



Project Paper

Empirical Evidences on Green Banking Activities: A Literature Review

Submitted To

Dr. Md. Mohan Uddin

Professor

School of Business & Economics

United International University

Submitted By

Ashikur Rahman Ridoy

ID: 111 153 011

School of Business and Economics

United International University

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Letter of Transmittal

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Professor Dr. Md. Mohan Uddin,
School of Business and Economics
United International University
Dhaka, Bangladesh

Subject: Submission of project report

Dear Sir,

I am very happy to submitting the project report, entitled "Empirical Evidence on Green Banking Activities: A Literature Review", completed by me under your kind supervision.

When writing the report, I tried my best to present the report as useful as possible, using educational insights that I mastered in the undergraduate course, and also using the information I gained from the research articles I was reviewing during my project preparation period. In addition to the process of creating this project report, I learned new abilities and information, and I accept that this information is very useful for my future activities.

I would be very grateful if you accept my project report.

Sincerely yours,

Ashikur Rahman Ridoy

ID: 111 153 011

School of Business and Economics
United International University

Acknowledgement

I feel very humbled and grateful to all those who helped me to complete such an extensive study within a short time period.

I would like to thank Almighty Allah and my parents for making me capable of completing my under-graduation from United International University. I am grateful to them for the love and affection they showed me till now regarding my future career.

I would also like to express my heartfelt thanks to my teacher and project supervisor MD. MOHAN UDDIN, a professor, School of Business and Economics, United International University, provided me with an excellent opportunity to prepare this wonderful project report on the theme of “Empirical evidence on Green Banking Activities: A Literature Review.” He also assisted me in conducting extensive research and learning many new ideas. Without his kind advice, this would be impossible.

Last but not least, I would also like to share my gratitude to my university seniors and friends who guided me to understand the critical concepts of the study.

Executive Summary

The study has been prepared to identify and analyse the most cited empirical articles on green banking and its activities researched by renowned researchers of the fields of banking. The study is a kind of review paper that might facilitate the policymakers of the banking industry to get green banking related popular findings and information easily and make their decisions.

The first chapter of the study introduces the study by discussing the concepts of green banking and its features. Mostly importantly this chapter contains the significance along with the objectives of the study. The objectives are mentioned as to identify the most cited empirical articles of green banking; to analyse the dependent and independent variables of the articles; and analysing the findings along with a comparison.

The second chapter of the study contains the methods used to achieve the most cited ten articles from lots of articles being available online. The complete filtering process of the articles are discussed step by step in this chapter.

The third chapter contains the literature review of the study where the found ten articles are being analysed according to the objectives of the study. The chapter consists a broad discussion of the articles one by one. In the next phase, the dependent and independent variables are being listed and analysed from the articles. Finally, based on the findings of the articles a comparison is being prepared.

The last chapter, chapter four, contains the conclusion part where sum up of the study is being made by recalling the objectives and findings of the study.

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Chapter One: Introduction

1.1 Background

Qatar, in 2002, revised the Kyoto Protocol and applied the second commitment period from 2013 to 2020. Compared to the 1990 baseline, the greenhouse gas reduction rate adopted is 18% (Georgopoulou et al., 2015). The IPCC has adopted the Paris Agreement (Lal, 2016) and the global temperature rise is expected to be below 2 degrees Celsius. More than 175 developed countries and 10 developing countries approved it in 2018 and formulated a national plan for adaptation to climate change (United Nations Framework Convention on Climate Change, 2018). It urge all countries of the world to ratify these conventions on climate change, aimed at reducing greenhouse gas emissions in economic activities, in order to minimize the impact of climate change. Countries like India and China have signed the protocol but have not promised to reduce gas emissions. Countries that pledged to reduce greenhouse gas emissions in the second phase account for only 14-15% of global emissions. Russia and Japan have not promised to fulfil their obligations, while Canada has formally withdrawn from the protocol. The Kyoto Protocol provides for three financial instruments: Joint Implementation (JI), Emissions Trading (ET), and Clean Development Mechanism (CDM) (Cirman et al., 2009).

1.2 Green Banking

Green banking is any kind of banking that gives environmental benefits to the country and the globe. By directing its core activities towards environmental improvement, an Orthodox bank can become an environmentally friendly bank and establish themselves as Green Bank (Lalon, 2015). According to RBI (IDRBT, 2013), green banking is to make internal bank processes, physical infrastructure and Information Technology effective towards environment by reducing its negative impact on the environment to the minimum level. *Institute for Development and Research in Banking Technology* (IDRBT) defines Green Banking, as an umbrella term, referring to practices and guidelines that make banks sustainable in economic, environmental, and social dimensions. It aims to make banking processes and the use of IT and physical infrastructure as efficient and

effective as possible, with zero or minimal impact on the environment“.Nevertheless, the concept of green banking had substituted banks’ motive to “planet, people, and profit” from “profit, profit, and profit.” Green banking is also known as environmental banking; in broad perception, green banking practices eco-friendly methods and encourages its patrons to reduce the carbon footprint by their banking procedures (Tara et al. 2015). According to Bangladesh central bank—“Green banking is a component of the global initiatives by a group of stakeholders to save environment” (GBPG, 2011); the sustainable banking concept is the outcome of the society and environment-oriented banking practices.

1.3 Green Banking: Features and Characteristics

Several previous researchers mentioned different features and characteristics of green banking. According to Masukujjaman& Akhtar, (2013), green banks can help protect the environment through online banking and automation. Green banks focus on social security by changing the negative impact of society (Duong&Trang, 2019). In financing, investment/loan always prioritize environmental risk factors (Lalon, 2015; Masukujjaman&Aktar, 2013). Sustainable and green economic and social growth has always been a concern as it can create a comfortable atmosphere inside and outside the bank (Lalon, 2015). Green banks treat customers as their family members (Nath et al., 2014). In 2020, Park & Kim also emphasized on a major feature of green banking which is the funding of bank and nonbank financial institutions to reduce greenhouse gas emissions and improve social resilience to negative climate change while considering other sustainable development objectives, such as economic growth, employment creation, and gender equality. Furthermore, green banking directs and supervises projects aimed at reducing pollution, thereby applying environmental due diligence (EDD), a scientific method in the correct sense which resulted in the cost and energy by reducing costs and increasing the country’s GDP. It also changes the mental abilities of officials and clients based on environmental sensitivity, therefore, helpsthe people and the entire nation to live with dignity (Lalon, 2015; Nath et al., 2014).

