

Recent Advances in Green Finance



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Abstract: Although the concept of green finance is at nascent stage in India yet it has acquired tremendous attention in modern financial market. Lack of interest from the investors and ineffective policies of government have brought the scope of green finance down in India. But in recent few years the real prospective and importance of green finance is being recognized by the investors. A number of research papers exist particularly on green finance and relation with its stakeholders. Researchers are doing brilliant work in this area. In this paper we review the current scenario of Green finance and try to find out current research directions based on the recently published work on green finance. This review enables us to know the mature area of research and area that needs future exploration. Eventually we highlight the current and future research area and present a critical analysis on green finance.

Key Words: Green finance, financial market, ineffective policies, investor, stakeholders.

I. INTRODUCTION

Green finance has acquired tremendous attention in modern financial market by issuing the following instrument, green bonds, green equity and green debenture. The first green bond issued by the world bank in 2008 when the intergovernmental of climate change provided the data on climate change and its political and economical impact. The report depicted an undeniable link between human action and global warming, the report also told about the increasing occurrences of natural disaster. After the deep investigation of report the World Bank wanted to take some corrective step which can reduce the risk of investor and with positive impacts. From that point of time green bond became the history making event which fundamentally changed way of investment (World Bank, 2019).

Although the first green bond issued by the World Bank in 2007 yet it came in India very late. In 2017 Indian Renewable Energy development agency (IREDA) has launched first Masala Bonds and raised \$300 million for renewable energy (London stock exchange group, 2017). India set the target of reducing carbon emission intensity of GDP 33 to 35 % by the 2030 under the national determination goals and made the announcement that it becomes the first country in the world which will use only electronic vehicles by 2030.

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In India, banks whether they are private or public associated themselves Initiatives for the promotion of the sustainable growth especially in Micro Medium and small enterprises and they were trying to contribute towards sustainability in many ways.

The first Green Bond issued by Yes Bank in 2015 raised over 1000 cr. by floating green infra bond and EXIM Bank also raised 500 million dollar by issuing green dollar bonds in 2016 (World Bank, 2019).

The word Green Finance is the combination of two words Green and Finance. The term green refers to any activity which is linked with environmental conservation means any process by which we can reduce the use of natural resources or we can create new sources comes under the premises of green. Where term finance refers a process of managing money as well as currency. Thus the term green finance means any financial activity which is related with environmental conservation and generation of new renewable energy sources.

Green finance is an emerging area of finance that has application in the process of amalgamation of environmental protection with economic benefits. The term incorporate a wide range of environmental friendly technologies, projects, industries and it also verifies whether it is a feasible concept for balancing ecological depreciation in the process of digestion (Illic and Stojnovic et al, 2018).

There is no standard definition of green finance. Green Finance means finance best the ones initiatives and agencies which shield or less deteriorates the surroundings. It considers the positive and effective environmental results even as financing the tasks and business investment in renewable electricity, strength efficiency, clean energy, management of pollution, waste management, water sanitation, mitigation and adoption strategies of climate change, bio-diversity safety and improvement of green merchandise for stop person like material- cotton bag etc. Green finance refers to financial keep meant for sustainable improvement. It consists of both public and private finance (Reddy, 2018).

Following are the importance of the green finance

It protects the natural resources for the future generation.

It helps in fulfilling the objectives which were taken under the go green initiative?

It make investment instrument more attractive.

It creates a culture of conservation.

It develops a sense of responsibility towards nation.

Now it is widely accepted that the green finance is not only useful for the environment but also for its stake holder. Like very thing green finance has also some drawbacks like low returns, complex process and lack of awareness but overall it is a useful concept for tackling the environmental problems.

II. OBJECTIVES OF THE STUDY

- I. To understand the concept of green finance.
- II. To get acquainted with the new research direction in the area of green finance.
- III. To review the available literature on green finance.

III. RESEARCH METHODOLOGY

This is the exploratory research where the existing literature available on green finance has been reviewed so that new research direction in this area can be enlightened.

IV. A SURVEY OF GREEN FINANCE RESEARCH

Various researchers are in development on 'The exceptional elements of green finance'. However a speedy increase has been visualized these days. Some big contributions undergo weight and appear valuable among all. Some of the research papers of various authors are in brief concluded that green finance practice provides a way to understand the vision of environmental conservation in nowadays' environmental degrading situations.

