Fostering Green Banking and sustainability in a Developing Economy: An Empirical Assessment

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Abstract: Aligning economic development with an ecological financial sector is a universal challenge. Placing the Asian Financial Sector onto a green transformation pathway requires unprecedented shift to innovative and cost effective financial practices that are resource and energy efficient. Nevertheless, the goal of green transformation in the sector is not feasible without banks' commitment to adopt and promote green practices. The climatic catastrophe and dearth of energy in the country has compelled State Bank of Pakistan (SBP) to enact an environment friendly course of action to promote and initiate sustainable banking. Thus in light of the above, the main focus of this research is to measure employees' perception of their bank's commitment to adopt green practices which predominantly considers commitment to adopt energy efficient resources; provide paperless banking through electronic correspondence; design policies for green products; harness employees' knowledge on green practices through training and other measures; and develop consumer awareness on benefits of green banking. In addition, this study also investigates the impact of perceived commitment of banks to adopt green practices on the extent of green transformation from conventional banking system. The findings of the Multiple Regression Analysis confirm significance of aforementioned factors on the extent of green transformation. However, in order to achieve the goal of overall transition, the role of stakeholder's engagement and operational costs related to green transformation must be clearly outlined to identify bottlenecks which may otherwise impede development of a sustainable financial sector.

Keywords: *Green Banking Practices, Customer awareness, Employee knowledge and training, Sustainable Financial Sector*

Introduction

Aligning economic development with sustainable and green financial sector is a universal challenge. Climate change and global warming are worldwide faced issues (Singhal et al. 2014, Prasad, 2017). Climate change is one of the most complicated issues faced by the word today (Alam et al.2017). Many Asian countries vulnerable to climatic risk are facing challenges to reduce carbon emissions and develop climate resilient infrastructure. Placing the Asian financial sector onto a green transformation pathway requires unprecedented shift to innovative and cost effective financial practices and infrastructure development that is not only resource but also energy efficient (Verma,2012).

To mitigating the risk of climatic change and supplement efforts of the government, banks can play a crucial role (Hayder, 2012). Nevertheless, the goal to attain green transformation in the sector is not possible without the commitment of banks to adopt and promote green practices. Green banking ascertains the promotion of environment friendly practices and reduction in carbon footprint from banking transactions. To support the reduction of carbon emission, banks need to finance green technology and pollution reducing investments (Bahl, 2012).

Even though, banks are never thought of as a pollution increasing institution, nevertheless the present banking system has increased carbon footprint in the economy as a result of its massive

energy use. Therefore, banks need to adopt processes, products and technologies which would help in the development of a sustainable environment in addition to reduction of carbon emission.

In its most basic form, green economy is the one which has a low carbon turnout, is social inclusive and resource efficient (Bhardwaj and Malhotra (2013)). In such economies, employment and income growth is driven by carbon reducing investments which increases energy and efficiency of resources, therefore playing an integral role in our ecosystem.

Green banking is an approach through which green concepts are introduced and juxtaposed into the banking realms. It comprises of practices which helps banks and investors in reduction of carbon print in the economy. State bank of Pakistan, being the banking system regulator needs to encourage green banking due to three major reasons including the systematic risk factors (legal and credit risk), concerns over the climatic change and sustainable energy.

The leading sustainable banks in the world have set an example for orthodox banks to portray how commitment to principles enables them to achieve their sustainability objectives (Standard Bank Group, 2010, Bank of Austria, 2012). Many researchers (Bahl, 2012; Islam and Das, 2013; Ullah ,2013; Nath et al. ,2014; Tara et al. ,2015) have done reviews and comparisons on green banking, however there is dearth of empirical research on perspectives of banks commitment to adopt green banking as.

Thus this research utilizing primary data, is an attempt to highlight perception of banks' commitment to foster green banking and to investigate the extent to which green practices are adopted in formal and structural business in line with global norms to ensure sustainable banking. As identified the notion of improving perception of employee's banks' commitment to sustainability is a pragmatic approach for making the system more sustainable gradually (UNEP FI, 2014). Investigating employee's perception will help gain insight on the prevalent state of transformation, if any, and assist in outlining shortcomings that impede development of sustainable banks. In addition, it will also help in assessing employee's knowledge of green banking and the need for additional education, communication and encouragement to enforce green practices.

Over the years, the concept of initiating green practices in the financial sector has become increasingly imperative in South Asian countries, leading to more probing and research in the region. Though few countries like India, Bangladesh and Srilanka are now aggressively investigating initiatives, practices and complexities of implementing green banking in their countries, there are lacunas in number of studies undertaken in Pakistan. A majority of banks in Bangladesh are committed to global sustainability reporting by preparing documents on sustainability in accordance to Global Reporting Initiative (Masud et al, 2017). In addition, the Bangladeshi banks have also played a crucial role in documenting issues related to corporate social responsibility and Environmental accounting and reporting in recent times (Masud et al, 2017). Likewise, Indian banks are also emphasizing on sustainable development. According to a recent study the initiatives taken by both public and private sector Indian banks to investigate sustainable banking and implement green practices have been commendable (Sharma, 2016). In Srilanka as well, researchers including both academics and practitioners are now giving more importance to investigation of sustainability issues in their banking sector (Shaumya and Arulrajah, 2016). However in Pakistan, the number of studies published on green banking are few in number and lack empirical assessment of green banking initiatives in recent years (Shahid et al, 2015). Hence, this study is aimed to fill the research gap by examining the green banking practices in Pakistan through employee perceptions.