The following features of Green Banking can be drawn from the above discussion:

Table 1.0.1. Green Banking' Features

<i>Features of Green Banking</i>
<ul style="list-style-type: none"> • Online Banking and Adoption of Automation
<ul style="list-style-type: none"> • Social Safety and Security
<ul style="list-style-type: none"> • Considering environmental risk considerations for the provision of loans and other banking activities
<ul style="list-style-type: none"> • Green & Sustainable growth
<ul style="list-style-type: none"> • Help banks cut energy and costs

Furthermore, green banking practices can be adopted in two methods (Lalon, 2015). One is the internal green bank; the other is bankers' green business practice. The internal Green Banking comprises online statements and documents sent by e-mail. Careful and hygienic banking environments, green buildings, reforestation, online banking, waste management, the installation of solar panels on the bank roof and using high-end vehicles and the use of video conference Webcam. While, the main practices of bankers in their fields of activity are funding green projects such as biogas plants, solar/renewable energy plants, bio-fertilizer plants, Effluent Treatment Plants (ETPs), projects with ETPs, etc., working on specific green projects, and voluntary activities of banks. By financing and making efficient use of renewable, non-renewable, human, and natural resources, the green bank is taking proactive measures to protect the environment and address the challenges of climate change (Lalon, 2015).

1.4 Green Banking: Effectiveness for Countries Implemented

The concept of green banking originated in Western countries. It was launched in 2003 to protect the environment. Subsequently, the Equator Principles (EP) were formulated and many of the world's leading institutions, such as Citigroup, Royal Bank of Scotland and Westpac, took the

lead in their adoption. US Congressman Chris Van Hollen introduced the "Green Banking Act" in March 2009 to establish a US government-owned green bank. After the introduction of green banks, the initial decision was to reduce the amount of paper used by the bank, because trees must be felled as raw material for all types of paper (to minimize green forestry), which obviously will reduce oxygen and increase carbon dioxide in the global air/land space. Furthermore, the National Bank of Pakistan posited it uses green banking to help banks and customers reduce their carbon footprint as a way to promote environmental practices (SBP, 2015).

Due to the rapid growth of the BRICS economies and greenhouse gas emission levels, this grassroots group has recently come under international pressure to reduce greenhouse gas (GHG) emissions. As stated above, climate change mitigation is useless if the industrialized world is involved. This argument holds; in 2007, China overtook the United States as the world's largest emitting country. India's issuance rate was on track to make it the second-largest issuer in the near future. In 2009, India, China and Brazil, along with other developing countries, made their first commitments to reduce greenhouse gas emissions. India and China have committed to reducing emissions per unit of GDP by 20 and 25 percent and by 40 and 45 percent, respectively, by 2020, compared to 2005 levels. Brazil has chosen to reduce its GHG emissions between 36.1 and 38.9 percent below the 2020 Goal.

China is taking major national actions to tackle climate change, demonstrating its commitment to international mitigation efforts. Actions against climate change have been included in China's Five-Year Plan (FYP). This FYP addresses sustainability issues such as pollution, energy efficiency, and energy derived from non-fossil fuels. For many years, China has been at the forefront of the global renewable energy field. Despite efforts to improve sustainability management, depreciation is still small due to the negative impact of rapid industrialization on the

environment. China's national climate change policy plan identifies areas of vulnerability, such as food security and water supply issues (Park & Kim, 2020).

Russia has pledged to limit greenhouse gas emissions to between 70% and 75% of 1990 levels by 2030, which is based on the maximum absorptive capacity of forestry in the Intended Nationally Determined Contribution (INDC) established by the Paris Convention (COP21). The country, moreover, designated 2017 as the ecological year for environmental protection, green economy and finance which have become the focus of stakeholders' attention. On the contrary, some challenges hinder the growth of green investment in many economic sectors. In order to promote the development of green financial instruments, Russia needs to send a strong and consistent political signal through stricter environmental regulations. (Damianova et al., 2018).

India is making progress in the fight against hunger, natural resource management and climate change mitigation. The country is becoming a global leader in renewable energy. The government promoted the operation of the Clean Development Mechanism (CDM), which is a global feature of the country. The coal carbon tax provides income for projects involving renewable energy. There is no plan to stop using fossil fuels within 20 years. The results show that food security, water supply and livelihoods face major risks, and a climate change assessment has been carried out. This shows that a lot of work needs to be done to make India's climate resilient (Yadav & Pathak, 2013).

Since Brazil controls more than 70% of the Amazon rainforest, deforestation is a decisive factor in achieving its ambitious mitigation goals. Brazil is a world leader in low-carbon agriculture and biofuels. With the vigorous development of Brazil's oil and natural gas industry, greenhouse gas emissions from fossil fuels are expected to increase rapidly. India and Brazil have received state-funded climate change projects and renewable energy policies. Renewable energy is seen by

the BRICS as an economic opportunity to promote the growth of the industry. These climate change projects require funding for implementation and implementation (Griffith-Jones, 2014).

However, due to the lack of literature on all countries of the world, this review analyses a small number of BRIC countries through the formulation and implementation of a green bank strategy where green banks are linked to the factors of climate change. A few researches also provides the results of discussions on the relationship between climate change variables and the development of green banks (Oyebanji, 2017; Aasa et al., 2016; Kahn et al., 2019). Brazil, India, Russia, China and South Africa are implementing green banking strategies for greenhouse gas emissions and other environmental risks. (Akinyemi, 2017; Abdullah et al., 2017; Dudin et al., 2016).

1.5 Products and services of Green Banking

Green banking integrates modern, environmental protection, energy-saving, pollutant emission reduction, recycling and other technologies, industries, and financial products and services. Therefore, at the crossroads of finance, environment and economic growth, we can find green banks. Generally, any products and services that banks provide to customers at the lowest environmental cost can be called green banking products and services, because green banks advocate the creation of environmentally friendly products. This involves the establishment of green banking services and financial products to promote environmentally efficient business development. Today, the global demand for green financial products and services is growing significantly. As banks have promoted green banking as a relatively new banking concept in the past few years.

