



Green Banking Adoption: A Comparative Study of Indian Public and Private Sector Banks

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ABSTRACT

Around the world people have encountered various side effects of development such as change in climate and global warming. On the other hand there are global initiatives to confront these ill effects. Financial institutions are capable of playing significant role between economic development and environmental protection. Green banking is not only responsible behind economic growth but it can also play essential role in environmental protection. To support the reduction of carbon emissions, banking industry should patronage green technologies projects. So it is outmost essential to take bankers view into consideration towards acceptance and deployment of green technologies in financial sector. This research article tries to emphasize the green banking aspects with respect to Indian public and private sector banks.

Keywords: Green Banking, Banks, Security, Trust, E-Banking

1. Introduction

The banking sector is one of the major sources of financing industrial projects like cement, chemicals, steel, paper, fertilizers, etc., which cause maximum carbon emission. All over the world, financial institutions are concerned about the overall impact of depletion of environment; the main impact of climate change on banks is in fact not direct i.e. banking sector are affected to the extent that their clients' activities and economic activities in general are constrained, IDRBT (2013). Banks are considered environment friendly and do not impact the environment greatly through their own 'internal' operations but the 'external' impact on the environment through their customers activities is substantial. Green Banking refers to the banking business conducted in selected area and this approach helps in overall reduction of carbon footprint. Climate change is the most complicated issue the world is facing. Across the globe there have been continuous endeavors to quantify and diminish the risk of climate change caused by human activities.

Banking sector can play an intermediary role between economic development and environmental protection, for promoting environmentally sustainable and socially responsible investment. According to Meena (2013) banking is never considered a polluting industry, the present scale of banking operations have considerably increased the carbon footprint of banks due to their massive use of energy (lighting, air conditioning, electronic/electrical equipments, IT devices, etc.), high paper wastage, lack of green buildings, etc. Therefore, banks should adopt technology, process and products which result in substantial reduction of their carbon footprint as well as develop a sustainable business. Jeucken (2005) describes the role of banking as intermediary actor in the economical systems due to its important function in fulfillment of transforming money by size, duration, place and/or time, and by risk.

Banks adopted various electronic channels in order to deliver services to different types of customers. According to [Sakalauskas et al., (2009) and Rautenstrauch, C. (1999)] E-banking sustainability is closely linked with environmental and social factors. Online banking channels are considered as low cost anywhere and anytime channels because these channels not only helps in reducing carbon emissions, but also reduces the amount of paper-based documents and banking office space used. In this way, E-banking not only helps in saving environment and but also results in sustainable development. According to Deputy Governor

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of RBI, banks themselves can adopt green practices and thereby lead the way in this global initiative and particularly emphasized on the implementation of 3R's i.e. Reduce, Reuse and Recycle IDRBT (2013).

Rajesh and Dileep (2014) define “Green” as social, ethical and environmental dimensions and green banking is concerned with socio economic and environmental factors with intend to protect the environment and preserve natural resources. Similarly, Bahl (2012) suggests banks should finance green technologies in order to reduce carbon emissions. Turk et al. (2003) also supported this view but according to authors these potential financial savings might be countered by (additional) processes and ICT requirements. **Perumal and Shanmugam (2004) shows** costs per transfer by the internet are far cheaper than with traditional way of banking.

Banking business has been changed across the globe; likewise Indian banking industry also grown by 7.5 times over the last decade. According to Reserve Bank of India data, the volume of online banking transactions has risen from around Rs 1,819 crore in 2011–12 to approximately Rs 1,01,851 crore in 2014-15. As far as international scenario is concerned, Bairagi and Nahid (2011) predicted rise in the total number of US online bill payment from 48 million in 2009 to over 80 million in 2016. Yongo (2013) found increase in mobile-only banking while decline PC-only banking over the past year. Role of IT has been instrumental in the global expansion of Indian banks. According to Barnes and Corbitt (2003), banks are trying to offer their customers not just anytime banking but anywhere and anytime banking through appropriate application of developments in the information technology area.

