are the institutions that finance renewable energy, invest in clean project, and had energy efficiency in operations (OECD, 2015). They catalyze private funds for green technologies by adopting financial tools such as green bonds, loan guarantees or loan-loss reserves, low interest rate with long payback period, low cot investments etc. They also develop sustainable market by organizing training workshops for employees and customers through renewable energy programmers, by promoting use of clean infrastructure (water and energy efficiency) in small business and homes through providing funds at low rate of interest. According to (Bahl, 2012), banks are working with other people's money therefore they should convey trust, professionalism, and commitment in their activities and should develop a level of confidence with their customers that their savings are utilizing in right direction.

Md. Sharif Hossain and Md. Tanvir Ahmed Kalince (2014) examined the impact of green banking on banks' performance. They considered six variables which impact the bank's performance such as deposits and other accounts, loans and advances, profit after tax, investments, and paid-up capital. The authors found that the green banking has positive impact and investment has negative impact on bank's performance. Further they found that there was a bi-directional causality between profit after tax and investment, between profit after tax and deposit and other accounts; they also found unidirectional causality in loan, paid-up capital to profit after tax, from loan and deposits and other accounts to investments and from loan to paid up capital. They suggested that the Bangladesh banks have to conduct more green banking activities to increase their profitability in operations. Finally, the authors concluded that if all the banks acted in responsible manner, then our world would become a better place for our future generations.

Knowing or having benefits cannot be enough to adopt green banking. According to Mark Schwanhausser (2008) "most user want to do the right thing, but if the process appears confusing or inconvenient, they simply aren't going to bother changing their habits." Intension of adoption research found that even though most of the bank stated their interest

in adopting information technology instead of using paper for works, 3 out of 4 consumers still receive hardcopy of their paper statements (Schwanhausser, 2008). Implementation of green banking is not successful if the users are not motivated to adopt these practices and in turn it will not give benefit to the organization as well (Al-Smadi, 2012). Although many of the developed countries have utilizedcomparatively affordableand well-accessibleinfrastructure for green banking but developing are far behind in terms of availability, quality and cost to develop the green infrastructure (Morteza, Aranda & Amado, 2011). According to Tan et al. (2007), to adopt green practices suitablyin the emerging economies, banks tends to be externally, and internally ready. Hence, it is essential to recognize the variables which affect the adoption and acceptance of green banking practices (Al-Smadi 2012).

The primary focus of this study is to investigate the variables influencing the acceptance of green banking practices in India. This paper also tried to find out the insights about acceptance behavior of Indian Banks. Researcher have developed and use too many models to understand the behavioral intension of adoption (Al Shibly, 2011). To analyze and create model, several past researches were used, which were conducted in different countries in the world. Technology Acceptance Model (TAM) is the primary basis for this research work. The researcher hadframed a conceptual model linking Technology Acceptance Model (TAM) and Environmental Sustainability.

This paper has been divided into several sections: in section two researchers has presented the literature review and model while section three presented the research methodology used; section four comprises of analysis of data; in section five is all about discussion of findings with implications, and in section sixresearcher had given the final conclusion of the work.

LITERATURE REVIEW

The variables which are discussed below are groundedon the review of literature regarding using TAM to adopt green banking and its impact on environmental sustainability. The subsequent section explains the basis for the variablesthat are included in this study.

In this study, to know about the adoption of green banking practices, the researcher has used Technology Accepted Model (TAM). This model of technology acceptance was introduced in the year 1989 by three researchers Davis, Bagozzi, and Warsaw. They developed an information system theory that represents how users acknowledgeand use a new technology (wiki 2013). This theory claims that adoption of technology by individuals is dependent on perceived usefulness (PU) and Perceived Ease of Use (PEU) of the technology. Some attitude measure of the theory of reasoned actions had been replaced by this model with two technology acceptance measures, one is ease of use and another is usefulness.