A large number of researchers have published papers on green banking products and services. In 2012, (Slobodan Rakic-PetarMitić) introduced the potential of green finance and the biggest

green finance solution in his paper. In addition, he paid special attention to green retail banking products, describing them as green cards, green car loans, green mortgages, etc. These projects enhance environmental factors such as high fuel efficiency, clean energy and greening (Mitić, 2012).

In 2014, the State Bank of India (SBI) and Industrial Credit and Investment Corporation of India (ICICI) Green Banking project analyses (Geetika Jaggi). SBI introduced a Green Channel Counter, no queue banking, increased carbon neutrality commitment, internet money transfers and wind farms. Insta-banking (anytime, anywhere), automobile finance and house finance is part of the ICICI Bank green products and services agenda. In addition, these banks have taken further action to conserve energy, such as duplexing, recycling, FCLs, carpools, and so forth.

Neyati Ahuja (2015) describes the use of technology to produce green banking products and services. According to his research, the various ways banks use this change are: (a) Send payment receipts and reimbursement receipts online; (b) Choose mobile banking; (c) Pay bills online; (e) Green checking accounts; (f) Paper recycling; (g) ATM; (h) Video conference.

From all the knowledge and understanding of the above research articles, the following products and services can be regarded as green products and services:

1. Green Deposits: Banks have the right to provide higher interest rate online banking, vouchers, money market accounts, control and savings accounts.

2. Green Credit Cards: Green credit cards give users the opportunity to earn premiums or points for contributions to charitable organizations that are beneficial to the environment. These cards provide users with a huge motivation to make expensive purchases with green cards. There is

hope if green credit cards can really be used for valuable environmental initiatives, then millions of dollars can be raised.

3. Green Mortgages: Banks can provide energy-saving home buyers with better interest rates or conditions to provide green mortgages. Certain green mortgages allow domestic buyers to install energy-saving conditions, solar panels, geothermal heaters, or water heaters, but they need to pay additional housing costs. At the same time, the monthly energy savings can compensate for the increased monthly mortgage payments and long-term savings.

4. Online Banking: This means that customers can perform most of the bank-related responsibilities without going to the bank in person. For this customer, the online banking ID and password issued by the bank where the customer opened the account is required. Credit cards, debit cards, online bill payments, Automated Teller Machine (ATM), and electronic financial transfers are all part of online banking.

5. Mobile Banking: It allows customers to view accounts, transfer funds and pay bills via mobile phones. It can also help customers save time and effort.

6. GREEN Term Certificates (CDs): Through GREEN Term Certificates, customers can get guaranteed interest rates within the period of their choice. Banks provide a wide range of certifications, ranging from 7 days to 5 years. The interest on these accounts can be compounded quarterly, paid by cheque every month, or transferred to a green bank deposit account.

7. Green Rewards: Green consumers may be eligible for the reward rate of reward checking accounts. Customers who meet monthly requirements (such as obtaining electronic statements, paying bills online, or using debit or checking cards) can get higher checking account interest rates. Higher interest rates and environmentally friendly living go hand in hand with such banking products.

However, green products and services are not limited to the above seven categories. Any other services with the above content that help reduce environmental pollution can be called green products and services in the future.

1.6 Objectives of the report

This project report has been prepared to prepare a review paper on Green Banking. Therefore, the main objective of the study is to identify the most cited empirical articles on Green Banking and its activities. However, the objectives of this study are mentioned below specifically:

1. To examine the available Green Banking articles in order to identify the most often cited empirical articles.
2. To explain and compare the findings of the articles.
3. To explain and compare the identified most cited empirical articles of Green Banking.

1.7. Significance of the report

This research is executed to raise awareness of green banks because there are several banking organizations in the world that do not adopt green activities in their daily activities. The current era of industrialization and globalization has added a lot of comfort and luxury to human life, but it has also led to a shocking situation, that is, huge environmental degradation has occurred in all related activities. Today, entire sectors of the world economy are facing enormous challenges in dealing with environmental issues and related impacts on their daily operations. Not only are commercial companies aware of the importance of the environment, but consumers and the public also have a great awareness of it. For all these reasons, the policy makers of the banking industries must begin to modify their activities and strategies to ensure the protection of our natural resources and environment. Accordingly, this research can provide an easy way to get the 10 most accepted articles by green bank researchers and improve their Business policy.

Furthermore, this research is a review article that collects, summarizes, evaluates and synthesizes existing green banking knowledge and share information of Most literary works until now on green Banking and its' activities. Therefore, this studymay make it easier for future researchers. As we all know, writing a good review is a service to the scientific community. Creating a sensory representation of the current scientific reality is essential to the development of science. Many activities, including writing, editing, peer review, and publishing review articles, can help alleviate this feeling. Therefore, this report helps to clarify the current status of green banking knowledge, explain obvious inconsistencies, propose necessary research, and even reach a consensus on green banking and its operations in the future.

Finally, writing an excellent review will also benefit my future job growth. Because review articles are frequently quoted, it may help me attract more attention. This might imply that I have a thorough grasp of green banking operations, which could be useful to my future organization or university. It may even demonstrate that I am capable of applying what I have learnt. Finally, if I am unable to undertake original research or publish original works owing to legal or policy constraints, publishing reviews will allow me to maintain my publication record.

Chapter Two: Methodology

2.1 Articles Filtering Process

The literatures of the paper has collected from Dimension.ai. Dimensions.ai is an online platform that gives researchers free access to vital data since publications, citations, data sets, and the context surrounding them are the most important pieces of information for understanding research efforts and results.

In Dimensions.ai, the site needs a login initially in order to collect data on green banking. As the focus of this study is on “Green Banking and its activities”, it is searched in the search box writing the following key words:

“Green AND (Banking OR Bank)”

The first phase of the search followed by ‘title and abstract’. And found information of the following table 1.

Table 2.1. Title and Abstract wise search results

PUBLICATIONS	DATASETS	GRANTS	PATENTS	CLINICAL TRIALS	POLICY DOCUMENTS
4,342	29,380	468	1,703	13	39

In the second phase, after filtering with the publication year from 2016-2021, from the upper left corner of the Dimensions.ai search page, the following information about Green banking are found that shows in table 2.