A study across conducted by Comscore (2011) shows increase in visits to online banking sites by Southeast Asian customers like in Malaysia, Hong Kong and Indonesia. The effect of same can be seen in the Indian banking sector as well. But Indian banks have been late starter in the adoption of banking technology for automation of processes and the integrated banking services. Padmanabhan (2012a) found that over the past few decades Indian banking sector have been investing considerable amount of money in information technology with the objective to improve product innovation, operational efficiency and competitive ability in the financial industry. Shanbaug (2013) in his research described about how e-channels can save more money was provided by. According to Sreelatha and Sekhar (2012), 97.8 percent public sector banks are fully computerized at end of March, 2010 whereas all branches of State Bank are completely computerized. As per the status provided by “Internetlivestats”, the total Internet users in India are estimated by 2016 is 350,000,000. India has been identified as the fastest growing online market during 2014-2015, **with a 41% rise in the internet usage.** These benefits in fact help customers in adoption of green banking technologies offered by banks. Table 1 shows upward growth in ECS, credit and debit card and NEFT and RTGS based transactions.

Table 1
Volume and Value of E-Transactions

Item	Volume in million			Value in billion (INR)		
	2013-14	2014-15	Difference	2013-14	2014-15	Difference
RTGS	81.11	92.78	11.67	904,968.04	929,332.89	24364.85
NEFT	661.01	927.55	266.54	43,785.52	59,803.83	16018.31
ECS	192.91	226.01	33.1	1,267.96	1,739.78	471.82
Plastic cards	6,707.10	7,804.57	1097.47	20,602.86	23,492.65	2889.79

Source: RBI (2015)

Table 2 presents information on payments transactions from the industry and various participating banks.

Table 2
Payment Transactions through Various Modes

Metric	Overall Industry 2012-13
Percentage of paper-based transactions	43%
Percentage of electronic transactions	57%
Percentage of funds transferred using paper medium	9%
Percentage of funds transferred using electronic medium	91%

Source: IBA (2013)

Above table clearly shows that there is steep decline in traditional banking based transactions when compared to transactions conducted through E-banking. After introducing electronic banking, Indian banking sector now shifted their focus towards sustainable development. While discussing usage of green power by Indian banks Meena (2013) stated that SBI has become the first bank in the country to venture into generation of green power by installing windmills for captive use. Banks need to make changes in their management practices by the way of interaction with their customers and put attention on relationship, communication and innovative banking techniques [Kirakosyan and Danaiața (2014)].

In brick and mortar banking not only banks but customers also make use of massive quantities of paper for internal as well as external office correspondence. Switching over to electronic correspondence and reporting would be highly beneficial, Meena (2013). According to Jeucken and Bouma (1999), banks can develop more sustainable banking products, such as environmental or ethical investment funds. Green banking is required for sustainable economic growth. According to [Rajesh and Dileep (2014) and Spies-Wallbaum (2002)] sustainable development is crucial to protect our planet from the depredation inflicted on it by mankind.

According to [Turk et al. (2003) and The Financial Development Report (2008)], increasing the energy efficiency can be considered as significant improvement opportunity and should have a prominent position in the environmental management system. But security and trust has emerged as biggest obstacles in the adoption and usage of E-banking. According to Brar et al., (2015) customers still avoid transacting through online channels due to the insecure Internet environment. Past studies showed that security, privacy and trust constituted a key barrier in the use of E-banking as well as long term commitment to the relationship building. Martins et al (2014) reveals that perceived risk is an important factor that affects customer's intention to use online channels. No matter how many online channels, services and green technologies are adopted by banks, the success primarily depends upon customer's trust on secure channels and transactions. Because without assuring the customers about secured channels, there will be no adoption of green banking. Padmanabhan (2012b) found that customers were reluctant to give up brick and mortar branches. Even the keenest E-banking customers wanted convenience of physical branches. There was an argument that E-banking involves complexity, and it also leads to increased costs. Further, security concerns like phishing and fake websites were also used to argue against the existence of E-banking.[Moreland et al. (2009) and Dandash et al. (2008)] observed that trusted environment must be established between service provider and all users before carrying out any transaction. The more a user trusted the bank and its website, the higher their belief that online banking was easy [Alnsour and AL-hyari (2011)].The main objective of this study is to check the awareness of green banking among business customers and also to analyze the factors that have direct or indirect impact on adoption and usage of green banking.