Perceived Usefulness

Perceived Usefulness (PU) means to improve banking operations through using green banking practices from prospective user's subjectivity (Lu, Yu, Liu, & Yao, 2003). The benefits which are identified by the members within the organization is Perceived usefulness. Green Banking will help to get that kind of benefits to the members, if adopted. The impact of PU on IS/IT adoption has been confirmed in many related literatures but in this case, it has been used for adoption green banking practices such as Morteza, Aranda& Amado (2011), Al-Samadi (2012).

Perceived Ease of Use

PEOU means to assess the mental effort required of prospective user for the use of the new applications (Davis, 1993). This shadows from the definition of ease "freedom from difficulty or great effort", in performing various that a person responsible for. If other conditions remain same, applications which are more easy to use are more acceptable to the users (Baraghani, 2008). Many researchers suggested that PEU is one of the significantfactors influencing the intention to adopt green banking practices; for instance, Baraghani (2008) studied TAM on internet banking, Morteza, Aranda& Amado, (2011) on e- commerce andLu, Yu, Liu, & Yao, (2003) on wireless internet and all the researchers founded a positive relation between these factors.

Attitude towards Adopting Green Banking

Behavioral Intention towards Adopting Green Banking

As stated by Davis (1986), behavioral intention is described as "the strength of the prospective user's intention to make or to support the usage decision in their mind". Behavioral Intention is determined by perceived usefulness and attitude of the individual. There exists a positive association between individual attitude and Behavioral Intention of the users which means individuals who carries positive attitudes tends to have positive Behavior Intention towards adopting the new technology.

Some researches argue that headwaytoward IT adoption could be a reaction or response to an event or because of pressure created from the external and internal environment (Pavlou & Sawy 2012). Some of the previous researches confirmed the relationship such as I fineo (2011) on internet/ e-business, Pavlou & Sawy (2006) on IT and Riemenschneideret al, (2003) on IT adoption.

Environmental Sustainability

According to many researchers environmental sustainability involves "making decisions and taking action that are in the interests of protecting the world, with emphasis on preserving the environment to support human life".Environmental sustainability is all about taking decisions that helps in the reduction of the negative impact of businesses on the natural environment. It is not only about reduction in the waste produce or using less energy, but is concerned with developing sustainable processes that will give benefits in the future. Environmental Sustainability is "the ability to maintain the things that are valued in the physical environment (natural and biological environments)".

Environmental sustainability is defined as a "condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity" (Morelli, J. 2011). Environmental system seeks to sustain the global life support system indefinitely (Goodland, R. 1995). In developing countries, environmental problems become very critical which underlines the need to implement plans for sustainable use of resources (Stockholm Environment Institute Report, 2013). Due to increasing effect of urbanization, industrialization, poor environment management system, and increasing population density in India, the environmental problems have become alarming issues (Bowonder, B. 1986).

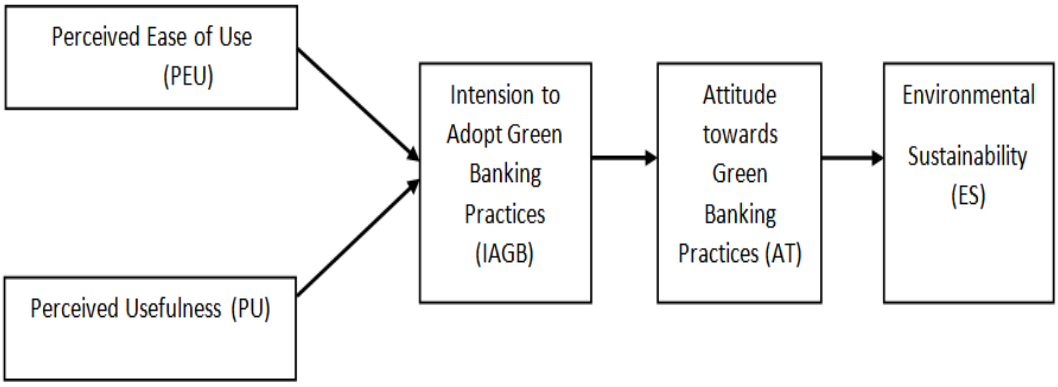

Figure 1: Research Model

RESEARCH METHODOLOGY

Survey instruments were developed from different related studies that were conducted in the related fields. To develop questions and model, we took help from different prior study such as Al-Samadi; (2012) on Electronic Banking, Baraghani (2008) on Internet banking, (Ifinedo 2011) on Internet/ E-business, Morteza, Aranda& Amado (2011) on E- commerce and IT adoption and Martin (2012) on Mobile commerce etc. The survey questions were contextualized and modified to fit the current context. In total 34 questions were used to prepare questioner. In this research paper all the variables have been measured by the researcher by the subjects that indicate their agreement with a set of statements using a 5 point Likert scaleas stated by Y.Li (2007).