Table 2.2 Filtering by publication year 2016-2021

PUBLICATIONS	DATASETS	GRANTS	PATENTS	CLINICAL TRIALS	POLICY DOCUMENTS
1,845	27,390	138	929	7	17

In third phase, the 1845 searched articles are again filtered with the “Field of Research” by selecting the following fields, such as

- I. 15 Commerce, Management, Tourism and Services
- II. 14 Economics
- III. 1503 Business and Management
- IV. 1502 Banking, Finance and Investment
- V. 16 Studies in Human Society
- VI. 0502 Environmental Science and Management
- VII. 1402 Applied Economics
- VIII. 05 Environmental Sciences

This field of research facilitated to attain the following results of Table 3.

Table 2.3. Filtering by the field of research

PUBLICATIONS	DATASETS	GRANTS	PATENTS	CLINICAL TRIALS
500	3140	45	31	0

In the fourth step, by clicking on the Save / Export button at the top of the Dimension.ai website, 500 article information is being downloaded to an Excel file.

However, after receiving the Excel file, the filtering process was started to get more accurate information from the publications related to green banking. To do this, the DOI, title and abstract rows were copied to a new Excel sheet. Then, it was analysed which of the 500 papers on green banking was actually done on green banking or at least of the activities of green banking. It would have been easier to select an article if the word green banking was mentioned in the title, but it would have been more difficult to select if the word green banking was not mentioned in the title because then the whole abstract would have to be read. However, if an article is actually generated on a summer bank or associated with green banking activities, those articles are assigned to 1 and 0 listed in the dimensions. . It was also discovered that 209 out of 500 articles were not related to green banking.

Furthermore, the Dimensions.ai exported file contains a plethora of columns containing a wealth of information on each of the 500 articles. However, not all of the columns are required for my research. As a result, all columns except Code, DOI, Title, Abstract, Source Title, Publication Year, Pagination, Publication Type, Author, Time Cited, and Categories are eliminated.

Table 2.4 *Process of article filtering*

<i>Process of article filtering</i>		
Total articles found from Dimention.ai filtering process		500
Article Filtering Criteria		
Articles not prepared on "green Banking"	209	
Articles published before 2015	35	
PubType - Book Chapter	34	
PubType - Edited Book	5	
PubType - Monograph	2	
PubType - Preprint	17	
PubType - Proceedings	14	
Total filtered documents	316	-316
Articles left after all filtering process		184

Following that, based on the filtering process described in table 4, it was discovered that 209 articles out of the 500 listed articles are not related to green banking, 35 articles were published prior to 2015, 34 book chapters, 5 edited books, 2 monographs, 17 preprints, and 14 proceedings are listed in the 500 articles. A total of 316 publications were excluded because only those papers were required on 'Green Banking' that were published after 2015. As a result, 184 papers are identified that were published after 2015, Research Type: Article, and prepared on green banking or its operations.

In the last stage, the articles are selected by 'Time cited' to get a list of the total articles on 'Green Banking.' It is commonly known the "times cited" count is a basic and common metric for measuring the effect of an article or author.

Table 2.5 Process of getting the 10 Articles among the 184 articles

<i>Process of getting the 10 Articles among the 184 articles</i>		
Total articles found from Dimention.ai filtering process		500
(-) Article Filtering Criteria		-316
Articles cited lower than 13 times	171	
Articles cited 13 times but older than the selected one	3	
(-)Total filtered documents to attain top 10 empirical articles	174	-174
Total Articles		10

Only 14 empirical articles are discovered after filtering with time cited on the 184 article list that have been cited more than 13 times. There are also four articles that have been cited 13 times; however, only one of them has been chosen as a recent publication based on its year of publication. Finally, the totalempirical articles are discovered in the given methods.

Chapter Three: Literature Review

3.1 Description of the most cited empirical articles

The title of the most cited article on GB is "What Drives Green Banking Disclosure? An Institutional and Corporate Governance Perspectives", Authors: Bose, Sudipta; Khan, Habib Zaman; Rashid, Afzalur; Islam, Shajur, 2017. The research field of this research is from the perspective of Bangladesh. Before this study analysis, the study had received 44 citations. The researchers examined the impact of regulatory guidelines and other factors on the information disclosure practices of Bangladesh commercial banks in the green banking sector from 2007 to 2014 (Bose, Khan, Rashid, & Islam, 2018).

The title of the second most cited article on GB is "From financial instability to green finance: the role of banking and credit market regulation in the Eurace model", written by Raberto, Marco; Ozel, Bulent; Ponta, Linda; Teglio, Andrea; Cincotti, Silvano in 2018. The time period of this research is between 2008 and 2018. Before our analysis, the study had received 28 citations. The author of this article investigates appropriate banking and regulatory policies aimed at putting pressure on the banking industry to get rid of speculative loans that led to asset bubbles and economic crises and turn to green investment loans to promote the transition to more energy-efficient technologies (Raberto, Ozel, Ponta, Teglio, & Cincotti, 2019).

The title of the third most cited article on GB is "Analysis of Environmental Accounting and Reporting Practices of Listed Banking Companies in Bangladesh †", prepared by Masud, Abdul Kaium; Bae, SeongMi; Kim, Jong Dae in 2017. The research field of this research is from the perspective of Bangladesh, and the research time is between 2010-2014. Before our analysis, the study had received 25 citations. The author of this article investigates the scope and nature of environmental accounting and reporting of the 12 main categories of listed banks in Bangladesh. They collected secondary information for analysis from the 2010-2014 annual reports of 20 banks listed on the Dhaka Stock Exchange (Masud, Kaium, Bae, & Kim, 2017).