Research objective:

The aim of this research is to gain insight into perceived commitment of banks to adopt green practices through energy consumption, electronic correspondence, policy formulation,

employee knowledge/ training, and consumer awareness. The following objective have been outlined for this study:

To assess initiatives and perceived commitment of banks to adopt green practices for transformation from conventional to green banking in Pakistan.

Research questions:

What is the impact of energy consumption reduction on green banking development?

What is the impact of electronic correspondence on green banking development?

What is the impact of policies on green banking development?

What is the impact of employee knowledge and training on green banking development?

What is the impact of customer awareness on green banking development?

Literature Review

Energy Consumption

The concept of green banking was formally initiated by countries in the west in 2003 followed by the launch of the risk management framework known as the Equator Principles (EPs) which was adopted by leading global banks including Citigroup Inc., Royal Bank of Scotland, and Westpac Banking Corporation (Lalon, 2015). Later in 2009, Green Banking Act was introduced by the US government according to which the initial emphasis was directed towards paperless banking in the financial system to limit deforestation. Green Banking is considered as a fundamental component of international efforts to evolve resource efficient and low carbon industries like green industry and green economy. In general, literature identifies two approaches to implement green banking practices which includes adoption of in-house green practices and incorporating green initiatives in business practices. The term green banking also contemplates developing business strategies and promoting banking practices that takes into account environmental and social factors to reduce carbon footprint. Though the initial emphasis of green banking was on limiting use of paper, banks have now gone one step ahead from the traditional paperless banking to introducing solar ATMs (Narang, 2015). Though, banking is not considered to be a polluting industry, the present banking operations have escalated carbon footprint because of massive energy use (electronic equipments, lighting, air conditioning, IT, etc.), excess paper wastage, shortage of green buildings, etc. Therefore, banks need to implement technology, products and process which leads to significant reduction of carbon footprint in addition to development of a sustainable business (Alam et al. 2017).

H1: Extent of development of green banking is dependent on the perceptions of the reduction in energy consumption.

Electronic Correspondence

"Green Banking is any form of banking from which the country and nation gets environmental benefits" (Lalon, 2015). This may take many forms like introducing e-banking transactions to promote self-banking; SMS alerts and electronic correspondence for paperless banking; introducing in-house green practices; promoting green financial products and encouraging customers to undertake green projects and businesses. Green Banking considers providing innovative green products and supporting activities that are environment friendly (Islam and Kamruzzaman, 2015). Electronic documentation in lieu of paper is increasingly common and encouraged by banks. Banks have been educating users on the use of online statements instead of paper statements by mail as one of the tactics to preserve environment and resources (Ko et al. 2012). Hence the hypothesis below:

H2: Extent of development of green banking is dependent on the perceptions of the use of electronic correspondence.

Policy formulation for green products

As a major source of finance, banks can ensure that businesses approve green activities. By offering funds at a minimal cost, banks provide an incentive for using green technology and

have a favorable effect on the environment. Banks themselves can use green practices, as they are the main technology implementers. Leveraging on technology usage helps banks and their customers in the reduction of paper resources hence, helping in protecting the environment (Sindhu, 2015).

Most studies argue the importance of the role of Central Banks in enforcing green practices through provision of clear guidelines and regulations for successful transition to sustainable banking. Weber (2016) deemed regulations on financial sector sustainability to be an efficient mean to support development of green economy and to ensure stability in financial sector. In addition, green banking policies must be supported by implementation guidelines that help the banking sector assess environmental risks and opportunities in financial decision making (Alam et al. 2017). The author emphasizes that the enforcing regulations on financial sector sustainability not only ameliorates sustainability of banks but also their financial performance and subsequently their stability. According to the findings, environmental and social performance of Chinese banks improved significantly because of the Green Credit Guidelines which were imposed on banks to integrate environmental risks into their credit risk assessment procedures. According to Ahmad et al. (2013), implementing green banking policies can yield multiple benefits which may include increase in goodwill or improvement in brand image through commitment to protect environment; limit lending to environmentally harmful projects; adopt necessary environmental measures before lending or making investment; resource efficient financing; technological advancements in banking operations that would benefit customers also increase productivity of employees; curtail carbon foot prints and create awareness amongst the stakeholders about environmental and social responsibility. Therefore, the hypothesis below was developed.

H3: Extent of development of green banking is dependent on the perceptions of policy formulation for green products.

Customer Awareness

Creating customer awareness on the use and importance of green banking carries an utmost importance and needs to be pursued by private as well as the public banks. Singh et.al (2013) emphasized on the importance of creating awareness to implement and use green banking extensively in today's global world, where there is a continuous flow of improvements and innovations. Green banking promotes environment friendly activities and is present in many forms e.g. online banking in terms of paying online bills, money market accounts and opening CDs online. Green banks in addition to improving their own standards also have an impact on other business's behavior. Green banking not only saves energy and water but also evaluate banks from the view point of environment concerned customers (Goyal and Joshi (2011)). A large number of Indian banks are going green by offering green products to their customers including ATMs, mobile banking, online banking, Electronic transfer of funds, Green mortgages and credit cards etc. (Singhal et al. (2014)). Deka (2015) investigated customer awareness about the importance of green banking initiatives in India and concluded that as compared to the developed countries, customers didn't adhere to these services due to lack of awareness. Due to deficiency of awareness regarding sustainability and environmental issues, customers don't indulge in online services (Masukujjaman et al. (2017), Tan et al. (2017)). Banks may increase awareness among their customers to adopt green banking and encourage them to contribute for environment sustainability by sending communications and contacting customers personally (Malliga and Revathy (2016), Putri et al. (2017)). Keeping in mind the importance of customer awareness, the following hypothesis:

H4: Extent of development of green banking is dependent on the perceptions employee knowledge and training.

