

Analysis on Green Finance A Way to Sustainability and the Role of Financial Regulators and Financial Institutions

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Abstract: The days are long gone when profit was the only driving force behind any and all organisations wherever in the world. The importance of preserving natural resources and ensuring the health of the environment is growing in all spheres of society right now. Researchers from all around the world have been working tirelessly to find novel approaches to meeting the challenge of achieving sustainability in their work. Financing for projects that safeguard the environment, mitigate the consequences of climate change, increase renewable energy production, expand green space, and other similar endeavours is known as "green financing." Green financing can also be used to describe initiatives aimed at expanding the area's natural vegetation. The essay delves into the ins and outs of green banking, green insurance, and green bonds as elements of green financing. In addition to this, it uses the literature that already exists to analyse the opportunities and obstacles facing green finance in developing countries like India and makes an effort to provide fresh perspectives on green finance's potential as a powerful instrument for achieving sustainability.

Keywords: Green Finance, Sustainable Development, Green Investment Product, Awareness.

1. Introduction

More people are paying attention to the need to safeguard the environment and preserve natural resources due to ozone depletion, global warming, growing pollution levels, fierce competition for finite nonrenewable energy sources, and other environmental challenges. The green finance movement centres on the intersection of economic sustainability and environmental conservation. There isn't a precise definition of "Green finance," but broadly speaking it refers to funding for initiatives that aim to improve sustainability in some way, such as "green" building construction, energy and waste management improvements, biodiversity conservation efforts, and renewable energy initiatives. The funding levels provided by the public sector are insufficient to complete these initiatives. To keep up with the expanding needs, we must support private sector initiatives and international investments. Problems in fundraising and spending those monies call for both a regulatory framework and appropriate policy responses.

Human activity is the principal cause of global warming, as determined by the most recent IPCC assessment (IPCC 2018), and temperatures are expected to rise by 1.5 °C above pre-industrial levels by 2052 if the current trends continue. According to the IPCC study, we need to reduce global net anthropogenic CO₂ emissions by 45 percent below 2010 levels by 2030, and get them down to zero by about 2050. To keep global warming below 1.5 °C, drastic measures must be taken to reduce emissions from all sources across society.

The sum of money needed to effect such a radical change in the organization's structure is tremendous. The International Panel on Climate Change estimates that between \$1.6 and \$3.8 trillion will need to be invested annually in the energy supply side of the system between now and 2050, with \$2.4 trillion of that total earmarked for investments in clean energy. This is an estimate of global investments in energy between \$51.2 and \$122.2 trillion. The financial sector is the backbone of the real economy when it comes to meeting the large investment needs (OECD, 2017).

The financial system is feeling the effects of climate change because it is having an impact across all industries and areas and because it is almost clear that new hazards will emerge with irreversible repercussions if action is not taken immediately. Although climate change risks have been studied and accounted for in certain ways in present asset valuation, this work is far from comprehensive (NGFS 2019).

Banks play an important role in financing the transition to a green economy by freeing up private investments, linking supply and demand, evaluating projects from both an economic and environmental standpoint, and considering all relevant risks.

The bulk of financial institutions still have a very modest green portfolio, despite the fact that some have proven to be pioneers in green financing or climate change projects. Approximately USD 1.5 trillion in green loans and credits were extended by developing countries banks to the private sector in 2016, according to the International Finance Corporation (IFC) (IFC 2018a).

1.1 Research Objective

- Spreading knowledge about Green Finance.

- Contributing to the knowledge of Sustainable environment using Green Finance.
- Suggest methods to make Green finance projects profitable.

1.2 Research Gaps

- The difficulties include issues with information asymmetry, insufficient analytical capacity, and a murky definition of "green" in green finance, among others.
- The relatively limited time horizon of savers and investors creates a mismatch between green investments with short and long terms.
- There is little coordination between financial and environmental policies, and there is a lack of information about the government's commitment to the green economy's transition.