The title of the fourth most cited article on GB is " CSR, Co-Creation and Green Consumer Loyalty: Are Green Banking Initiatives Important? A Moderated Mediation Approach from an Emerging Economy", written by the authors named: Sun, Huidong; Rabbani, Mustafa Raza; Ahmad, Naveed; Sial, Muhammad Safdar; Cheng, Guping; Zia-Ud-Din, Malik; Fu, Qinghuain 2020. The research field of this research is from the perspective of Pakistan, and the research time is 2020. Before our analysis, the study had received 18 citations. This study investigated the impact of corporate social responsibility (CSR) on green consumer loyalty and the intermediary role of co-creation in the Pakistani banking sector. The study also introduced green banking initiatives as an intermediary between corporate social responsibility and green consumer loyalty, with the aim of the regulatory agency reinforcing this indirect relationship. Structural equation modeling technology is used for data analysis (Sun, Rabbani, Ahmad, Sial, Cheng, Zia-Ud-Din, & Fu, 2020).

The title of the fifth most cited article on GB is "Unveiling the energy saving role of banking performance in Sub-Sahara Africa", Authors: Amuakwa-Mensah, Franklin; Klege, Rebecca A.; Adom, Philip K.; Amoah, Anthony; Hagan, Edmond in 2018. The research area of this research is from the perspective of 43 sub-Sahara African countries, and the research time period is between 1998-2012. Before our analysis, the study had received 16 citations. This article examines the factors that influence energy intensity. This article specifically tests two assumptions. The first assumption is improved bank performance does not encourage the energy efficiency and the second assumption is institutional quality (democracy) will not compromise the energy-saving function of bank performance improvement (Amuakwa-Mensah, Klege, Adom, Amoah, & Hagan, (2018).

The title of the sixth most cited article on GB is "Assessing the Relevance of Green Banking Practice on Bank Loyalty: The Mediating Effect of Green Image and Bank Trust", Authors: Ibe-Enwo, Grace; Igbudu, Nicholas; Garanti, Zanete; Popoola, Temitope in 2019. The research area of

this research is from the perspective of North Cyprus, and the research time period is 2019. Before our analysis, the study had received 13 citations. This article analyses customers' views on green banking practices and their impact on bank loyalty. It also analyses the role of green image and bank trust as a regulator in the link between green banking practices and bank loyalty. The data for this study was collected through a quantitative survey of 551 retail bank customers in Northern Cyprus. In order to test the relationship between the research variables, structural equation modelling technology is applied (Ibe-enwo, Igbudu, Garanti, & Popoola, 2019).

The title of the seventh article on GB is "Employee's green behaviour for environmental sustainability: a case of banking sector in Pakistan", Authors: Iqbal, Qaisar; Hassan, SitiHasnah; Akhtar, Sohail; Khan, Shahid in 2018. The research field of this research is from the perspective of Pakistan, and the research time period is 2018. Before our analysis, the study had received 13 citations. The aim of their article was to discover the relationship between green employee behaviour (EGB) and environmental sustainability (ES). In ES-related issues they chosen energy costs and climate change. However, in order to collect data from employees in the manufacturing and service industries, they used self-managed questionnaires (Iqbal, Hassan, Akhtar, & Khan, 2018).

The title of the eighth article on GB is "Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework", Authors: Julia, Taslima; Kassim, Salina in 2017. Before our analysis, the study had received 12 citations. The background of the study is based on the World Health Organization (WHO) ranking, where Bangladesh ranked in fourth position as most polluted country in the world and in this regard, the government of Bangladesh had implemented a green financing policy to encourage banks to participate in the provision of green finance as part of its efforts to promote environmental protection businesses to promote long-term economic development. Therefore, the researchers of

this article studied to evaluate the financial performance of selected commercial banks that provided green finance in Bangladesh from 2012 to 2014 (Julia & Kassim, 2019).

The title of the ninth article on GB is "Environment – risk-weighted assets: allowing banking supervision and green economy to meet for good1", Authors: Esposito, Lorenzo; Mastromatteo, Giuseppe; Molocchi, Andrea in 2018. The research field of this research is from the perspective of Italy, and the research time is 2013. Before our analysis, the study had received 10 citations. The context of this article is based on the creation of the "Green and sustainable finance" paradigm which was an important part of the Paris Agreement on Climate Change and an important part of the transition to low-carbon and green finance. The researchers recommended rethinking the prudential supervision of the banking industry, including taking the environmental dimension of bank risk as an additional component of the existing framework, and calculating and gradually applying pollution risk coefficients based on capital requirements. They introduced the main methods and provided practical ways for their development. Finally, they tested the test plan using Italian data, showing how the tool can help encourage banks to incorporate environmental factors into their lending practices without disrupting the financial system (Esposito, Mastromatteo, & Molocchi, 2019).

The title of the final 10th article on GB is "The Impact of Green Banking Practices on Bank's Environmental Performance: Evidence from Sri Lanka", Authors: Shaumya, Shaumya; Arulrajah, Anton in 2017. The research area of this research is from the perspective of Sri Lanka, and the research time is 2017. Before our analysis, the study had received 8 citations. The purpose of this article is to evaluate the impact of green banking practices on the environmental performance of banks. To achieve this goal, we collected raw data from 155 employees in selected bank branches and collected information using standardized questionnaires. As part of the empirical study,

researchers use univariate, bivariate, and multivariate analysis to examine the data(Shaumya&Arulrajah, 2017).

3.2 Dependent and Independent Variables of the articles

Based on the analysis of the most cited articles, the independent and dependent variables found in the studies are mentioned below in Table 3.1 and in later part the discussion related to the variables are also shared.

Table 3.1 List of the dependent and independent variables of the ten empirical articles

Authors	Title	DOI	Dependent Variables (DV)	Independent Variables (EV)
1. <u>Bose, Sudipta;</u> <u>Khan, Habib Zaman;</u> <u>Rashid, Afzalur;</u> <u>Islam, Shajul</u>	What drives green banking disclosure? An institutional and corporate governance perspective	10.1007/s10490-017-9528-x	Green Banking Disclosure Index (GBDI)	1. Green Law - Green banking regulatory guidance 2. Board Size 3. Board Independence 4. Institutional Ownership 5. Firm Size 6. Growth Opportunities 7. Firm Age 8. Leverage 9. Profitability (ROA) 10. Foreign Ownership 11. CEO Compensation

