



## EFFECTIVENESS OF GREEN PROJECT SCREENING FOR BANK LENDING: EVIDENCE FROM PAKISTAN

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### ABSTRACT

The banking sector is under huge pressure from its different shareholders to carry out its business in ethical ways. Globally greening banking policies are being introduced to encourage green lending. Central bank regulation and policy guidelines positively impact the bankers' intention to adopt green banking. This study investigates the impact of green banking policy on the lending of Pakistani banks. Using an unbalanced panel of bank-level quarterly data of listed banks in the PSX from 2016 to 2021, a System Generalized Method of Moments (GMM) analysis is carried out. Two sample t-statistic suggest that noninterest expenses significantly fell after the policy was introduced and loan ratios improved. However, the profitability as a ratio of bank size is found to be lower. The GMM analysis finds that the green finance policy has positively affected bank lending in Pakistan. We find evidence of the long-run convergence of bank loans. Additionally, we find that bank lending was negatively impacted during the Covid-19 period and the green policy impact on lending was significantly reduced during this period. Green banking is a fairly new direction for banks. We find that the green banking policy positively impacted Islamic bank lending, but the magnitude was lower. This study is significant in showing the benefits of adopting socially responsible green investing for banks in developing countries.

**Keywords:** Bank Lending; Green Banking; Covid-19, Islamic Banking

**JEL Codes:** G21, G24

### I. INTRODUCTION

The concept of Corporate Social Responsibility (CSR) has developed immensely over the last few decades. The 1960s and early 1970s was the era of awareness regarding Corporate Social responsibility. In the last 50 years, a plethora of studies have been carried out to establish the relationship between CSR and financial performance (Shabana, 2010). Fifty years down the line the impact of CSR is still questionable as mixed results are available claiming positive, negative, and no effect of CSR on the performance of firms. This has been attributed due to the lack of a comprehensive theory on CSR (Ullmann, 1985). In addition to that, pressure on firms to adopt ethical and environment-friendly practices is increasing. The concept has now developed into Environmental, Social and Corporate Governance (ESG), with the scope increasing to climate change, biodiversity, carbon emissions, environment management, health a safety human rights child labor, business ethics, shareholder democracy being a few of the many subdomains.

Under the same domain, green finance has come under a lot of attention. It deals with determining, assessing, and managing environmental and social risk in projects which are primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making and the adoption of equator principles is on the rise globally. Evidence suggests that banks play both a direct and indirect role in environmental degradation (Bukhari, Hashim, & Amran, 2020). The financial system is the backbone of all economic growth and economic development has been associated with global natural environmental degradation and natural resource depletion (Alam, 2014; Ramayah, Rasiah, Somasundram, & Turner, 2019). In Asia, early adopters were Bangladesh (2011), China (2007), Vietnam (2015) where environment risk management guidelines and

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green credit facilitation in their lending activities are being encouraged. There has been an increasing trend linking green financing with the banking sector. The Paris Agreement with the G20 group has set the tone for the banking community in environmental conservation (Wei et al., 2020). Now the banks are working globally to provide services that are environmentally friendly and are socially sustainable (Bătae, Dragomir, & Feleagă, 2020). The main purpose of green banking interventions is to redefine the banking operations with the minimum ecological consequences. For the emerging nations, green banking is the way forward as it gives them a complete edge and provides susceptibility to climate change and global warming.