Sample

The data have been collected from both primary and secondary sources. In total 120 printed copies of questionnaire were distributed among the employees of Indian commercial banks. Mostly, the researcher has also collected the secondary from internet and several journals and articles which were published in different countries and time.

ANALYSIS OF DATA

In this research work, researcher has applied exploratory factor analysis i.e. EFA to identify the measuring items in different variables affecting the adoption of green banking practices.As stated by Janssen et al. (2008), the minimum value of factor loading of each item should be 0.50 before it is assigned to a particular construct and for this the minimum sample size should be 100. Sample size is 320 in this research paper, which has been considered for factor analysis. A factor loading of each item is considered to be statistically significant if it is greater than or equal 0.35 (Janssen et al., 2008). In this study, after conducting the EFA it has been analyzed that factor loading of each item under study is fulfilling the minimum criteria, so all the items has been considered for this study. Principal component method was used while conducting EFA in this study. While using principal component analysis, in total 5 factors were identified with varimax rotation, which has five Eigen values greater than one. The total variance explained by all the five variables under study is 72.34% with eigen value greater than one. Cronbach alpha was used by the researcher to find out the reliability of the questionnaire. The coefficient of reliability (α) of each variable are shown in table1, which are Perceived Usefulness (0.901); Perceived ease of use (0.827); Attitude towards Green Banking Practices (0.912); Intention to Adopt Green Banking Practices (0.897) and Environmental Sustainability (0.945).

Table 1: Reliability of Factors (Cronbach Alpha)

Factor name	Items	Cronbach Alpha Coefficient	Reliability Results
Perceived Usefulness	6	0.901	Good
Perceived Ease of Use	4	0.827	Good
Attitude towards Green Banking Practices	4	0.912	Good
Intention to Adopt Green Banking Practices	5	0.897	Good
Environmental Sustainability	7	0.945	Good
Overall	26	0.917	Good

Sampling adequacy measures i.e. Bartlett's test for sphericity and Kaiser–Meyer–Olkin (KMO) was also used by the researcher in this study to determine the sample suitability for conducting the factor analysis. It is important to note that factor analysis can only be used if the factors under study are sufficiently correlated to each another. According to Janssen et al. (2008), these two tests provides understanding into the degree of correlation between the factors under study.Hence, the significant value of KMO and Bartlett's statistic confirms the relevance of Exploratory Factor Analysis for this study.

Table 2: KMO and Barlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.906
Bartlett's Test of Sphericity	Approx. Chi-Square	6064.472
	df	325
	Sig.	.000

Factor analysis is basically a factor reduction tool and varimax factor rotation was performed to classifythe variables impacting the adoption of green banking services by Indian banks. In this study, researcher has considered 26 items which is related to five factors and these have beeninvestigated by using PCA (principal component analysis) method. Total Variance Explained (TVE) shows "the extent to which total variance of the observed variables is explain by each of the principal components". Five components or factors have been extracted by the Initial factor extraction which has an absolute eigenvalue greater than one as depicted in Table 3. However, all the five principal elementstogether accounted for 72.34% of the total variance in the 26 items.

Table 3: Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.920	34.307	34.307	8.920	34.307	34.307	5.265	20.251	20.251
2	3.851	14.810	49.118	3.851	14.810	49.118	4.094	15.746	35.998
3	2.290	8.808	57.926	2.290	8.808	57.926	3.597	13.834	49.832
4	2.058	7.917	65.843	2.058	7.917	65.843	3.177	12.221	62.053
5	1.691	6.502	72.345	1.691	6.502	72.345	2.676	10.292	72.345
Extraction Method: Principal Component Analysis.									