				12. Female Director 13. Government Ownership
2. <u>Raberto, Marco;</u> <u>Ozel, Bulent;</u> <u>Ponta, Linda;</u> <u>Teglio, Andrea;</u> <u>Cincotti, Silvano</u>	From financial instability to green finance: the role of banking and credit market regulation in the Eurace model	10.1007/s00191-018-0568-2	Capital adequacy ratio	1. Consumption goods prices 2. Nominal wages
3. <u>Masud, Abdul Kaium;</u> <u>Bae, SeongMi;</u> <u>Kim, Jong Dae</u>	Analysis of Environmental Accounting and Reporting Practices of Listed Banking Companies in Bangladesh †	10.3390/su9101717	Environmental accounting and reporting	<u>EAR information of 12 categories</u> C1. Air pollution and control disclosure; C2. Water pollution and control disclosure; C3. Waste management and investment disclosure; C4 Renewable energy and investment disclosure; C5. Energy savings and improvements disclosure; C6. Environmental, ecological and carbon management policy and strategy related

				<p>disclosure;</p> <p>C7. Award and appreciation for environmental initiatives and protections related disclosure</p> <p>C8. Separate department of environment, CSR and green banking disclosure;</p> <p>C9. Green banking initiatives, policy, strategy and implementation disclosure;</p> <p>C10. Tree plantation and forestry disclosure;</p> <p>C11. Environmental awareness, training & education related disclosure; C12. Climate change & global warming disclosure.</p>
4. <u>Sun, Huidong;</u> <u>Rabbani, Mustafa Raza;</u> <u>Ahmad, Naveed;</u> <u>Sial,</u>	CSR, Co-Creation and Green Consumer Loyalty: Are Green Banking	10.3390/su122410688	Green Consumer Loyalty	<ol style="list-style-type: none"> 1. Green Banking 2. Co-creation 3. CSR

<p><u>Muhammad Safdar;</u> <u>Cheng, Guping;</u> <u>Zia-Ud-Din, Malik;</u> <u>Fu, Qinghua</u></p>	<p>Initiatives Important? A Moderated Mediation Approach from an Emerging Economy</p>			
<p>5. <u>Amuakwa-Mensah, Franklin;</u> <u>Klege, Rebecca A.;</u> <u>Adom, Philip K.;</u> <u>Amoah, Anthony;</u> <u>Hagan, Edmond</u></p>	<p>Unveiling the energy saving role of banking performance in Sub-Sahara Africa</p>	<p>10.1016/j.en eco.2018.07. 031</p>	<p>Bank Performa nce</p>	<p>1. Return on asset 2. Asset quality 3. Bank capitalization 4. Managerial inefficiency 5. Financial stability</p>
<p>6. <u>Ibe-Enwo, Grace;</u> <u>Igbudu, Nicholas;</u> <u>Garanti, Zanete;</u> <u>Popoola, Temitope</u></p>	<p>Assessing the Relevance of Green Banking Practice on Bank Loyalty: The Mediating Effect of Green Image and Bank Trust</p>	<p>10.3390/su1 1174651</p>	<p>Green banking practice Green image</p>	<p>1. Green image; Bank trust; Bank loyalty. 2. Bank trust; Bank loyalty.</p>
<p>7. <u>Iqbal, Qaisar;</u> <u>Hassan, SitiHasnah;</u> <u>Akhtar, Sohail;</u> <u>Khan, Shahid</u></p>	<p>Employee's green behavior for environmental sustainability: a case of banking sector in Pakistan</p>	<p>10.1108/wjst sd-08-2017- 0025</p>	<p>Emplo es Green Behaviou rs</p>	<p>1.Environmental Sustainability 2.Conserving behaviours 3.Work sustainably behaviours 4.Avoiding harmful behaviours 5.Influencing other behaviours</p>

				6. Taking initiative behaviours
8. <u>Julia, Taslima; Kassim, Salina</u>	Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework	10.1108/jima-10-2017-0105	Green Banking Policy	<ul style="list-style-type: none"> 3. Preserving faith 4. Preserving human self 5. Preserving intellect 6. Preserving posterity 7. Preserving wealth
9. <u>Esposito, Lorenzo; Mastromatteo, Giuseppe; Molocchi, Andrea</u>	Environment – risk-weighted assets: allowing banking supervision and green economy to meet for good1	10.1080/20430795.2018.1540171	Environmental policies	<ul style="list-style-type: none"> 1. Environmental Risks 2. Financial Risks 3. Role of Banks
10. <u>Shaumya, Shaumya; Arulrajah, Anton</u>	The Impact of Green Banking Practices on Bank's Environmental Performance: Evidence from Sri Lanka	10.15640/jfbm.v5n1a7	Bank's Environmental Performance	<ul style="list-style-type: none"> 1. Green Banking Practices 2. Bank's Policy Related Practice 3. Bank's Policy Related Practices, Employee Related Practices 4. Bank's Policy Related Practices, Employee Related Practices, Daily Operation

				Related Practices
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In the first article named “What Drives Green Banking Disclosure? An Institutional and Corporate Governance Perspectives”, the researchers have used a total of 13 independent variables including 9 control variables and 1 dependents variables in order to understand the factors that drive Green Banking Disclosure Index (GBDI). In addition, they used Green Law - Green banking regulatory guidance (GREEN_LAW); Board Size (BRDSIZE); Board Independence (BRDIND); Institutional Ownership (INSTOWN); Firm Size (FSIZE); growth opportunities (GOP); Leverage (LEV); Firm Age (FAGE); Profitability (ROA); Foreign Ownership (FOREIGN); CEO Compensation (CEOPAY); Female Director (FEMDIR); and Government Ownership (GOVOWN) to analyse their impact on GBDI (Bose, Khan, Rashid, & Islam, 2018).

In the second article named “From financial instability to green finance: the role of banking and credit market regulation in the Eurace model”, the researchers have used a total of 2 independent variables and 1 dependents variables. In the Eurace model the researchers measure the impact of (1) The prices of consumption goods; (2) Nominal wages on banks’ *Capital Adequacy Ratio*(Raberto, Ozel, Ponta, Teglio, &Cincotti, 2019).