In the last couple of decades, Pakistan has encountered major natural calamities in the form of earthquakes and floods that have left millions of people homeless, facing economic constraints, and in a state of public health emergencies. The country has not only faced the threats of climate change but its implications also. For example, in 2021 Lahore was considered one of the most polluted cities in the world, and the air pollution level was recorded highest in the region (Ahmad et al., 2020). Pakistan as a member of UN state counties has adopted various strategies to adopt the green policy in general and green banking in particular. In pursuance of green banking, the state bank of Pakistan issues guidelines for green banking in 2017. The main aim was to, promote the policy development for green banking, promote the industrial sector through green lending, adopt the green policy when managing the internal banking operating, and limit the green exposure limits for the industries. The policy focuses on improving environmental risk management practices opening up new business investment opportunities for banks in the domain of resource efficiency, alternative energy generation, green mortgages, etc. It aims to improve banking market access, reduce banking operational costs and enhance profitability. The banks were given one year to put processing in place for the implementation of a green banking policy. The underlying principle is of Socially Responsible Investment (SRI), where screening of investments is done based on social investment screens to select or exclude assets based on ecological, social, corporate governance, or ethical criteria, and often engages in the local communities and shareholder activism. According to the State bank of Pakistan, the official banking regulator, the policy is aimed at reducing systemic risk attributable to climate change, enhancing the role of banks as economic facilitators, supporting the private sector, and creating new bank business.

In the context of Pakistan member of studies has discussed the green banking policy and its impact but the gap exists. (Bukhari et al. 2020) has documented how green banking works as a tool to minimize environmental hazards. (Miah, Rahman) has questioned that although technology has improved online transactions very few contribute to improving the green environment. Herath and Herath (2019) has highlighted the role of green banking on customer satisfaction. The impact of environmentally friendly business practices due to green banking was discussed by (Mohammad Masukujjaman et al. 2017). However, there is a gap to see how green banking is aiding banks in improving their loans. According to Shafique and Majeed (2020), central bank regulation and policy guidelines should result in loans increasing. Theoretical underpinnings, however, associate bank lending to size, operating expenses, interest rates, and bank capital positions. Although intentions to adopt are positive but has it translated into increased lending and higher profitability? Whether socially responsible investment has an impact on bank performance is still not completely understood and there is a dearth of empirical studies in the domain due to the lack of data (Jun 2020). This study checks whether lending exhibited a significant difference after the green policy implementation in Pakistan. Additionally, the study tests if Covid-19 has had any impact on the implementation of the green banking policy. The rest of the paper is organized as follows: section two cites the relevant and recent literature concerning the objective of the study. Section three explains the methodology of the study followed by the results and conclusion in sections four and five respectively.

## **II. LITERATURE REVIEW**

### **II.I. SOCIAL RESPONSIBILITY**

Newell and Lee (2012) describe Socially Responsible Investment (SRI) theory as investment focusing on the social dimension to achieve both financial and social values and goals simultaneously. However other literature questions the availability of information regarding green projects, discouraging bank investment (Jun, 2020). Moreover, there is limited academic literature on why such a strategy should be chosen (Jun, 2020). When it comes to empirical studies, the finds are mixed. Some studies that purport a positive association between ESG and nonfinancial firm performance are (Ahmad, Mobarek, & Roni, 2021; Alareeni & Hamdan, 2020; Laskar & Maji, 2016; Lone & Bhat, 2019; Audi et al., 2021; Audi et al., 2021;

Haider and Ali, 2015; Kassem et al., 2019; Roussel et al., 2021; Sajid and Ali, 2018; Senturk and Ali, 2021; Ali and Naem, 2017; Ali, 2013; Ali, 2015; Ali, 2018). Laskar and Maji (2018) suggest higher impact in developed countries (Brower & Dacin, 2020) suggest that faster adopters of CSP benefit more from CSP activities. Numerous studies do not find an impact on firm performance (Jha & Rangarajan, 2020; Junius, Adisurjo, Rijanto, & Adelina, 2020). The demand for ethical business practices from the banking sector is rising (Frenz, 2005; Jeucken, 2001). Banking literature on ESG reveals mixed findings (Bătae et al., 2020). El Khoury et al. (2021) suggest that there is a nonlinear relationship between firm performance and ESG. Shakil et. al (2019a, 2019b) are other studies that suggest a positive relationship between ESG and firm performance. Shakil et. al (2019c) however find a negative relationship when they test the impact across 882 banks from developed and developing countries. However, there is a dearth of studies on how this relationship was impacted by the Covid-19 crisis.

