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An Empirical Study of Impact of Environmental Performance on Financial Performance in Indian Banking Sector

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ABSTRACT : Environmental performance is essential to move the economy on the sustainable path. Like whole world Global Warming is becoming a major issue for India as it has a risk to the economy and country as a whole. This is being recognized by economists that there are financial rewards for reducing climate change and designing a low carbon economy. In this arena Banks can play a proactive role for this journey of transformation towards a greener economy by providing green finance to those industries which helps in mitigating carbon footprints. The objective of this paper is to empirically find the association of environmental performance and financial performance by using data panel regression method, taking financial variables like net income, expenses with profitability and variables of green banking exhibiting environmental performance. The results show that relationship between the net income and profitability is significant but no significant relationship exists between the implementation of green banking and bank's profitability as is revealed in the study. This exhibits clearly that green banking and environmental initiatives are still in their infancy stage in Indian banking sector and to reap the fruits, a big push is required in this paradigm.

***KEYWORDS*:** Environmental performance, Green banking, financial performance, Carbon foot prints, Climate change

I. INTRODUCTION

Environmental Performance is the correlation between the organization and the environment. It is all about striking a balance between organizations various activities, practices and processes and their effect on environment. It includes the environmental impacts of the organizational process, the environmental implications of its products and services, the recovery and processing of products and the environmental effects of resources consumed. On the other hand financial performance is the measure of organizations ability to generate revenue over a period of time by caring out its various activities. It is measuring firm's efforts in monetary terms through different measures like operating income, net asset value, earnings before interest and tax etc. All over the globe various studies have been conducted which have found that there is a positive relationship existing between the firms' profitability and its environmental initiatives (Hart and Ahuja, 1994; Hart and Ahuja, 1996, Klassen and McLaughlin, 1996; Galdeano-Gomez, 2008,Russo and Fouts, 1997;). The firms can achieve better returns by working towards sustainable business processes in an environment friendly manner (Sahoo and Nayak, 2007, Cormier et al., 1993). In today's scenario, environmental issues gaining greater attention across the globe have placed pressure on all industries, including financial services "banks" to go green which were till now considered as environmental friendly. Banks have always been the important source of funds for commercial projects and hence plays a vital role in creating a sustainable environment by encouraging eco friendly projects and lending to only those industries which follow some 'green norms',This is known as 'green banking', contributing in reducing carbon foot prints by providing assistance to companies involved in renewable and clean energy technology. (Sahoo and Nayak,2010; Bihari and Pradhan, 2011).

The need of the hour is to collectively move towards a flourishing low carbon economy which can drive innovation and increase productivity. Environment is a key focus amongst all the economies of the world and as a result banks have realized it is advantages for them to go green. They can provide significant guidance for the required economic makeover that will open up new arenas of financing and investment projects as well as portfolio management for the formation of a strong and successful low green economy. Economists are clear that considerable funding from the all sectors is desired to achieve the intensity of investment required to mitigate the risk of environment degradation.. Only recently, the banks and other financial service providers have realized that their green strategies like paperless statement bills and reports, credit to energy efficient projects and adopting clean technology can help in securing financial rewards. Banks are now a day's giving priority to those industries which have already turn green and those, which are making sincere attempts to turn green and lessen carbon footprints. To empirically find the relationship between environmental performance *and financial performance, the paper is divided into following sections, section 1 i.e. the present section gives insights of environmental, green performance and its present need of today, section 2 gives brief review of present literature, section 3 gives data and methodology, followed by analysis and interpretations of results contained in section 4. Section 5 gives summary conclusions and interpretations of the results. References forms the part of last section.*