2. Research Methodology

The study attempts to examine the perspective of public and private sector banks towards green technologies in the year 2016. In order to take bankers view point, a random sample of

50 respondents who were working as IT managers, front line managers or branch managers has been taken for the purpose of present study. This study primarily concentrates on banks operating in Gurgaon region and that are providing E-banking services for more than one year. Rural sectors and rural banks have not been considered for the present study. For analyzing the data Chi-square, Cramer's V and Garret ranking technique was used.

3. Analysis

Table 3
Analyzing Usage of Banking Channels

Channel	Type of Bank	Yes	No	Statistical results
Internet banking	Public	56.8%	43.2%	$\chi^2= 0.045$, DF=1, Cramer's V= .561
	Private	61.4%	38.6%	
Mobile banking	Public	15.8%	84.2%	$\chi^2= 3.127$, DF=2, Cramer's V= .034
	Private	13.8%	86.2%	
ATM	Public	62.7%	37.3%	$\chi^2= 1.443$, DF=2, Cramer's V= .154
	Private	83.1%	16.9%	
Branch Banking	Public	70.4%	29.6%	$\chi^2= 0.012$, DF=1, Cramer's V= .457
	Private	65.5%	34.5%	

Note: χ^2 = Chi-square; DF= Degree of freedom; CRV= Cramer's V, **Source:** Primary survey

According to majority of respondents among types of banks highest (61.4%) percentage of Internet banking usage was reported by private sector banks and lowest (56.8%) percentage were reported by public sector banks (refer Table 3). Chi-square test applied to table 3 shows there is association between type of bank and internet banking usage because chi-square value (.045) is significant ($P>.05$). While considering usage of mobile banking, it was found that majority of respondents from the entire different bank groups were not motivated for using this channel as very low percentage of respondents reported usage of M-banking. Chi-square test applied to table 3 shows there is no association between type of bank and M-banking usage because chi-square value (3.127) is insignificant ($P>.05$).

ATM mode of banking is much preferred mode of usage, as it was found that majority of respondents from bank groups think customers use ATM because it is convenient and easy to use. Chi-square test applied to table3 shows there is no association between type of bank and ATM usage because chi-square value (1.443) is insignificant ($P>.05$). However, considerable percentage of respondents reported highest percentage of branch banking by customers. Chi-square test applied to table 3 shows there is association between type of bank and branch banking usage because chi-square value (.012) is significant ($P>.05$).

According to Yu and Fleming (2003) channel preferences has primarily based on satisfaction level of customers with specific channel. If customers are more satisfied only then they prefer specific channel for banking services. While Nielsen (2014) identified five segments with distinct demographics, banking behaviors and service desires and E-banking usage pattern mainly depends upon these patterns. Nowadays, customers expect highly personalized, convenient, and reliable service, along with 24/7 accessibility. Banks need to leverage technology to provide quick and personalized service to customers through various channels, while ensuring a consistent experience across all channels, Capgemini (2013).

Table4
Awareness towards Environmental Benefits of Green Banking

Group	Sub-Group	Yes	No	Statistical Results
Bank group	Public	53.0%	47.0%	$\chi^2=1.351$, DF=2, CRV=.163
	Private	72.1%	27.9%	

Note: χ^2 = Chi-square; DF= Degree of freedom; CRV= Cramer's V; Source: Primary Survey

Table 4 shows lowest percentage of respondents (53%) from public sector banks was found to be aware about benefits offered by green banking. On the other hand 72.1% respondents from private sector banks were found to be aware about green banking benefits. This shows respondents from public sector banks lacks awareness about benefits of green banking. Chi-square test applied to table 4 shows there is no association between type of bank and awareness level towards environmental benefits of green banking because chi-square value (1.351) is insignificant ($P > .05$). According to IDRBT (2013) foreign banks are found to be more enthusiastic about green banking and they are practicing in a much serious manner as compared to Indian banks. Number of foreign banks have introduced a formal Environmental and Social (E&S) risk policy and also participant of the Equator Principles (EP) and moved ahead reducing annual paper consumption and continue to reduce energy and water consumption, etc. On the other hand Indian banks are still taking baby steps into this form of banking.