## **II.II. GREEN BANKING**

Green banking has evolved as a new concept and entails areas cross-cutting in nature. Initially, the idea was limited to the financial institution operations but gradually extended to environmental policy and economic growth (Chen, Siddik, Zheng, Masukujjaman, & Bekhzod, 2022). The idea was coined in the late 19th century in Holland who first introduced the green fund to provide the finances to banks promoting environmental activities (Akter, Siddik, & Mondal, 2017; Khairunnessa, Vazquez-Brust, & Yakovleva, 2021; Md. Shafiqul Islam, 2013; Yadav & Pathak, 2013). The idea got promoted in the late nineties when it became a norm that the bank is liable to promote a healthy society by advancing the finances to industries mindful of environmental protections. In recent times banks are directly or indirectly promoting public initiatives that ensure low carbon emission through green banking policies.

## **II.III. GREEN BANKING IN PAKISTAN**

Green banking is getting popular among the commercial banks in Pakistan. Most of the banks are using different tools and strategies to comply with the green banking guidelines issued by the state bank of Pakistan (Khan & Szegedi, 2019). Muslim Commercial Bank, Sonari bank, and Zarai Taraqiati Bank Limited are a few of the banks working to safeguard against environmental vulnerabilities across the country. Although the green banking practices among the bank differ in scale and type the main purpose remain the same that is to promote a climate-resilient economy. Most of the banks have made it compulsory to go through an environmental due diligence check before extending the credit to organizations (Shafique & Majeed, 2020). Similarly, internally most of the banks are promoting a paper-free environment to reduce the consumption of paper. Similarly recycling the waste of banks has been curtailed by providing the recycling facility.

In the mix of contradictory evidence of ESG practices on bank performance, Green banking practices in developing countries, in particular, emerged in 2012, and a sustainable banking network (SBN) was established to enable green banking. As of 2019, 15 countries have taken up the initiative. Banking as a source of funds has a major role to play in encouraging or discouraging green practices by being picky about who to lend to as a consequence of indirect effects (Goel & Saunoris, 2016). Although there is a rise in green banking services, the modalities vary across countries with the policy binding in some and voluntary in others. As an example, ESG activities by banks have had a positive impact on businesses positively in India (Bihari & Pradhan, 2011). Similarly, there is evidence of improved brand image and market competitiveness. Burhanudin et. al (2021) suggest that customers do experience guilt when discovering that their bank supports projects that do not give adequate consideration to the environment and lead to negative word of mouth. The green image significantly affects bank trust and bank loyalty (Ibe-enwo, Igbudu, Garanti, & Popoola, 2019). According to Nizam et al. (2019), access to green finance opportunities should positively impact financial performance.

According to Shafique and Majeed (2020), central bank regulation and policy guidelines positively impact the banker's intention to adopt green banking. Theoretical underpinnings associate bank lending to size, operating expenses, interest rates, and bank capital positions. Although intentions to adopt are positive but has it translated into increased lending and higher profitability? Whether socially responsible investment has an impact on bank performance is still not completely understood (Jun, 2020)? This study will be testing the SRI theory by investigating the impact of green banking policy on the lending of banks. Additionally, we

investigate whether Islamic banks' response to green banking policy was similar to that of conventional banks.

### III. METHODOLOGY

Literature shows that when there are limited data points movements of the random variable are best captured by GMM estimation as it makes assumptions about the specific movements rather than the assumptions about the entire distribution (Kuehn & Abrahamson, 2020). Since the data was limited the GMM model was estimated using the forward orthogonal deviations to reduce loss of observations through differencing. Moreover, using OLS on the dynamic panel is suggested to report biased results and the GMM has the advantage of resolving problems of autocorrelation.

The problem of heteroscedasticity is usually encountered during time-series data. In the presence of heteroscedasticity usually, the OLS and other estimations yield inconsistent results. Especially with the OLS estimates large variances and biases for cases were found. To overcome this problem robust standard errors are estimated to resolve issues of heteroskedasticity. GMM estimation in this way helped to obtain robust results and the valid references could be drawn with consistently estimated covariance matrices.