Employee knowledge and training

Sharma et al., (2014) using Public and Private sector banks found employee training and customer awareness to be the key factors in relation to the concept of green banking. The steps taken by the banks in order to train employees on the importance of green banking were scrutinized. Skills, knowledge and training of employees are of utmost importance for development, competitiveness and performance (Elnaga & Imran, 2013).

Employees should be knowledgeable about importance of green systems and be proficiently trained in order to influence customers. Banks should train employees on use of appropriate technologies and new management systems to initiate green practices (Chaursia, 2014 and Hafeez & Akbar, 2015). Educating and training employees will create positive perception of bank's commitment to adopt environment friendly practices that are resources efficient. Masukujjaman et al. (2017) perceived green banking as environmental friendly banking where the trained employees helped in protecting environment despite high adoption cost. Yurtsever and Sanli (2016) measured employee's perception on sustainable bank's commitment in their study and found a significant relationship between employee's perception and sustainable performance of banks. Sustainable banks scored significantly higher on employee perceptions of commitment to sustainability. It was argued that negative perception may impede banks' ability to become sustainable and high performer in the economy.

H5: Extent of development of green banking is dependent on the perceptions of customer awareness.

How should banks go Green?

In order to reduce their own impact on the environment and make it more resource friendly, banks can take various actions such as more financing in eco-friendly investment projects, offer more discounts to customers offering greener land and buildings as mortgages, green credit cards to customers to reduce global warming, conservation of energy, mobile banking, online banking, saving energy consumption through solar panels, reduction in air pollution by providing common transport to groups, minimizing plastic consumption through the introduction of eco- friendly pouches instead of plastic pouches, keeping an additional charge on offline payments in order to go for online banking rather than paper banking.

Green Banking Initiatives in Pakistan

The climatic catastrophe and dearth of energy in the country have compelled State Bank of Pakistan (SBP) to enact an environment friendly course of action to promote and initiate sustainable banking. SBP has initiated a process to streamline regulatory measures by establishing a "Green Banking Unit" to aggressively promote green banking practices. According to SBP, the motive for green transformation in Pakistan is initiated from two perspectives which primarily involves banks and regulatory authorities. Banks through introduction of green practices are aiming for economic benefits to curb cost through resource and energy efficient products and services. Whereas according to the perspective of regulatory bodies, green transformation in the financial sector will make banks more sustainable. In addition, it will contribute to government efforts to control energy crisis and promote electricity generation from renewable sources like solar and wind. Thus the role of banking sector is decisive to curtail energy shortfalls and climatic disrupts, the two most important ongoing concerns of our economy.

In recent times, efforts have been made by the State Bank of Pakistan on energy front generation in the form Refinance Scheme for Renewable Energy.

According to the State Bank of Pakistan the green banking practices may be grouped under four categories. The first category emphasizes greening of banking operations and infrastructure which primarily focusses on transforming buildings into resource efficient infrastructure and enforcing paperless banking. The second category focusses on complying regulations for which may include conforming incorporation of environmental and social assessment in financing and other green products. According to the third category, proactive

green banking initiatives should be taken to introduce green bank loans with financial concessions for environment friendly products and projects, fuel efficient vehicles, installation of solar systems and alike. In contrast to the aforementioned categories, the last category emphasizes on awareness and training of stakeholders. This can take many forms like creating market for environment friendly products, promoting green image through green marketing, creating awareness of employees and the potential clientele for resource efficiency.

Sustainable and green banking encourages energy efficient projects, limits use of paper transaction and encourages use of e-banking services. The prevalent payment system in Pakistan ranges from conventional paper based mechanism to modern electronic system. According to the Payment System Review by SBP, the volume of electronic and branchless banking has grown considerably in the last few years. One of the fastest growing transaction system is mobile banking, with a 70 percent increase in transaction from September, 2012 to September 2013 (Payment System Review, SBP).

According to the recent Payment Systems statistics report (2016) published by the State Bank of Pakistan (SBP), customers using mobile banking services made transactions worth Rs. 25.9 billion in the second quarter (January to March) of 2016 in comparison to 24.7 billion in the preceding quarter, thus an overall increase of 4.80 percent. Correspondingly, electronic banking transactions also observed a substantial growth of 11.32% in the second quarter of 2016 as Rs. 9.45 trillion worth of transaction were recorded during the first three months of 2016 compared to Rs. 8.50 trillion during the latter quarter of 2015. The Payments made through mobile accounts reported an increase of 2.25% from Rs. 733 million to Rs. 717 million in the previous quarter. Likewise, account-to-account fund transfers through mobile accounts increased by 5.46% and 3rd party account to account funds transfer also went up by 0.8%. It is expected that recent technological shift in Pakistan like introduction of high internet 3G/4G services will further ameliorate mobile banking trend in the coming years.

Most banks operating in the country have adopted green practices and are further initiating design of policies to develop green products. Table 1 provides details of green banking practices adopted by selected banks operating in Pakistan.