II. LITERATURE REVIEW

This section gives a snapshot of various studies conducted in this field in India and abroad. They have revealed that escalation of information technology has caused great demand for implementation of CSR activities in all sectors including banking. The various stakeholders like customers, NGOs, State regulatory bodies, media, all have considerably addressed social responsibility issues in banking sector from time to time (Jeucken ,2001; Bhattacharya et al. 2004;). Similarly, many international organization like the World Bank have also repeatedly exert pressures on banks to be socially and environmentally responsible. An experiential work done by Russo and Fouts (1997) discovered that environmental performance and financial performance are positively related. The similar results were obtained in research carried out by Klassen and McLaughlin,1996, (proposed a model to measure the change in the firm's stock value with respect to the change in the environmental measures), Schoemaker and Schoemaker ,1995 (developed a model to estimate the future environmental liabilities),and Fledman et al ,1997 (developed another conceptual model linking the environmental activities and the firm's performance together.) . Hart and Ahuja (1994, 1996) revealed that although in the short run the impact of the execution of green banking is negatively related to the profitability but in long run it tends to be positive. Simillarly Printer et al. (2006). Mathieson (2008) also proved that there exist a positive relation between the implementation of green banking and profitability leading to customer loyalty. Galdeano-Gomez (2008) also found the same positive relationship between the two. Indian researchers have also tried to study the impact of environmental performance on its financial performance from time to time. Suresh Chandra Bihari and Sudeepta Pradhan (2011) have attempted to study the CSR practices of major banks operating in the Indian Banking Sector and established that CSR has positive impact on the performance and image of the bank. Nishi Sharma (2009) has studied the CSR in Indian Banking and found that due to absence of stringent compliance and rules banks operating in Indian banking sector have yet not adopted the green banking in full sprit. Although some of the banks have adopted CSR as tool to enhance customers' loyalty yet they are not able to achieve the true essence of green banking.However the review of literature reveals that there some studies whose findings were just opposite like the study conducted by Hamilton (1995) discovered that the firms that chose pollution control and disclosure of the carbon footprints were reported to be less profitable. Similar were the findings of Blum (1995) and Worrell et al. (1995) concluding the negative relation between financial performance and environmental performance. Moreover, apart from the above findings, some researchers reported no significant relationship between the green banking initiatives and the firm's profitability. (Chen and Metcalf 1980, Fredman and Jaggi 1982, and Cordeiro and Sarkis ,1997).

After this review of literature we found a lot of ambiguity in the findings of earlier researches on the impact of environmental performance on bank's financial performance so much so that few researchers concluded the inexistence of any relation between the two. (Margolis, Elfenbein and Walsh ,2007;,Mc Williams and Seigel,2001)

1) The first hypothesis of our study is a result of these contrasting findings and aim to test the impact of green banking initiatives on its financial performance.

H0: There exists no significant relationship between the environmental performance /green initiatives and the financial performance of the banks operating in India.
H1: There exists a significant relationship between the environmental performance/green initiatives and the financial performance of the banks operating in India.

2) The second hypothesis of our study follows from the research inputs highlighting that profitability of banks practicing green banking is capable of affecting the net income of the organization.

H0: There exists no significant relationship between the profitability and the net income of the banks in India.
H2: There exists a significant relationship between the profitability and the net income of the banks in India

3) The third hypothesis arises as a result of studies proving that implementation of green practice would increase the expenses of the organization.(Hart and Ahuja, 1994; Hart and Ahuja, 1994, 1996; Klassen and

McLaughlin, 1996).These expenses incurred by organization would affect its profitability (Cornew, 1988; Caruntu, 2008).

H0: There is no significant relationship between profitability and expenses of the banks operating in India.
H3: There exists a significant relationship between profitability and expenses of the banks operating in India.

III. DATA AND METHODOLOGY

The objective of this paper was to empirically find the linkage between environmental performance and financial performance by using data panel regression method, taking financial variables like net income, expenses with profitability and variables of green banking exhibiting environmental performance. For this purpose we have selected the sample banks from (CMIE) database. From it only, annual data for income margin, net income and total expenses were also collected for a period of March 1997 to March 2013.To collect the data relating to implementation of green strategies of individual banks their annual reports were gauged and necessary data was collected. Income margin was taken because it has been used as a proxy for firms' profitability (Uri, 1988; Molyneux and Forbes, 1995). The sample banks were studied in detail and their years of implementation of green banking were collected from various reliable sources, such as the banks' websites, publications and other sources displayed in Table 1.