To test for the impact of the green banking policy, a two-sample t-test is carried out on quarterly data of commercial banks in Pakistan from 2016 to 2021. The data is an unbalanced dynamic panel. In addition to loan ratios, profitability and operating costs (noninterest income expense) are also tested. A system GMM model is tested using the Arellano–Bond technique. The estimated model is as follows:

$$Y_{i,t} = \alpha Y_{i,t-1} + \beta Z' + \lambda_i + \mu_{it} \quad (1)$$

The dependent variable  $Y_{i,t} = \left( \frac{L_{i,t}}{A_{i,t}} \right)$  represents the loan ratio for bank  $i$  at time  $t$  normalized for asset size.  $Z$  is  $[1 \times i]$  vector of explanatory variables.

$$Z = \{ Covid - 19, Profitability, Green Banking Policy, Tax Ratio, Liquidity ratio, Overhead ratio, Policy Rate \} \quad (2)$$

The estimation technique uses forward orthogonal transformations with the collapse option to limit the number of instruments. GMM is preferred over simple random and fixed effect estimation due to biased estimates due to the inclusion of a lagged dependent variable. It is used to resolve issues of endogeneity, serial correlation, and autocorrelation. The Arellano-Bond test for AR(2) is used test for serial correlation and the Hansen statistics to test for instruments validity. Preliminary diagnostics show the absence of multicollinearity in the data. Tables 1 and 2 show the correlation matrix and descriptive statistics.

Various models were estimated to see the impact of policy change on banking. The first model was estimated how green policy impacts bank lending without controlling the bank type in the model. The second model tests whether the relationship is moderated by COVID-19. Does the relationship get stronger during the time of crisis and green project screening result in higher or lower lending? Finally, the 3rd model test to see if this positive impact on lending is the same across conventional and Islamic banks or not? The dummy variable technique was adopted where bank type is 1 for Islamic banks and 0 for conventional banks.

Tables 1 and 2 explain the descriptive statistics and the correlation matrix respectively. An important thing to note is the correlation among the variables in the study. It gives insight into how the study variable moves together and the strength of their relationship. Later on, the relation helps to decide the selection of the model (Mishra et al., 2019). It can be seen that the green banking policy is positively correlated with the loan ratio that is if the banks decide to offer loans in compliance with the green policy the loan ratio also goes up. Surprisingly there is a negative correlation between the green policy and the bank profitability i.e. bank sees the green policy negatively correlated with their profits. One obvious reason could be that adopting a green policy means more compliance with the state bank rules and less credit. The overhead ratio is also negatively correlated with the green banking policy and implies that green policy adoption means less overhead expense.

However, as the literature shows there are limitations of using the correlation matrix. In the case of this study, the correlation does show the relationship between the green policy and loans but fails to explain the cause and effect. That is does the green policy translates into higher lending ratios, which in turn means more

profits. Such a question remains unanswered using the correlation analysis. therefore, tougher to check if there is a significant difference between the means this study runs the two-sample t-test, followed by the more rigorous statistical techniques of GMM estimation.

**Table 1- Descriptive Statistics**

| Variable             | Obs | Mean   | Std. Dev. | Min    | Max    |
|----------------------|-----|--------|-----------|--------|--------|
| LoanRatio            | 333 | 0.344  | 0.113     | 0.052  | 0.561  |
| Covid                | 333 | 0.207  | 0.406     | 0      | 1      |
| Liquidity Ratio      | 333 | 0.091  | 0.042     | 0.033  | 0.294  |
| Bank Size            | 333 | 27.111 | 0.951     | 25.091 | 28.899 |
| Tax Ratio            | 333 | 0.004  | 0.004     | 0      | 0.04   |
| Overhead Ratio       | 331 | 0.011  | 0.008     | 0.001  | 0.069  |
| Profitability Ratio  | 333 | 0.01   | 0.01      | 0      | 0.088  |
| Policy Ratio         | 314 | 0.08   | 0.029     | 0.058  | 0.138  |
| Green Banking Policy | 333 | 0.577  | 0.495     | 0      | 1      |