Table 1: Green Practices adopted by Banks in Pakistan / Major Green Banking Initiatives at a Glance

Name of Bank	*Green Banking Practices*
Muslim Commercial Bank (MCB) TA share	Initiated installation of solar ATMs in 2015, Shifting bulbs to LED lights, BMS operational system installed at head office for better control of energy, waste heat utilized for cogeneration, plantation projects are encouraged, initiatives taken to minimize environmental impacts, Mobile Banking- MCB LITE, SMS Alerts, electronic statements, Online Banking.
National Bank of Pakistan (NBP)	Pioneer of installing first solar ATM in Pakistan, Online Banking through a service named Aasan Branch Banking, SMS alerts, electronic statements, switching to energy efficient lighting, signed agreement to create collaboration between MobiCash (fastest growing mobile financial services), initiating steps for digital banking
Habib Bank Limited (HBL)	Switching to solar ATMs, HBL internet Banking, HBL Branchless banking through Basic service and M-Wallet, electronic statements, SMS alerts, Switching to energy efficient sources
United Bank Limited (UBL)	Online banking named UB online, promoting Go-Green products through Go-Green Internet Merchant Acquiring, Go-Green E-statements, Go-Green SMS Alerts, initiated installation of solar ATMS and energy efficient lights, Branchless Banking named OMNI.

Allied Bank Limited (ABL)	E- Banking services, Allied Direct Internet Banking, Mobile Top-Ups, SMS Alerts, E-Statements Service, Solar Powered Branch, Initiated installation of solar ATMS
Standard Chartered Bank (SCB)	Initiated LED light installation, Auto Shutdown of lights an computers, Online Banking, Mobile Banking named Breeze, E-statements, Paperless PIN, initiated installation of solar ATMs, designing green products, considering environmental risks in practices

Source: Author's own compilation from official website and annual reports of banks

Theoretical Framework

Following theoretical framework (Figure 1) has been proposed in the current research and the given below expected signs of the variables have been suggested based on the review.

Measures

Extent of Development of Green Banking

Extent of Development of Green Banking is the dependent variable in the current research paper. The researcher compiled nine questions on the extent of development of green products e.g. use of Solar ATMs, Online banking, Mobile banking, Online savings account, Green checking account, Green credit card, Green mortgages, Green certificate of deposits and Recyclable debit and credit cards. A 5 point Likert scale has been used to calculate each green banking product's usage score where the score indicated the frequency of green products usage.
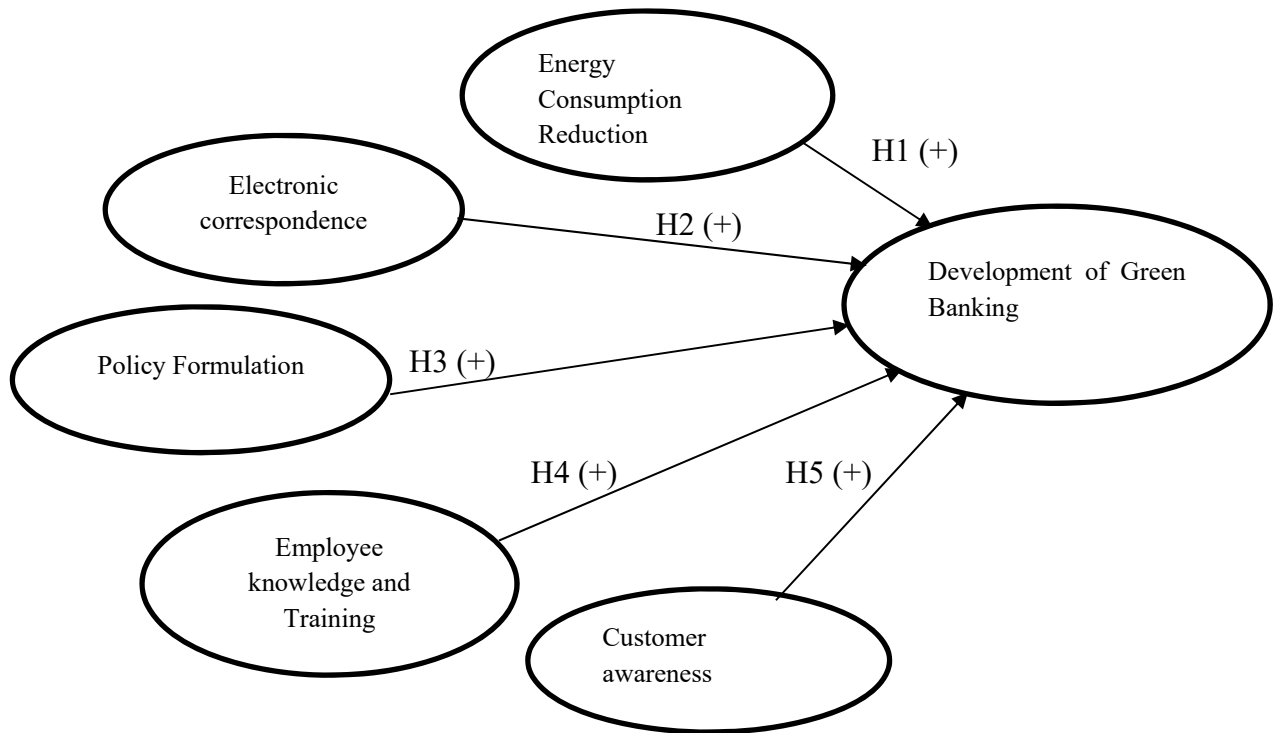
Energy Consumption (ECN)

Banks commitment towards the reduction of carbon emissions is an integral step towards green banking. In order to measure the independent variable energy consumption, respondents were asked to rate the following statements, "The bank I work with is committed to save energy consumption by replacing conventional lighting with energy efficient bulbs in the office", "The bank I work with is committed to reduce in-house carbon footprint", "The bank I work with is committed to switch over to renewable energy (solar, wind etc.) to manage offices", "The bank I work with is committed to switch over to solar ATMs" and "The bank I work with is committed to switch to automatic shutdown of computers, lights and fans in the future". Likert scale of 1 to 5 has been used where 1 indicated "under developed system" and 5 indicated "fully developed system".