In the third article named “Analysis of Environmental Accounting and Reporting Practices of Listed Banking Companies in Bangladesh †”, the researchers have used a total of 12 independent variables and 1 dependents variables. To analyse which EAR information of 12 categories are mostly shared by the Bangladeshi bank twenty selected commercial banks and have impact on Environmental Accounting and Reporting, the researchers used C1. Air pollution and control disclosure; C2. Water pollution and control disclosure; C3. Waste management and investment disclosure; C4 Renewable energy and investment disclosure; C5. Energy savings and improvements disclosure; C6. Environmental, ecological and carbon management policy and strategy related

disclosure; C7. Award and appreciation for environmental initiatives and protections related disclosure C8. Separate department of environment, CSR and green banking disclosure; C9. Green banking initiatives, policy, strategy and implementation disclosure; C10. Tree plantation and forestry disclosure; C11. Environmental awareness, training & education related disclosure; C12. Climate change & global warming disclosure(Masud, Kaium, Bae, & Kim, 2017).

In the fourth article named “CSR, Co-Creation and Green Consumer Loyalty: Are Green Banking Initiatives Important? A Moderated Mediation Approach from an Emerging Economy”, the researchers have used a total of 3 independent variables and 1 dependents variables. 1. Green Banking; 2. Co-creation; 3. CSR are three independent variables used to find their impact/relationship on *Green Consumer Loyalty*(Sun, Rabbani, Ahmad, Sial, Cheng, Zia-Ud-Din, & Fu, 2020).

In the fifth article named “Unveiling the energy saving role of banking performance in Sub-Saharan Africa”, the researchers have used a total of 5 independent variables and 1 dependents variables. 1. Return on asset; 2. Asset quality; 3. Bank capitalization; 4. Managerial inefficiency; 5. Financial stability are the five independent variables used to find their impact/relationship on *Banks’ Performance*(Amuakwa-Mensah, Klege, Adom, Amoah, & Hagan, (2018).

In the sixth article named “Assessing the Relevance of Green Banking Practice on Bank Loyalty: The Mediating Effect of Green Image and Bank Trust”, the researchers have used a total of 2 independent variables and 2 dependents variables. 1. Green image; Bank trust; Bank loyalty; 2. Bank trust; Bank loyalty are two independent variables used to find their impact/relationship on *Green Banking Image* and *Green Banking Practice*(Ibe-enwo, Igbudu, Garanti, &Popoola, 2019).

In the seventh article named “Employee’s green behaviour for environmental sustainability: a case of banking sector in Pakistan”, the researchers have used a total of 6 independent variables and 1 dependents variables. (1)Environmental Sustainability; (2) Conserving behaviours; (3) Work sustainably behaviours; (4) Avoiding harmful behaviours; (5)Influencing other behaviours; (6) Taking initiative behaviours are six independent variables to measure *Employees’ Green Behaviours*(Iqbal, Hassan, Akhtar, & Khan, 2018).

In the eighth article named “Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on MaqasidShariah framework”, the researchers have used a total of 5 independent variables and 1 dependents variables. (1) Preserving faith; (2) Preserving human self; (3) Preserving intellect; (4) Preserving posterity; (5) Preserving wealth are the five independent variables that are considered to have an impact on *Green Banking Policy*(Julia &Kassim, 2019).

In the ninth article named “Environment – risk-weighted assets: allowing banking supervision and green economy to meet for good1”, the researchers have used a total of 3 independent variables and 1 dependents variables. (1) Environmental Risks; (2) Financial Risks; (3) Role of Banks are three independent variables that are tested on *Environmental policies*(Esposito, Mastromatteo, &Molocchi, 2019).

In the tenth article named “The Impact of Green Banking Practices on Bank’s Environmental Performance: Evidence from Sri Lanka”, the researchers have used a total of 4 independent variables and 1 dependents variables. The independent variables are (1) Green Banking Practices; (2) Bank’s Policy Related Practice; (3) Bank’s Policy Related Practices, Employee Related Practices; (4) Bank’s Policy Related Practices, Employee Related Practices, Daily Operation

Related Practices. The independent variables are used to get impact on *Bank's Environmental Performance* which is the dependent variable of this article (Shaumya & Arulrajah, 2017).

3.3 Findings from the most cited articles: Comparison-based

The first articles results that the size of the board (BRDSIZE) is positively correlated with the degree of disclosure by green banks. This result is consistent with previous studies (e.g. de Villiers et al., 2011; Tauringana and Chithambo, 2015). The researchers found that the Green Banking Regulatory Guidelines issued by the Central Bank of Bangladesh in the 2011 had a positive impact on the disclosure of information on the green bank. They also reported that green banking reporting practices in the banking sector have converged and become a routine process over time. Furthermore, they found that corporate governance mechanisms (such as board size and institutional ownership) have a positive impact on the level of information disclosure about green banks. However, their research found that there is no relationship between the existence of independent directors on the board of directors and the green bank disclosures. The results also show that GREEN_LAW, BRDSIZE and INSTOWN are positive and statistically significant. The relationship between green banking information and the variables of interest (GREEN_LAW, BRDSIZE, BRDIND, and INSTOWN) may be affected by potential endogeneity. The study found that the size of the board (BRDSIZE) is positively correlated with the degree of disclosure by green banks. No evidence related to the level of disclosure of information from independent directors and green banks was found. Additionally, companies with higher levels of institutional investors are more likely to disclose information about green banking. Regarding the control variables, firm size (FSIZE), leverage (LEV) and public ownership (GOVOWN) are positively correlated with the level of disclosure of green banks, while growth opportunities (GOP), company age (FAGE), profitability (ROA) and CEOPAY are linked to the green bank. The level of disclosure of banking information is negatively correlated. Although the coefficients for most of the control variables are consistent with

our expectations, the negative coefficients of firm age (FAGE) and profitability (ROA) contradict expectations of the researchers (Bose, Khan, Rashid, & Islam, 2018).

The second article results that the important role of endogenous money in the economy. Mortgages and loans are important ways to send money to households. If they are blocked, the entire economy will be affected and the unemployment rate will be higher. In addition, the Eurace model also shows that loose regulation of mortgage loans will lead to instability in the real estate market and have a negative impact on the real economy. This means that fine-tuning regulation that takes into account the dynamics of the business cycle may be required. On the one hand, Roberto et al. (2019) considered macro-prudential rules or more complex regulations, whose goal is to promote green investment and provide sufficient credit to maintain economic performance (Roberto, Ozel, Ponta, Teglio, & Cincotti, 2019).