**Table 2 - Correlation Matrix**

| Variables                | (1)    | (2)    | (3)   | (4)    | (5)    | (6)    | (7)   | (8)   | (9) |
|--------------------------|--------|--------|-------|--------|--------|--------|-------|-------|-----|
| (1) Covid                | 1      |        |       |        |        |        |       |       |     |
| (2) Liquidity ratio      | -0.078 | 1      |       |        |        |        |       |       |     |
| (3) Bank Size            | 0.129  | 0.311  | 1     |        |        |        |       |       |     |
| (4) Tax Ratio            | 0.074  | -0.034 | 0.076 | 1      |        |        |       |       |     |
| (5) Overhead Ratio       | 0.045  | 0.169  | 0.068 | 0.286  | 1      |        |       |       |     |
| (6) Profitability Ratio  | 0.051  | 0.019  | 0.071 | 0.494  | 0.297  | 1      |       |       |     |
| (7) Policy Rate          | 0.04   | 0.173  | 0.077 | -0.063 | -0.163 | -0.173 | 1     |       |     |
| (8) Green Banking Policy | 0.392  | 0.126  | 0.146 | -0.026 | -0.081 | -0.129 | 0.687 | 1     |     |
| (9) Loan Ratio           | 0.025  | -0.177 | 0.272 | 0.007  | -0.118 | -0.104 | 0.184 | 0.239 | 1   |

#### IV. RESULTS

Green banking policy aims to improve the quality of financing with a special focus on encouraging environmentally friendly projects. The expected outcome for banks is higher profits, lower operating costs, and an increase in financing opportunities leading to higher lending ratios. Two sample results comparing mean loan ratios, profitability, and noninterest expenses before and after the policy was implemented are shown in Table 3.

Two sample t-test suggests that loan ratios after the implementation have improved by two percent. Mean profitability however is found to be lower in the period where the policy was being implemented and operational costs proxied by non-interest operating expenses as a ratio of total assets have decreased. Since the aim of green banking policy is specifically targeted at green initiatives and bank lending, the results of a system are shown in Table 4. Model 1 shows the result of a system GMM estimation to test the impact of green banking policy on bank loans. Arellano-Bond test for AR(2) results confirm the absence of serial correlation and the Hansen results suggest that the instruments for the GMM are valid.

**Table 3 - Two Sample t-test**

|  |               |              | Before Policy | After Policy |        |        |         |         |
|--|---------------|--------------|---------------|--------------|--------|--------|---------|---------|
|  | Before Policy | After Policy | Mean1         | Mean2        | dif    | St Err | t value | p value |
| Loan Ratio by Green Banking Policy                     | 148           | 218          | 0.301         | 0.333        | -0.032 | 0.015  | -2.15   | 0.033   |
|  |               |              | Before Policy | After Policy |        |        |         |         |
|  | Before Policy | After Policy | Mean1         | Mean2        | dif    | St Err | t value | p value |
| Profitability Ratio by Green Banking Policy            | 148           | 218          | 0.011         | 0.009        | 0.003  | 0.001  | 2.9     | 0.004   |
|  |               |              | Before Policy | After Policy |        |        |         |         |
|  | Before Policy | After Policy | Mean1         | Mean2        | dif    | St Err | t value | p value |
| Non-Interest Operating Expense by Green Banking Policy | 148           | 218          | 0.013         | 0.011        | 0.002  | 0.001  | 1.9     | 0.06    |

The finding that the green banking policy has a positive effect on bank lending is consistent with the previous studies. We find that the green banking policy is positively associated with lending. This suggests that the post-policy implementation loan ratio of banks has increased after controlling for other effects. This provides support to our findings regarding mean loan ratios improving in the two-sample t-test. (Shafique & Majeed, 2020) suggested that green policies were positively associated with the adoption intention. The results validate their findings by showing that intentions are being reflected in higher loan ratios. This suggests that lending has increased in Pakistan after the implementation of the policy by 1.3% percent. (Bose, Khan, & Monem, 2021) found that green banking pays off in the long run and can improve the image of the bank. As a consequence, customer confidence improves and leads to more lending. (Bose, Khan, Rashid, & Islam, 2018) also found that adopting green banking means a change in the disclosure requirement in the financial statement of the banks. The banks who adopt green banking are considered responsible and receptive to the environment and it adds up to their reputation.