Electronic Correspondence (ECR)

The following statements were employed to measure electronic correspondence which is the second independent variable, "The bank I work with is committed to provide majority of internal memorandums, records in electronic form in office", "The bank I work with is committed to communicate with customers mostly through emails and SMS", "The bank I work with is committed to provide e-statements to customers to encourage paperless banking", "The bank I work with is committed to constantly encourage customers to set their Personal Identification Number (PIN) through phone banking", and "The bank I work with is committed to provide online application system for banking products to customers".

Figure 1: Theoretical Framework

Policy Formulation for Green Products (PFGP)

Proper policies form the basis of every good banking system. Policy formulation for green products is the third independent variable which has been measured through these statements based on the Likert scale, "The bank I work with is committed to design policies to introduce innovative and eco-friendly products in future", "The bank I work with is committed to take into consideration environmental and social factors in future banking practices", "The bank I work with is committed to establish an independent green banking unit in the future according to SBP requirements", and "The bank I work with is committed to incorporate risks related to environment in credit approval process".

Employee Knowledge and Training (EKT)

Employee knowledge and training is an important factor which helps in enhancing employee knowledge on green banking as a result helping in adoption of green services. Participants were asked to give their opinion on the following statements, "The bank I work with is committed to enhance employee's knowledge through circulation of green policies", "The bank I work with is committed to develop employees' interest in green banking practices", and "The bank I work with is committed to educate employees through frequent training programs".

Consumer Awareness (CA)

Customers make or break any important system. Without customer awareness on the need of green banking in present times, the system cannot be changed. Respondents were asked to rate statements on a 5 point Likert scale, "The bank I work with is committed to create awareness for environment friendly banking practices", "The bank I work with is committed to create awareness to corporate consumers on environment friendly business practices", and "The bank I work with is committed to organize awareness programs on climatic risks".

Methodology
Face validity

A survey questionnaire was employed to obtain primary data. To establish face validity of the designed questionnaire, it was distributed to a panel of experts' first. Once their approval was given regarding the question's capability to capture the required information, it was then further sent for a pilot test for which twenty respondents were chosen. After pilot test been done too, it was further distributed among the respondents for the purpose of data collection.

Data collection

The data was collected from lower and middle level employees of six commercial banks in Pakistan which includes Muslim Commercial Bank (MCB); National Bank of Pakistan (NBP); Allied Bank Limited (ABL); Habib Bank Limited (HBL); United Bank Limited (UBL); and Standard Chartered Bank (SCB). Other than SCB, all remaining banks fall under top five banks operating in the country with more than 50 percent of collective share in the total assets of the industry. A non-probability, convenience sampling technique was used to select respondents working with aforementioned banks in Lahore, Punjab.

Instrument

A self-administered questionnaire was used to collect responses. The questionnaire designed was divided in two sections. Section 1 measured employee's perception on their bank's commitment to adopt green practices which primarily considers commitment to adopt energy efficient resources; provide paperless banking through electronic correspondence; design policies for green products; harness employees' knowledge on green practices through training and other measures; develop consumer awareness on benefits of green banking. A five-point scale Likert scale was used to measure responses where I indicted "strongly disagree" and 5 indicated "strongly agree". The second section of the questionnaire measures perceived extent of transformation from conventional banking to green banking. In the second section, respondents were asked to rate the development of green banking from underdeveloped to fully developed on a five-point scale.

Statistical Analysis

Out of a total of 550 questionnaires, only 395 questionnaires were considered for the analysis, representing an effective response rate of 71.8 percent. Statistical Package for Social Science (SPSS) version 15, was used to conduct analysis. Statistical analysis includes descriptive analysis of research constructs, reliability analysis, principal component analysis and multiple regression.

The Identification of the extent of development of green banking

To achieve our research objective, considering factors taken from literature, Principal Component factor analysis, with vari-max rotation(vari-max rotation in statistics, maximizes the variances sum of the square of loadings) is employed to conclude if the data could be grouped into factors. "Factor analysis is a process of combining the information given in a large set of factors into a smaller number of new merged variables, minimizing information loss" (Hair et al, 1997). Minimum 5 observations are needed for each latent factor to make it acceptable for inclusion in the analysis (Hair et al., 1997). In this research, sampling adequacy measure (KMO=0.85), is deemed appropriate.

Cronbach's alpha (α) is applied to test instruments developed in the questionnaire prior to application of advanced research techniques. According to Sijtsma (2009), Cronbach alpha is the most extensively used technique to assess one-dimensional latent construct. As pointed by Nunnally (1978), the value of alpha ranges from 0 to 1, with values greater than 0.7 considered as a good indicator of a reliable scale. The values of Cronbach's alpha calculated for the data collected in this study is provided in Table2 with values greater than 0.7, hence confirming reliability of scales used in this study.

Principal Component Analysis (PCA) was employed to perform exploratory factor analysis and to prevent multicollinearity. As identified in past studies, factor loading values greater than 0.5 are considered significant indicators of convergent validity. The results of exploratory

factor analysis are provided in Table 2 with all values greater than 0.5 which means that all items used in this study to measure responses have achieved convergent validity.