Table 4 shows the six measuring items determining Perceived usefulness construct with factors loading values ranging between.623 and.859. Perceived Ease of Use was determinedwith four measuring items with factors loadings ranges between.735 and.795. Attitude towards Green Banking Practices was determinedwith four measuring items with factors loadings ranging between.806 and.884. Intention to Adopt Green Banking Practices was formed with five measuring items with factor loadings ranging between.717 and.864. Environmental Sustainability was formed with seven

measuring items with factor loadings ranging between.753 and.863. The factor loading table 4, also depicted that all the measuring items were loaded fairly on to each respective factor. There are total five factors that the researcher has identified from 26 observed variables.

Table 4: Rotated Component Matrix

Rotated Component Matrix[a]					
	Component				
	1	2	3	4	5
PU1		.623			
PU2		.854			
PU3		.787			
PU4		.748			
PU5		.825			
PU6		.859			
PEU1					.794
PEU2					.772
PEU3					.795
PEU4					.735
AT1				.806	
AT2				.863	
AT3				.884	
AT4				.860	
IAGB1			.717		
IAGB2			.824		
IAGB3			.861		
IAGB4			.801		
IAGB5			.776		
ES1	.821				
ES2	.830				
ES3	.848				
ES4	.857				
ES5	.863				
ES6	.800				
ES7	.753				

DISCUSSIONS AND SUGGESTIONS

Today, with the growing opportunities in India, in almost all the sectors, there is also chance that the environmental degradation will come down and thus, in turn, Indian financial sector has a chance to encash this opportunity. Moreover, to fulfill the social and environmental goals, banks need a new direction. First, banks to attain the goal of sustainability development should invest in green projects. Secondly, banks also need to have a indirect control over the internal investment and management decisions which leads to environmental and social sustainability. There exists an ample opportunities with the banks to en cash this ongoing change through green investment. India has lot of work and responsibility to fulfil towards “going green” without any choice. If Indian banks wants to compete in the global market then they have to move towards green financing.

- Banks have to make few changes in its daily routine activities likepaper less banking, mobile banking, online documentation etc.

- To achieve environmental sustainability Indian banks have to adopt international activities that will lead them to the path of sustainability, will help in reducing the carbon footprint and make desired changes in the business models to achieve total sustainability.
- Now, RBI has also given certain guidelines to the Indian banks which will help them in facilitating the new work with clear understanding that will help them in sustainable development.
- Bank should formulate some policy guidelines regarding Environmental Risk Management (ERM) and should also set up new targets internally which will help them in the reduction of carbon footprints.
- Concept of LEED certified green buildings should be adopted by banking sector.
- The bank should start investment in low carbon producing technology and should develop new sustainable development programs to reduce the carbon footprint from the environment.
- Banks must organize training program on environment sustainable development program to their employees.
- Bank employee should be properly trained on various aspects like evaluation of various green finance projects like clean water supply, renewable energy projects, bio-gas plants etc.
- Banks should take care of certain things while giving loans like considering the impact of borrowers on ecology. Green Products like green mortgages and green loans should be preceded to the borrowers. For all the borrowers who need loans for the development of hydro, solar plants should be given advance at lower rates.
- Banks should have a separate cell or unit to measure or evaluate the “green banking practices”.

CONCLUSIONS

This research work was conducted to identify the factors influencing the adoption of green banking practices and to develop the model by using TAM. The result of this study shows that through EFA, researcher was successful in the identification of adoption factors and how TAM is successfully adopted in the area of green banking practices also. This study has also demonstrated that acceptance of green banking practices can also be explained in terms of various factors like perceived usefulness, perceived ease of use, Intention to adopt green banking practices, and attitude towards green banking. TAM framework was used in this study with Environmental Sustainability. Thus, this research work has helped the banks in giving the relevance of technology acceptance and how it will lead to Environmental sustainability. So, banks can use this model and can lead the global market by attaining environmental sustainability.

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