The results of the third article show that the 12 types of environmental information reviewed by the bank are significant. The study found that banks disclose the most environmental information in the green banking and renewable energy categories, while they disclose the least in the environmental identification and waste management categories. In addition, the annual comparison shows that the environmental information disclosure rate has increased sharply, from 16% in 2010 to 83% in 2014. In addition, the recent effective measures of the Bangladesh Bank in environmental disclosure have increased, examined, and 12 categories of survey results are of managerial importance to business and government decision-makers. It is recommended that professional accounting institutions in Bangladesh work with international and government policymakers to develop a separate conceptual framework for environmental accounting and reporting for the financial and non-financial sectors of the country (Masud, Kaium, Bae, & Kim, 2017).

The results of the fourth article confirm that corporate social responsibility improves consumer loyalty and co-creation regulates this relationship to some extent. Furthermore, green banking initiatives have further strengthened this relationship. This study has practical implications on banking institutions understand how to formulate key strategic considerations based on the integration of co-creation of corporate social responsibility and green banking initiatives (Sun, Rabbani, Ahmad, Sial, Cheng, Zia-Ud-Din, & Fu, 2020).

The fifth article uses unique banking data from Andrianova et al. (2015) and various bank performance indicators - return on asset, asset quality, bank capitalization, management inefficiency and financial stability. The paper also constructs a composite banking performance index from these indicators using principal component analysis. The results reveal that, in both the short and long term, improved bank performance favours energy efficiency improvements in Sub-Saharan Africa, but this is compromised by democracy (institutional quality). Therefore, to achieve energy efficiency improvements, specific initiatives should be implemented to promote the development of the banking sector, while ensuring that democratic governments in the sub-region wean themselves from things that prevent the real sector from progressing. More ambitiously, the creation of a Green Bank may be needed to stimulate investments in energy efficiency in the sub-region (Amuakwa-Mensah, Klege, Adom, Amoah, & Hagan, (2018). According to their research findings, green banking practices have a direct and significant impact on banks' green image, trust and loyalty. The green image has a huge impact on bank trust and loyalty. There is no significant link between trust and banking loyalty. The green image plays an intermediary role between green banking practice and banking loyalty, while bank trust does not play an intermediary role between green banking practice and banking loyalty (Ibe-enwo, Igbudu, Garanti, & Popoola, 2019). The research results show that there is a direct and beneficial relationship between Employee Green Behaviour (EGB) and Environmental Sustainability (ES). The five dimensions of EGB, namely work sustainability, protection, damage prevention, influence on others, and initiative, are all closely related to ES. ES

has great potential in human resource management roles and opportunities for accountability. In a highly competitive environment, this research highlights the redesigned training and development plan to improve employee awareness and strategy to improve the organization's ES and corporate social responsibility level(Iqbal, Hassan, Akhtar, & Khan, 2018).

The eighth article mainly relies on second-hand data; the non-public provision of green data by banks is an obstacle to a complete and fair comparison. However, two heads of sustainable banking departments of traditional banks and two heads of Islamic banks were questioned to confirm the credibility and authenticity of the second-hand data. Researchers have found that no bank fully meets the standards of green/sustainable policies; nonetheless, Islamic banks are still at the forefront of protecting faith, knowledge and capital flows (Julia &Kassim, 2019).

The ninth article found that the Environment-Risk Weighted Asset (ERWA application) tool is sufficiently stable and not too penalizing for banks so that it can be used to help the transition without provoking a shock for the banking system(Esposito, Mastromatteo, & Molocchi, 2019).

The last and tenth article results show that green banking practices have a favourable and significant impact on the overall environmental performance of banks. It was also found that employee-related behaviours, daily operations-related behaviours, and bank policy-related behaviours all had a positive and substantial impact on the bank's environmental performance, but customer-related behaviours did not have a meaningful impact. Current research is essential to gain empirical knowledge about the impact of green bank policies on banks' environmental performance (Shaumya & Arulrajah, 2017).

Chapter Four: Conclusion

4.1 Conclusion

The purpose of preparing the study was to examine the available green banking articles to identify & analyse the ten most frequently cited empirical articles; to explain and compare the empirical articles found in objective one, and to explain the literature's dependent and independent articles. The study focused on a filtering process of the 500 articles found from Dimension.ai in order to receiving the most cited articles.

While analysing the first objective, which is to identify the most frequently cited empirical articles, it is found that most of that there are lots of studies have prepared on green banking and its activities; however, most of them have focused on the different activities of green banking, its performance compared to the traditional banking, and several other ways. However, among them, this study have identified most cited articles through a rigorous filtering process and explained the studies with sufficient information.

Last but not the least, in order to sum up the findings of this study to assist policymakers in the banking sector, board size is positively associated with disclosure by green banks. Companies with higher levels of institutional investors are more likely to disclose green banking information. It was also found that banks disclosed the most environmental information in the green banking and renewable energy categories and the least in the environmental identification and waste management categories. Unfortunately, few banks fully meet the criteria for a green/sustainable policy; nonetheless, Islamic banks are at the forefront of protecting the flow of faith, knowledge and capital. In addition, Bangladesh Bank has recently increased, reviewed, and reviewed its effective measures in environmental disclosure, with 12 categories of findings of managerial importance to corporate and government policymakers. Professional accounting bodies in Bangladesh are advised to work with international and government policymakers to develop a separate conceptual framework for environmental accounting and reporting for the financial and non-financial sectors of

Bangladesh. Furthermore, CSR increases consumer loyalty, and co-creation moderates this relationship to some extent. In addition, green banking initiatives have further strengthened this relationship. In addition, in order to improve energy efficiency, specific initiatives should be implemented to promote the development of the banking sector, while ensuring that democratic governments in the sub region are freed from the things that hinder the development of the real sector. It was also found from the results of this study that there is a direct and beneficial relationship between employee green behaviour and environmental sustainability. Furthermore, the ERWA tool is stable enough not to adversely affect banks too much, so it can be used to aid the transition without a shock to the banking system. Finally, the least cited article of the articles found that employee-related behaviours, day-to-day operations-related behaviours, and bank policy-related behaviours all had a positive and substantial impact on the bank's environmental performance, while the customer-related behaviours did not.

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