Table 1: Publication dates of green banking adopted in Indian banks

Green Banking implementation Year	Names of the banks operating in India
1996	Union Bank Of India
2003	Citi Group INC, HSBC, ING Vyasa, RBS, Royal bank Of Canada, Syndicate Bank, Statndard Charted
2005	Yes bank, Corporation Bank
2006	Bank Of America, JP Morgan
2007	ICICI, OBC, SBI
2008	Bank Of Baroda, Karnataka Bank, Industrial Bank, Dena Bank
2009	HDFC, Indian Overseas, Indusland Bank, PNB, ABN Amro , Karur Vyasa , Andhra bank
2010	Axis bank, Kotak Mahndra, South Indian Bank
2011	Canara Bank, IDBI, EXIM
2013	IDFC

Table 1 clearly shows that 2003 and 2009 where landmark years in the history of green banking. Most of the banks started practicing eco-banking in these two years. However by the end of 2012 almost all banks operating in Indian Banking Sector have started working actively towards reducing carbon footprints and took green initiatives. On the data collected through various reliable sources, Panel Regression was carried out to determine the relationship between income margin (dependable variable) and net income, expenses and implementation of green banking (independent variables). In the analysis, the implementation of green banking was used as a dummy variable (0 = not implemented; 1 = implemented). The purpose of choosing the Panel Regression method was to compare the regression lines to find out the variation produced due to the execution of green banking. The two observation years were decided as 2009, the year from which implementation of green banking was followed by the banks and 2013, the year by which the maximum number of banks have implemented green banking.
The regression equation for the study is:

$$Yab = \beta o + \beta 1NIab + \beta 2EXPab + \beta 3GBab + e$$

where
Yab = Income margin (profit before interest and income taxes/total income) of the firm a in year b
NIab = Net income of the firm a in year b.
EXPab = Expenses made by the firm a in year b.
GBab = Implementation of green banking by the firm a in year b.
β1, β2 and β3 are the beta coefficients for the independent variables.

IV. ANALYSIS AND INTERPRETATION OF RESULTS

The data is analyzed using Panel Regression method, taking the income margin as the dependent variable and net income, expenses and implementation of green banking as independent variables for the years 2009 and 2013 respectively. The regression result obtained for the year 2009 is shown in Table 2.

TABLE 2 RESULTS FOR THE YEAR 2009

			Model Summary			
		Model	R	R Square	Adjusted R Square	Std. Error of the estimates
		1	.616a	. 379	.246	4.91474
			ANOVA			
Model		Sum Of Square	Df	Mean Square	F	Sig.
1	Regression	201.378	3	67.779	2.878	.075a
	Residual	373.176	14	25.165		
	Total	543.534	17			
		Unstandardised	Coefficients b Coefficient	Std. Coefficients	T	Sig.
Model		B	Std.Error	Beta		
1	(Constant)	16.367	1.621		10.170	.000
	NI	.005	.002	8.025	2.483	.026
	EXP	-.005	.002	-8.128	-2.498	.026
	GB	4.763	3.732	.263	1.266	.213

Notes: aPredictors: (Constant), GB, NI, EXP.
bDependent variable: PBT/Total income.

Our study revealed that in the Indian banking sector, i.e. till 2009, the results obtained showed, (Table 2), there was the existence of significant relationship of net income and expenses with the income profitability before the implementation of green banking. However, as expected, the relationship between the execution of green banking and profitability was insignificant. The profitability was positively related to net income whereas it was negatively related to expenses at $p<0.05$. The above all model fit was significant at $p<0.1$. The similar analysis was carried out for the year 2013 with the results indicated in Table 3.