Bielinski and Mosionek et al (2019) concluded that regardless the fact that EU leads the world's shift towards sustainable economy, there is much more investment needed in the sector such as renovation and energy efficient building, renewable energy generation and transmission and low carbon transportation. They further explained that private sector can become the major source financing for pre- environmental policies.

Su and Liao (2019) diagnosed on the basis of the past ten year data of stock return of energy efficient firm and with the help of high dimensional model of time series that there are three change points in the common components of stock return on energy firm, but the component which are idiosyncratic do not have change points. Macroeconomic news has heterogeneous impact on the stock market returns on energy firms.

Pereira and Pereira (2019) concluded that feed in tariff finance by a carbon tax leads unfavourable macroeconomic and regressive distributional welfare effects. On the opposite hand he defined that use of the carbon tax sales to finance a feed in tariff is an improvement over the simple carbon tax case alongside all the applicable policy dimensions and whilst the feed in tariff mechanism brought carbon tax it results in a better surroundings outcome.

Tuminen and Reda (2019) suggested CEA (cost effective analysis) method and demonstrated its usefulness in the appraisal of energy efficient investments in buildings. The author said that the low investment scenario had a cost of 0.26 USD/KWH for energy saved, whereas in the high investment scenario had a cost of 0.60 USD/KWH. The author further described that a systematic appraisal of cost-effectiveness of alternative energy efficiency projects would allow to point out the most effective ones in terms of energy saved per money spent.

Shrimali (2019) presented a initial insights into the clean energy listed equity as a separate asset class have a existing portfolios. The author targeted on the price of listed renewable strength fairness in a static portfolio optimization trouble. The main locating of this examine is treating

renewable power listed equity as a separate asset class inside an investor's portfolio did not appear to feature value to that portfolio. On different hand, the exceptional assets magnificence might mirror the want for applying more state-of-the-art techniques to reveal value.

Yoram Krozer (2019) explained that a global shift to low-carbon economies needs five times larger annual investments in renewable energy and energy efficiency compared to the present and this can be done through public savings. If good conditions are created, activation of these savings is sufficiently large and it is rewarding regarding the cost-reducing technological change, then it will help in shifting towards low carbon economy.

Stojanovic and Djukic (2019) analyzed the sustainability of green economy financing, for figuring out how and to what extent green financial system is financed in the Republic of Serbia, the international locations of the ASEAN Association and what the financial contraptions for accomplishing green boom are. The evaluation is positioned on inexperienced bonds, modern-day securities, in addition to the effect they have got on global projects for using renewable electricity sources.

Novkovska (2019) contributed this work towards the fields of hidden economy and green economy. The author demonstrated that relative efficiency of the hidden economy with respect to the regular economy fluctuates in large interval, means that there are significant differences between the both the economies. Simultaneously, the author found that the high extent of hidden economy is connected with low energy efficiency, which suggested that the policies which aim at reduction of hidden economy and that of increase of the energy efficiency have to be established and further developed in coordinated manner.

Sai and Reddy (2018) explained the current status of green finance in India. He said that the growth of green finance in India is at very low stage. However government of India has taken many steps for its promotion. The author also explained the constraints of green finance in Indian context with remedies for removing constraints like Government should bring stable policy framework for green finance which encourages private sector to finance sustainable development programs.

Stojanovic and Illic (2018) paid the special attention towards the development of market mechanism and policy formulation of green finance for the long term sustainable development. Green finance is an emerging area of finance that has application in the process of amalgamation of environmental protection with economic benefits. The term incorporate a wide range of environmental friendly technologies, projects, industries and it also verifies whether it is a feasible concept for balancing ecological depreciation in the process of digestion

Harper Ho (2018) examined the China's latest green credit reforms as a test case of banks' ability to monitor and price corporate borrowers' environmental and social risk. he shown the scale of green credit issued by China's largest banks has increased exponentially in recent years,

and the green finance policies adopted by the china banking and insurance regulation commission (CBIRC) and other regulators are motivating top-tier financial institutions to implement environmental and social credit risk monitoring systems. These developments confirm the importance of banks' monitoring role as green finance gatekeepers, particularly in markets like China's where debt financing predominates.

Joseph (2017) depicted the idea of green finance in Indian context and his simplest consciousness at the importance of green finance in exceptional ways. He additionally defined the steps taken by way of the authorities of India for application of inexperienced finance through diverse schemes. He also advised that wherein India is standing in case of green finance and the way it's going to improve its function in close to destiny. The author defined that Green finance is a core part of low carbon because it connects the financial industry, environmental improvement and financial increase and these kinds of are important for united states like India to maintain in longer term.