COVID-19 has a massive impact on bank lending globally and Pakistan is not an exception. Various studies have shown a negative relationship between the pandemic and bank lending (Liu, Zhang, Fang, & Chen, 2021; Najaf, Subramaniam, & Atayah, 2021; Çolak & Öztekin, 2021). The obvious hypothesis that could be put to test was that businesses were shrinking during COVID-19 and even the reduced interest rates by the banks were not enough to entice the entrepreneurs and investors to take the loans. The same scenario was witnessed during Covid-19 in Pakistan. This study that bank lending has been affected adversely during the Covid-19 period. This evidence is similar to a credit crunch during the Asian crisis (Barney & Souksakoun, 2021). The GDP of Pakistan fell to minus 0.4 in 2020 and lending by banks seems to have been impacted (Mohammad, Muhammad, & Muhammad, 2021). Loans are effectively negatively by policy rates consistent with theory (Van den Heuvel, 2005). Although (Van den Heuvel, 2005) suggests that bank size is positively associated with lending, there is plenty of literature available that suggests that smaller banks are better at lending than larger banks (Bonfim & Dai, 2017; Matemilola et al., 2015). We however find the impact of bank size on lending to be insignificant. Similarly, higher profitability is found to be associated with more loans. This is also consistent with previous literature.

Model 2 of the study uses the dummy variable technique specially to isolate the effect of Covid-19 on bank lending. By interacting Green policy dummy with Covid-19 we found a significant difference between the implementation of green banking policy before and during the Covid-19 period. The impact on lending due

to the exogenous shock affected the impact negatively since the economy went into a phase of the credit crunch.

**Table 4 – Main Results**

|                                 | <b>Model 1</b>         | <b>Model 2</b>         | <b>Model 3</b>         |
|---------------------------------|------------------------|------------------------|------------------------|
|                                 | <b>Coef./(Std.Err)</b> | <b>Coef./(Std.Err)</b> | <b>Coef./(Std.Err)</b> |
| <b>L.Loan to total assets</b>   | 0.9352***<br>(0.0318)  | 0.9298***<br>(0.0326)  | 0.9120***<br>(0.0427)  |
| <b>Covid-19</b>                 | -0.0187**<br>(0.0058)  |                        | -0.0227***<br>(0.0057) |
| <b>Liquidity Ratio</b>          | -0.0417<br>(0.1215)    | -0.0333<br>(0.1229)    | -0.2022<br>(0.1394)    |
| <b>Bank Size</b>                | -0.0035<br>(0.0028)    | -0.0035<br>(0.0030)    | 0.0032<br>(0.0043)     |
| <b>Tax Ratio</b>                | -0.5078<br>(0.3686)    | -0.4599<br>(0.3836)    | 1.0049<br>(0.9519)     |
| <b>Overhead Ratio</b>           | -0.1843<br>(0.2984)    | -0.2294<br>(0.2867)    | -0.6878<br>(0.4424)    |
| <b>Profitability Ratio</b>      | 0.2736**<br>(0.1261)   | 0.3051**<br>(0.1354)   | 0.2835<br>(0.3338)     |
| <b>Policy Rate</b>              | -0.1526**<br>(0.0680)  | -0.1311*<br>(0.0709)   | -0.1609**<br>(0.0673)  |
| <b>Green Banking Policy</b>     | 0.0134**<br>(0.0058)   | 0.0124**<br>(0.0057)   | 0.0342***<br>(0.0088)  |
| <b>Green Policy x Covid-19</b>  |                        | -0.0176**<br>(0.0056)  |                        |
| <b>Green Policy x Bank Type</b> |                        |                        | -0.1237**<br>(0.0581)  |
| <b>Bank Type</b>                |                        |                        | 0.1051<br>(0.0712)     |
| <b>Constant</b>                 | 0.1332*<br>(0.0668)    | 0.1333*<br>(0.0710)    | -0.0442<br>(0.1173)    |
| <b>AR(1) (Pr&gt; z)</b>         | 0.003                  | 0.003                  | 0.002                  |
| <b>AR(2) (Pr&gt; z)</b>         | .1025674               | .1021191               | .1292496               |
| <b>Sargen P value</b>           | 2.05e-08               | .0006301               | .0000953               |
| <b>No of Observations</b>       | 267                    | 267                    | 267                    |
| <b>No of Groups</b>             | 21                     | 21                     | 21                     |