Table 5
Ranking of Channels

Awareness about products & services	1	2	3	4	Garret Score	Average	Rank
Online channels	3400	1870	1560	200	7030	70.30	I
Newspaper and magazines	3389	1423	1186	123	6121	61.21	II
Television	3211	1289	990	32	5522	55.22	III
Telephone	3182	1367	550	421	5520	55.20	IV

Source: Primary Survey

It has been observed from Table 5 that banks prefer to provide information about their products and services through online channels. It is followed by using paper based channels like newspapers and magazines. Television medium and telephone medium take third and fourth position. This confirms that even after adopting green banking, banks are still dependent upon traditional paper based mediums. The reason behind this scenario is problems related to access to Internet. According to Sahoo and Nayak (2008) banking sector is generally considered as environmental friendly in terms of emissions and pollutions. But if we look at respondents' responses it was found that besides adopting electronic channels, banks still prefer paper based channels which mean a step backward towards environment loss. Through their intermediary role, banks may be able to support progress toward sustainability by society, Jeucken and Bouma (1999).

Table 6
Ranking of Issues Related To Banking

Issues	1	2	3	4	Garret Score	Average	Rank
Security and privacy of data	4212	2198	455	54	6919	69.19	I
Human touch is vital in banking	3422	1542	1002	144	6110	61.1	II
Bank's brand name and image	3200	1500	450	432	5582	55.82	III
Environmental friendly services	2553	1677	1080	200	5510	55.1	IV

Source: Primary Survey

It has been observed from Table 6 that security and privacy are the most important issues for bankers. It is followed by importance of human touch in financial services. The main reason behind preferring human touch is fear of financial loss. Third important issue as per respondents is brand name and bank's image. It is concluded that customers were more concerned about their online security and privacy rather than about green banking adoption by banks. Environmental friendly services come at the last position; it means banks have not considered it much important.

Problems related to security and privacy issues were considered important by all the respondents. Business customers believe more in transacting through online channels but security of online transactions and fear of information theft has been important issue for all

the respondents. In fact, due to this issue lack of adoption or less usage of green banking has been reported [Nor and Pearson (2007); Gefen et al. (2003) and Jarvenpaa et al. (2000)]. According to Alsajjan and Dennis (2006), major benefits of Online Banking include cost savings for banks, and convenience for customers. Malhotra and Singh (2009) found that slowly but steadily, the Indian customer is moving towards Internet banking. But they are concerned about issues such as security and privacy. [Chickowski (2006) and Klein (2007)] described that over a third of bank customers would move to another bank after only a single security breach.

Table 7
E-Banking Has Positive Effect on Sustainable Development

Group	Sub Group	Yes	No	Don't Know	Statistical Results
Bank group	Public	50.0%	44.0%	6.0%	$\chi^2 = 0.044$, DF=2, CRV= .086
	Private	72.1%	20.4%	7.5%	

Note: χ^2 = Chi-square; DF= Degree of freedom; CRV= Cramer's V; Source: Primary Survey

Table 7 shows respondents from all the two bank groups think that green banking has positive effect on sustainable development, while percentage (more than 70%) of respondents who support this view were from private sector banks as compared to respondents from public sector banks. Significant chi-square value (0.044) shows there is association between type of bank and effect of E-banking on sustainable development.

4. Conclusion and Recommendations

There were number of aspects that affect adoption of green technologies by banks like enhancing environmental, social, and financial well being of communities, and choice for customers and businesses, active lending to sustainable businesses and also green credit being provided to the customers. It aids in sustainable economic growth by reducing pollution and thus saving the environment. But in developing countries like India, there has not been much initiative in this regard by financial institutions. They are not as green as foreign banks. As initially, these commitments will cause a huge financial burden for Indian banks and banking sector as a whole. It was found that private sector banks were ahead in terms of offering online services and using online mediums for providing awareness to customers. On the other hand public sector banks were less motivated in terms of using and motivating customers about green technologies. After adopting green banking, it was found that banks still depend upon paper based mediums for advertising their products and services.

5. Limitations and Future Research Directions

This study has presented some important comprehensions on green-banking which comprises number of limitations that need to be acknowledged. There are many probable environmental and economic benefits of E-banking. However, these latent investments might be countered by added processes and ICT requirements. For instance banks need space for IT infrastructure and also it has their own energy requirements. Moreover, E-waste is also another major problem organizations are facing.

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