Lemmen (2017) made a comparison between old financial instruments and green bonds and concluded that the investor's attention towards green bonds increasing and also said that the proceeds of green bonds are channelizing into environmental friendly project. The author observed that the significance of green finance is constantly increasing over time so it can be said investment in Green Bonds is a step towards the fight against climate change

Welling(2017) found out that green investments are vital as they lessen carbon emissions via imparting low electricity deliver, increasing energy-performance, and sequestration of carbon but the creator additionally described the critical difficulties of Green Finance; specifically rapid technological progress, the dependence of governmental assist, excessive uncertainties, and, especially the interplay of such a lot of actors.

Cui (2017) explained that green credit is an expanding product or service that grows at a faster rate than total loans, Allocating large shares of green credit to the loan portfolio can reduce credit risk (i.e., NPL ratio of the bank) and Green Credit Policy is an effective policy which accomplishes positive outcomes through its implementation. The author further demonstrated that an increase in the growth rate of green credit has a positive effect on the growth rate of total loans and a positive correlation is find between sustainability performance and credit risk.

Christensson and Skagestad (2017) concluded that there is no significant difference between in the performance of sustainable and conventional funds in emerging markets. The author also revealed that Sustainable funds are significantly less exposed to the market portfolio compared to conventional funds; this is just because of negative screening of funds. The author also discovered sustainable funds into a great extent exposing itself towards small companies compared to conventional funds during the recovery period.

Rahman and Barua (2016) described that the performance of banks in Bangladesh according to Green banking Guidelines is not satisfactory and a range education and awareness programs should be arranged by Bangladesh banks for employee and customers. The performance of

scheduled banks has not been very impressive but the banks did fairly well in terms of use of funds allocated for the purpose in the last few quarters. Through this study the author evidenced that state-owned banks are the worst performers with the lowest implementation level of the GBG while foreign banks are the top performers.

Wang and Zhi (2016) explained that Green finance is an innovative economic pattern aimed toward the environmental protection and the accomplishment of sustainable usage of resources the author similarly stated that if the market mechanism of green finance is rational, inexperienced finance can guide the flow of finances and attain powerful control of environmental danger and ideal allocation of environmental sources and social sources.

Acheampong (2016) described that the circular economic system (CE) has been recognized as a catalyst in sustainable development and economic growth that has the capacity to transport society from the traditional linear model of aid intake, in the shape of take-make-waste to an progressive circular model in the shape of reduce-reuse-recycle. Circular financial system organizations do now not want economic help from the authorities or from its agencies to success. The creator reported that their lengthy-time period success relies upon on its capability to remain revolutionary in its business fashions.

Wyk (2014) explained that sustainability is a more appropriate approach for building and construction because it recognizes people and institution as the primary actors that benefited from change. Green building is the process of integrating the constructional work with environment sustainability. The author further explained that green building assessment criteria meets the imperatives of sustainability.

Sudhalakhmi and Chinnadori (2014) explained that Green finance is a core part of low carbon green growth because it connects the financial industry, environmental improvement and economic growth.

Nath and Nayak et al (2014) described that Green banks are the at the start-up mode in India. They should expand the use of environmental information in their business operation, credit extension and investment decision. This endeavour will help them to improve environmental performance and creating long term value for their business.

Shipochka (2013) concluded that personal values and beliefs are deciding factor for green investors when investment is considered because the idea behind green investments is based on some personal values and beliefs. The author further said that the future prices of the energy will not be cheaper because it involves some cost of capital which may higher from the traditional source of energy. The author also explained that green investment is not a bubble because this sector has long term sustainability and it is an alternative source of supply.

Chowdhury and Datta et al (2013) explained that green finance is a powerful major the use of which will reduce the green house gas emission and green building saves energy and keeps healthy environment. The author further explained that green finance has the ability to generate equal return compare to the traditional instrument.

Keerti (2013) described that India’s energy area is not capable of keep peace with the excessive financial boom fee inside the use which results in the trouble of chronic energy cut and lack. The creator further defined that the Indian government is more and more targeted at the renewable electricity area for minimizing the dependency at the import of power. The creator additionally defined that Climate Change has a drastic reason and effect courting with agriculture and rural improvement activities, sports like forestry, agriculture and different land use activities, like dairy, soil conservation, strength use practices, use of renewable energy, and so forth. Have incredible potential for decreasing emission of GHG.