Hence, Principal Component Factor Analysis is a reliable tool in given situation. Five factors were made from the rotation of twenty items. Factor loadings > 0.5 were included in the analysis. The appropriate explanation and names of each of the five derived variables is given below:

1. The first factor includes 5 significant loadings with high positive correlation. The perception of the respondents relevant to "commitment to save energy consumption", "reduction in in-house carbon footprint", "switching over to renewable energy (solar, wind etc.) to manage offices", "solar ATMs" and "switching to automatic shutdown of computers, lights and fans in the future".. This factor has been named as *Energy Consumption* as all items included are related to the perceptions of the respondents regarding reduction in energy consumption.
2. The second factor termed as *Electronic Correspondence*, has five items related to the use of electronic banking including electronic records, e-statements, setting of PIN online etc.
3. All Four items, in this latent factor have focused on the perception of the respondents relative to proper policy formulations by the banks. This factor is termed as *Policy Formulation for Green Products.*
4. The fourth latent factor has three items which indicate the frequency an effectiveness of the training programs by the banks. This factor is called *Employee Knowledge and Training.*
5. Final and quite an important factor named *customer awareness* incudes 3 items all pertaining to the importance of creating awareness among customers regarding the climatic risks and the benefits of green products.

'Cronbach alpha' (Hair et al, 1997) has been used to authenticate the reliability of each latent factor. In this research each factor meets the ideal criteria as the Alpha (α) > 0.70 is considered ideal.

Table2: Exploratory Factor Analysis and the Cronbach's α coefficient

Measurement Items of the Construct	Factor Loadings	Cronbach's α
Energy Consumption		0.652
The bank I work with is committed to save energy consumption by replacing conventional lighting with energy efficient bulbs in the office	0.633	
The bank I work with is committed to reduce in-house carbon footprint	0.637	
The bank I work with is committed to switch over to renewable energy (solar, wind etc.) to manage offices	0.621	
The bank I work with is committed to switch over to solar ATMs	0.691	
The bank I work with is committed to switch to automatic shutdown of computers, lights and fans in the future	0.576	
Electronic Correspondence		0.718
The bank I work with is committed to provide majority of internal memorandums, records in electronic form in office.	0.648	
The bank I work with is committed to communicate with customers mostly through emails and SMS	0.810	
The bank I work with is committed to provide e-statements to customers to encourage paperless banking	0.746	
The bank I work with is committed to constantly encourage customers to set their Personal Identification Number (PIN) through phone banking	0.731	
The bank I work with is committed to provide online application system for banking products to customers	0.684	
Policy Formulation for Green Products		0.740
The bank I work with is committed to design policies to introduce innovative and eco-friendly products in future	0.703	

The bank I work with is committed to take into consideration environmental and social factors in future banking practices	0.732	
The bank I work with is committed to establish an independent green banking unit in the future according to SBP requirements	0.721	
The bank I work with is committed to incorporate risks related to environment in credit approval process	0.692	
Employee knowledge and Training		0.836
The bank I work with is committed to enhance employee's knowledge through circulation of green policies	0.822	
The bank I work with is committed to develop employees' interest in green banking practices	0.869	
The bank I work with is committed to educate employees through frequent training programs	0.771	
Consumer Awareness		0.680
The bank I work with is committed to create awareness for environment friendly banking practices	0.626	
The bank I work with is committed to create awareness to corporate consumers on environment friendly business practices	0.692	
The bank I work with is committed to organize awareness programs on climatic risks	0.601	

Source: Author's own compilation

Findings and Discussion

Descriptive Statistics

The survey includes 59 percent of male participants in contrast to 41 percent of females. More than two third of the total respondents are under 45 years of age. More than fifty percent of the employees in the sample have a minimum undergraduate degree. In terms of income, nearly 54 percent of respondents earn a gross monthly income of minimum Rs.25, 000 to a maximum of Rs.65, 000.

The results of descriptive statistics of the research constructs are provided in Table 3. Perceived consumption of energy reported a mean value of 3.59. A majority of well reputed banks located in urban areas are rapidly switching to energy efficient lights in-house and to solar ATMS. However, this transformation is yet to be adopted in rural areas and less privileged regions in the country. Paperless banking is becoming norm of banking due to environment concerns and cost efficiency. The highest mean value of 3.84 signifies that electronic correspondence is perceived as one of the fastest means of transformation to green practices by offering self and paperless banking. Policy formulations resulted in second highest mean value of 3.69 which supports that introducing policies and regulations for innovative and green products is perceived as highly resource efficient for green economy. As evident from findings paperless banking is growing fast in Pakistan, however there is a dire need to devise more forms of green products and practices. According to findings banks are also committed to enhance employee knowledge through training programs and create consumer awareness of green practices in future. A few leading banks are also aiming at organizing awareness programs on climatic risks. When asked to rate the extent of conversion from conventional to green banking, 80 percent of respondents perceived the prevalent system in the initial development phase. Although majority of large and medium sized banks are successfully running e-banking practices, complete transformation to green practices is yet to take place. Banks are initiating design and promotion of products while incorporating environmental risk grading in their policies. To aid transformation of green banking, SBP aims to regularly circulate policy guidelines issued by their green banking unit to design policies and spread awareness of environment friendly practices. Once green products are introduced, banks then aim to aggressively market their products to persuade customers to opt for green products and projects.