\* p<.1, \*\* p<.05, \*\*\* p<.001

One of the objectives of the study was to check if the green banking policy has a similar effect on conventional and Islamic banks. In this regard, literature has documented contradicting results. (Julia & Kassim, 2020) found that although the reporting requirement for the Islamic banks was more stringent there was hardly any difference in how the Islamic and conventional banks responded. Contrary to this (Sharmeen, Hasan, & Miah, 2019) showed that the sensitivity of Islamic banks in response to the conventional bank was high. Their study

explains that because the green banking policy complies with the Shariah standards the Islamic bank welcomes the policy and responds positively. Similar results were reported by (Julia, Rahman, & Kassim, 2016) in the study on the banks in Bangladesh. Our study develops model 3 to controls for bank types to investigate the impact of green banking policy between conventional and Islamic banks. The results suggest a significantly lower response of the green banking policy on the lending of Islamic banks. This may suggest that Islamic banks were previously engaged in the screening of their lending through their shariah compliance investment screening framework.

## V. CONCLUSION

Green banking promises cost optimization, risk minimization, improvement in brand image, and enhancement of the common good of society. However, adoption has been slow due to inadequate empirical findings showcasing the positive impacts of green banking. Using data from 2016 to 2021, this study shows that the policy implemented in Pakistan is bearing positive outcomes in the form of improved loans. This finding is significant evidence for the introduction of green banking policies in other South Asian countries. Additionally, the paper finds evidence of Covid-19 negatively impacting lending and the policy became less effective during Covid-19. Islamic banks were also positively impacted by the policy, however, the study has failed to identify reasons for a smaller improvement in lending in Islamic banks. Islamic banks already screen their investment opportunities for shariah compliance and this may be one reason why the green banking policy was not as effective for them. However, more research is required to uncover the reasons for this. Based on our findings, it can be expected that once the economy recovers, the banking sector can reap the benefits of the green banking policy further. This study is limited by scope to Pakistan only and may be extended to other countries and regions to test for the effectiveness of green banking policies implemented by other countries to add to the empirical literature on green banking policy effectiveness. Additionally, the findings of this paper about the fall of profitability even with improved lending ratios due to the green banking policy need to be investigated further. The finding of the study has implications for the policymakers. The green policy currently is limited in its scope and mainly confined to compliance with the central bank policies. However, the main aim of the banks should be to keep pace with the opportunities and threats posed by climate change. The risk profile of the clients could substantially change the bank's profitability and financial positions. Therefore, green banking policy should be seen as a tool by the bank to align their banking products to suit the customer needs and demand. On the side, lip side the central bank should provide a roadmap to reduce carbon reduction. This study provides an opportunity for the central banks to explore the causes of less sensitivity of conventional banks to the green banking policy. The study has opened avenues for further study in the field of green banking policy. The impact of green banking on Islamic and conventional banks could be explored further with the context of macro and micro determinants. This would give comprehensive evidence as to why the conventional banks are more receptive to the policy change. This study uses the quantitative tool to check the impact of green banking on bank lending. The scope of the study could be expanded if the quantitative techniques are adopted to discover the inspiration of banks for engaging green initiatives across different provincial territories.

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