TABLE 3 RESULTS FOR THE YEAR 2013

			Model Summary			
		Model	R	R Square	Adjusted R Square	Std. Error of the estimates
		1	.768a	.603	.519	3.87399
			ANOVA			
Model		Sum Of Square	Df	Mean Square	F	Sig. .
1	Regression	318.481	3	105.495	7.135	.004a
	Residual	208.014	14	14.929		
	Total	527.496	17			
		Unstandardised	***Coefficients b*** Coefficient	Std. Coefficients	T	Sig.
Model		B	Std.Error	Beta		
1	(Constant)	16.965	1.913		8.853	.000
	NI	.007	.002	25.407	3.762	.002
	EXP	-.008	.002	-25.427	-3.746	.002
	GB	-.333	2.472	-.029	-.135	.894

Notes: aPredictors: (Constant), GB, EXP, NI.
bDependent variable: PBT/Total income.

The results for the year 2013, (Table 3) for Indian banking sector showed the existence of significant relationship of net income and expenses with the income profitability after the implementation of green banking. However, the relationship observed between implementation of green banking and profitability was insignificant. The profitability was positively related to net income whereas it was negatively related to expenses at $p<0.05$ and the above all model fit was significant at $p<0.05$. The overall model fit has improved from year 2009 to 2013.The findings of Tables 2 and 3, clearly indicates that bank's profitability is significantly affected by net income and expenses but not so significantly by green banking initiatives.
Thus we accept H2 and H3 and rejects H1.

V. SUMMARY, CONCLUSION AND RECOMENDATIONS

As highlighted earlier, in this paper we have attempted to empirically explore the relationship between environmental performance and its impact on financial performance of various banks operating in India. The findings of our study revealed that no significant relationship exists between the environmental performance and their financial performance banking sector in India. This finding was similar to the findings of previous researchers like Chen and Metcalf (1980), Jaggi and Freedman (1982) and Cordiero and Sarkis (1997). An attempt has been made to contribute to existing theory of green banking and lay down the foundation for future researches. Following things are recommended to take this research to next level.

1) A cost benefit analysis of implementing green banking can be researched.

2). A scale could be developed to measure the impact of green banking.

3) The research can be extended by taking other variables into account and study relationships and impacts.

This study concludes that green banking helps in reducing carbon footprints and is of pivotal importance today, Indian banks are still in infancy stage as far as implementation of green banking is concerned. One of the reasons could be the requirement of huge amount of capital for these initiatives which can reduce the profitability. (Hart and Ahuja, 1996, Blum ,1995, Worrell et al ,1995). We found that there is no significant relationship existing between environmental performance and financial performance. This implies that while green banking initiatives are not increasing the profitability of banks, there exist some other micro economical factors which are contributing towards the profitability. To sum up, banks in India have to go a long way to become true green banking practitioners. Following gaps were identified in the study which requires immediate attention to further green banking in India.

The Main Gaps Identified by the Indian Banks requiring directives from regulatory bodies:
1. Awareness and consciousness on sustainability issues, international guidelines and frameworks.
2. Sustainability reporting - formal frameworks, lucid and clear policies applicable for banks operating in India.
3. Training and development of relevant skills within bank employees so that they can use in core banking operations.
4. Clear policies required to alter the present management systems to incorporate sustainability issues.
5. Formal information sharing and dissemination platforms needs proper definition.
6. Guidance / workshops / training programmes for banks are necessary on CSR focus areas.
7. There could be an international strategic programme in terms of funding these climate change programmes like IMF and Indian bank's low Cost Green Fund, this will help the developing countries counter the issue of sustainable development and making green economy. As there is a broad agreement that an effective response to climate change will require new investments and other expenditure on a massive scale. This international cooperation in this regard will surely help the developing economies to fight the environmental challenges.

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