Table 3: Descriptive Statistics of Research Constructs

Measurement Items of the Construct	MEAN	SD
Energy Consumption	3.59	1.118
The bank I work with is committed to save energy consumption by replacing conventional lighting with energy efficient bulbs in the office	3.63	1.169
The bank I work with is committed to reduce in-house carbon footprint	3.73	1.133
The bank I work with is committed to switch over to renewable energy (solar, wind etc.) to manage offices	3.31	1.027
The bank I work with is committed to switch over to solar ATMs	3.91	1.073
The bank I work with is committed to switch to automatic shutdown of computers, lights and fans in the future	3.28	1.130
Electronic Correspondence	3.842	1.178
The bank I work with is committed to provide majority of internal memorandums, records in electronic form in office.	4.04	1.004
The bank I work with is committed to communicate with customers mostly through emails and SMS	3.78	1.139
The bank I work with is committed to provide e-statements to customers to encourage paperless banking	3.70	1.157
The bank I work with is committed to constantly encourage customers to set their Personal Identification Number (PIN) through phone banking	3.67	1.172
The bank I work with is committed to provide online application system for banking products to customers	4.02	1.001
Policy Formulation for Green Products	3.69	1.162
The bank I work with is committed to design policies to introduce innovative and eco-friendly products in future	3.82	1.186
The bank I work with is committed to take into consideration environmental and social factors in future banking practices	3.71	1.103
The bank I work with is committed to establish an independent green banking unit in the future according to SBP requirements	3.90	1.046
The bank I work with is committed to incorporate risks related to environment in credit approval process	3.33	1.088
Employee knowledge and Training	3.39	1.117
The bank I work with is committed to enhance employee's knowledge through circulation of green policies	3.47	1.179
The bank I work with is committed to develop employees' interest in green banking practices	3.52	1.152
The bank I work with is committed to educate employees through frequent training programs	3.18	1.119
Consumer Awareness	3.53	1.101
The bank I work with is committed to create awareness for environment friendly banking practices	3.48	1.175
The bank I work with is committed to create awareness to corporate consumers on environment friendly business practices	3.68	1.168
The bank I work with is committed to organize awareness programs on climatic risks	3.55	1.052

Source: Author's own compilation

Multiple Regression Analysis:

Multiple regression analysis is the statistical technique used to assess significance of impact of perceived commitment to adopt green practices on perceived extent of development of green banking system in Pakistan. The regression equation formulated is as follows:

$$EDGB = \alpha + \beta_1 ECN + \beta_2 ECR + \beta_3 PFGP + \beta_4 EKT + \beta_5 CA$$

Where

EDGB = Extent of Development of Green Banking
ECN = Energy Consumption
ECR = Electronic Correspondence
PFGP = Policy Formulation for Green Products

EKT   = Employee Knowledge and Training
CA   = Consumer Awareness

The overall results of this study (table 4) support findings of past studies (Yurtsever and Sanli, 2016) and indicate that there is a relationship between employee's perception of sustainable banks' commitment to sustainability and green banking. The findings of the analysis shown in Table 4 indicates that the dependent variable account for 69.2 percent of variability in perceived commitment to adopt green practices.

Employees perception about their respective banks commitment towards energy saving is not satisfactory as the results (H1 rejected; p-value > 0.05) indicate through the insignificance of the alternate hypothesis. The existing banking system is still underdeveloped according to the employee's perception and needs to be worked on.

It is also further noticed that commitment to execute electronic correspondence is the most significant determinant of extent of green transformation leading to the acceptance of H2 (p-value < 0.05). Electronic correspondence initiatives include e-banking transactions to promote self-banking; SMS alerts and electronic correspondence for paperless banking; introducing in-house green practices; promoting green financial products and encouraging customers to undertake green projects and businesses.

Employees also perceived policy formulation for green product as a significant factor to support financing of green economy. According to employee's clear implementation guidelines for policy formulation will play a vital role in determining environmental risks and opportunities in financial decision making (H3 supported; p-value < 0.05). As emphasized by Weber (2016), implementation of financial sector sustainability regulations will also improve financial performance and stability of banks.

The significant results (H4 supported; p-value < 0.05) also indicate that appropriate training provided to employees on use of technologies and management systems to initiate green practices will positively affect the degree of green transformation. Moreover, educating employees will create positive perception of bank's commitment to adopt resources efficient practices. Previous research has emphasized on the importance of employee training and its impact on employee performance which further leads to organizational performance on the whole (lamba and Choudhary, 2013; Mangkunegara and Waris, 2015; Hanaysha, 2016; Mittal and Dhar, 2016). Employee training give a boost to the confidence of employees, increase competence in them which leads to their enhanced performance as supported by Mangkunegara and Waris 2015.

Literature has highlighted the significance and strategic importance of bank's commitment to educate and create consumer awareness to encourage use of green banking to facilitate green transformation. As highlighted by Malliga and Revathy (2016), banks may encourage use of green banking and motivate customers to contribute for environment sustainability by sending communications and contacting customers personally. In the current research employee perceptions on customer awareness was found to be an insignificant predictor (H5 rejected; p-value > 0.05) that indicates the lack of banks effort in boosting customer awareness on the green products existing in the current banking structure, which can be attributed to missing customer awareness programs. Banks have been indulging in the use of green products but have not been able to educate their customers on their importance for their own selves as well as the environment. This might be attributed to the existing gap between the expectations of the customers and their perceptions of the green products usage (Tseng and Hung, 2013).