Dubey and Venkatesh et al (2013) described that Green Procurement practices positively impact the customer satisfaction and market share. The Green Procurement Suggests that effective purchasing management strengthens the supply chain and win customer and also improve customer services.

Milan (2012) addressed the concept of Sustainable Finances from different approaches and through a variety of research tools. First he summarized the related literature in order to understand the main characteristics of sustainable finances and concluded that Sustainable Finances is a dynamic concept, it is a process, not a final aim, with many positive outcomes and the concept of sustainable finances is not yet mature enough.

Fevero and Massetti et al (2012) explained that low carbon economy is induced by global carbon Taxation and climate policy reduces investment in generics capital goods which is used together with labour and energy

Eyraund and Wane et al (2011) explained that Renewable Green energy has become a global phenomenon. At the same time, the regional composition of Green energy has changed dramatically in recent years. China became the country with the largest investment in renewable in 2009, and had invested more in renewable energy than Europe as a whole in 2010.

Schlegelmich and Bohlen et al. (2010) explained if you want to function their green product offerings, agencies ought to first segment the market consistent with ranges of pro-environmental buy behaviour and then target the green patron segments. The author further stated that attitudes are the most constant predictor of pro environmental purchasing behaviour and the businesses which can be aiming to boom market penetration for present green product services would be recommended to broaden campaigns directed at growing

V. RESULT ANALYSIS

After critical analysis of the previous studies it can be said that a tremendous work has done in the field of green finance. Some said that green finance is an emerging form of sustainable development (Hoshen and Hasan et al, 2017). While some said that Green finance is a phenomenon that mixes the world of finance and commercial enterprise with environmentally pleasant behaviour. It is an arena for lots participants, consisting of man or woman and enterprise clients, manufacturers, traders, and monetary creditors. Green finance can be expressed otherwise depending at the player, and it is able to be led by using monetary incentives,

a desire to hold the planet, or a mixture of each. Contrary to the traditional monetary sports, green finance emphasizes more at the ecological environment gain and pays greater attention to environmental protection enterprise (Wang and Zhi, 2016).

The perception is dispersing that settling down the nice circulate shape among the enterprise development and the surroundings by using changing the traditional industries to the low-carbon structured industry (Noh, 2010).

Green banking is furnished to make sure the use of organizational resources for the environment and society. The Bangladesh Bank is the world's first principal bank which has taken actual tasks to open the way of the Green Banking method. With sure tips and criminal framework, the principal bank of Bangladesh known as on all the industrial banks of Bangladesh to broaden their own green banking policies (Islam et al, 2014).

In comparison the sports of the global green banking initiative to find out the activities of commercial banks. They use second records from related web sites, published reviews and articles. They concluded that Bangladesh became a long way far away from the evolved countries (Masukujjaman and Aktar, 2013).

After going through the previous studies it can be stated that Green finance is that branch of modern finance which focuses on environmental sustainability along with the profitability of the interested parties. It includes all the measures which have far reaching impact on the positive side of the environment and ensures the preservation and conservation of the environmental resources for the future generation. Green finance include measures like granting loans at lower interest rate than market rate for environmental projects, raising money through green bonds, forestry securitization, weather derivatives, nature linked securities, using e- payment services, using electronic vehicles and all other practices which either reduces the use of natural resources or creates new sources which the help of financial activities. Following below section is depicting the results of this study.

Table No. 1: Future direction of Green Finance

S. N.	Future Directions for Research
1.	An analysis can be done between information gap and Green Finance decisions.
2.	Effects of psychological factors on Green finance practices.
3.	A relationship analysis can be done between demographical factors and green finance.
4.	A relationship analysis can be done between investment culture and green finance.
5.	A comparative analysis of green finance can be done between the two developed and developing countries.
6.	A study can be conducted on feed back analysis of green finance stakeholders

The above table is showing the new emerging area of green finance and working in these areas may become a major contribution in area of Finance.



VI. CONCLUSION AND FUTURE WORK

Green finance research community made a significant progress instead of many challenges. At the same time a number new green instrument, a number of efforts seen by the different countries and organization increased drastically. After analysis of the past studies, we presented a number of research area in where future studies can be done out of which area like effects of psychological factors on green finance practices and motives behind green finance is very radiant. These area are still untouched by the researcher. Researches' in this area can make a significant contribution in exiting body of knowledge of finance. This contribution will not only be in the form of theoretical contribution but it has practical implication too. Overall we can say the work done in the area of green finance is good but not up the desired level. However it is evidenced that the work is being reported is significant, conclusive and effective to state some aspects of green finance.

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