Table4: Results of the Multiple Regression Analysis

	Bank's Commitment to adopt Green Banking
Dependent Variable: *Extent of Development of Green Banking*	$R^2 = 0.692$

Independent Variables	Beta	t-value	Sig	Result
Energy Consumption	0.069	1.790	0.334	H1 rejected
Electronic Correspondence	0.373	10.552	0.010*	H2 supported
Policy Formulation for Green Products	0.289	7.249	0.022*	H3 supported
Employee Knowledge and Training	0.188	2.089	0.041*	H4 supported
Consumer Awareness	0.111	1.452	0.201	H5 rejected

Source: Author's own compilation (* significant at α=5%)

Conclusion and Discussion:

The overall results of this study support findings of past studies (Yurtsever and Sanli, 2016, Pillai, 2017) and indicate that there is a relationship between employee perceptions of banks' commitment to sustainability. All aforementioned variables empirically tested are found significant excluding energy consumption and customer awareness and are important in shaping green financial system. As pointed by UNEP FI (2014), negative perceptions or a lack of awareness of sustainable banks' commitment to sustainability can hinder an institution's ability to become a high performer with respect to sustainability. Sustainable banking is a never ending journey and affects both the investment decisions as well as the new products launching (Ramnarain and Pillay, 2016, Alam et al. 2017). The results of employee perceptions of the commitment to sustainability may prompt managers to a) provide additional encouragement, education and assistance to positively influence the perception of a sustainable bank's commitment to sustainability b) work harder to create more support in the organization for sustainable banks c) increase communication regarding sustainable banking.

Without the knowledge, expertise and tools that are needed to assess environmental risks and opportunities, banks will not be able to channel their finances into greener economy. Guidelines and training have to be developed for banks to prepare them to implement and introduce green finances without putting themselves and their clients at a risk as employee commitment is a major source of many organization's edge over the others (Zareie and Navimipour, 2016).

Green banking reduce paper work to the minimum and depend on online transactions for dispensation. Reduced paperwork implies few trees cutting and a healthier environment. Green banking initiatives implement environmental lending which enables sustainable business operations benefiting our future generations.

Indian and Bangladeshi banking industry (Muhammad et al. 2017; KP, 2017; Rahman et al. 2017; Reza et al. 2017) being developing economies as we sharing colonial roots with Pakistan , have adopted Green practices such as recyclable light system, Solar ATMs and Solar Power systems as alternates of Energy sources in remote and rural branches (Alam et al. 2017, Pillai, 2017). Energy consumption is found insignificant in the current research as Pakistani banking industry is underdeveloped and is still in process of reducing the energy consumption sources. Commitment to execute electronic correspondence has substantial importance as a factor contributing positively towards the extent of green transformation. Electronic correspondence initiatives include e-banking transactions to promote self-banking; SMS alerts and electronic correspondence for paperless banking; introducing in-house green practices; promoting green financial products and encouraging customers to undertake green projects and businesses.

Policies implications for the enhancement and development of green banking have an imperative place in the current research supported by the earlier research (Ahmad et al. (2013) and Alam et al. (2017)). Currently a big number of banks are giving incentives to enhance environmental ventures to utilize prospects for a clean environment, emissions decline, a better usage of sustainable energy and reduced carbon level for Environment sustainability.

Employee training and knowledge is an integral part of the development of any industry and accordingly this was found to be the most important determinant which has an impact on green banking development as per employee perceptions and backed by the previous literature

(Chaursia, 2014; Hafeez & Akbar, 2015; Yurtsever and Sanli (2016); Masukujjaman et al. (2017)).

Development of green unit in each bank can speed up this transformation further leading to sustainability. Customer awareness is found to be an insignificant determinant of green banking initiatives according to employee perceptions. They believe customers to be ignorant towards the importance of environmental concerns validated through literature (Masukujjaman et al. (2017), Tan et al. (2017)).Creating awareness of environmental issues will promote and create demand in consumers. There is a dire need to educate employees to create consumer awareness as all factors play an important part in this green transformation. Initiatives must be taken by banks in spreading the awareness among the clients about Green Banking by organizing seminars or awareness programs (Singh & Singh, 2013, Putri et al. 2017).

There is a need for setting up a department in the banks for effective employment of green banking initiatives. Users indulging in online card payments, mobile banking users and online banking should be given concessions to promote green banking. Most of our population is an uneducated class where these customers do not have the knowhow of the online banking facilities. Steps need to be taken to increase awareness among the customers regarding environmental issues and their importance and to encourage them to use green banking facilities (Mishra and Sharma, 2010; Goyal and Joshi 2011; Putri et al. 2017). There is a huge lack of confidence in these customers, and if properly trained and taught about the available banking facilities will help in boosting their confidence (Zulkarnain, 2017).

Another area which needs to be focused on is to improve transactions security by reducing cyber-crimes (Gupta, 2017), while encouraging online banking. Customers need to be assured about safety in online banking and card transactions (Chaouali, 2017). Businessmen also need awareness about environmental issues and they should also be encouraged to undertake eco-friendly initiatives.

This research study primarily focusses on perceived commitment of banks to adopt green practices. In further studies, bottlenecks must be addressed and clearly outlined which impede green transformation in developing economies. Furthermore, extent of stakeholder's engagement must be evaluated as it can play a pivotal role in taking initiatives to adopt eco-friendly banking practices. The assessment of operational costs related to green transformation was beyond the scope of this study which must be reviewed and evaluated for cost analysis of green transformation.

Managerial Implications and Future Research:

The results of the findings indicate that employees perceive commitment to develop future policies, regulations, maintaining electronic correspondence and employee knowledge and training are the most important driving factors to speed up and facilitate transformation of green banking system in Pakistan. The development initiatives should not be limited to urban areas only. In order to achieve the goal of overall transition in the banking sector, it is imperative to ensure that the transformation in terms of installation of solar power and renewable energy system is extended to rural and underprivileged located banks as well. Banks should educate their staff on importance of green practices and new resource efficient technologies, particularly in areas where full adoption of green practices is impossible or undesirable.

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