1.3 Benefits of Green Finance

The implementation of green financing will be beneficial not just to the environment but also to the economy. It contributes to achieving harmony between the economic component and the natural world.

The following are some of the many advantages available:

- 1) **Efficient energy management:** Green finance makes available a variety of financial incentives for the installation and utilisation of various forms of renewable energy resources. Additionally, green financing makes available funding for initiatives that attempt to cut down on energy waste. Therefore, effective management of energy can be accomplished.
- 2) **Environmental protection:** Environmental protection is an essential component of green financing, the primary focus of which is on providing financial support for initiatives that are geared towards achieving sustainable development. Therefore, this concept will help with tasks that are vital to the survival of living things, such as lowering pollution, adapting to climate change, lowering ozone depletion, preserving biodiversity, and so on.
- 3) **Enhances reputation:** As more people look to make a difference in the world through their investments, those looking to do good in the world will prioritise businesses that focus on protecting the environment. The government, too, offers subsidies for green building. As a result, businesses will benefit from green finance in the long run.
- 4) **Helps in attracting FDI:** Globally, more people are worried about preserving the environment. Therefore, outside investors will weigh the social costs and advantages of local projects before committing capital to domestic firms. Thus, attracting foreign direct investment will be facilitated by issuing green investment vehicles.

2. Literature Review

The adoption of socially and ecologically responsible corporate practises is quickly becoming a global standard, and green banking is quickly becoming a global standard. This form of banking is not harmful to the environment because it stops the degradation of the natural world and makes the planet a better livable place. In the field of environmentally responsible banking, the word "green banking" has gained popular over the course of the past few decades. Sustainable banking is another name for green banking. With the ultimate aim of assuring long-term economic development, this form of banking helps to reduce environmental damage around the world (Islam, Roy, Miah, & Das, 2020). Sustainable banking is another name for green banking.

In order to preserve and improve the quality of our natural environment, we need to take a number of concrete steps. These steps should concentrate on the corporate level and the establishment of a suitable centre to address environmental concerns and advance greening activities at the business level (Islam, 2020).

A better understanding of green bonds and other climate change-related financial instruments is important to keep up with the rapid growth of green finance and the need for even quicker market development in order to satisfy the internationally agreed-upon targets. Scholars and academics have recently become interested in "green finance," and as a result, the current body of literature on "green bonds" has been enlarged with fresh additions. The media, lawmakers, and market institutions, as well as academics, are all looking into this relatively new financial vehicle. This has resulted in a growing and increasingly diverse body of economic literature on green bonds. We consider a narrative literature review is required to bring the current academic effort in this cutting-edge field of research into some semblance of order. Without emphasising that the empirical green bond works are not so large that they would be impossible to review in their entirety, a literature review would be lacking. It is currently an urgent necessity to build a more sustainable economy, and it is becoming increasingly clear that green bonds can contribute to this construction (Tolliver et al. 2020a). As a result, a greater understanding of the phenomenon is crucial for fostering its growth and aiding in the creation of a circular economy. According to Tolliver et al. (2020b), "green bonds" can contribute to a more

environmentally friendly economy. As a consequence of this, the overarching purpose of this paper is to propose certain research avenues that have not yet been investigated (or that have not been updated) for the purpose of future studies and to provide support for the utilisation of this method for the expansion of the market.

Liaw (2020) conducted a comprehensive analysis of the research published on green bonds. Each of the aforementioned literature evaluations, as shown in Table 1, has mostly concentrated on the so-called "Greenium" or "green bond premium," however our paper has addressed both of these issues. Green bonds have been examined extensively in recent years, despite Greenium's notoriety as a highly intriguing and much debated phenomenon in academia.

Table 1 Key features of prior literature assessments of green bonds.

Title	Authors	Topic	Methodology
Survey of Green Bond Pricing and Investment Performance	Liaw (2020)	Green bond premium	Not a standardized literature selection model
Is there a green premium in the green bond market? Systematic literature review revealing premium determinants	MacAskill et al. (2021)	Green bond premium	Systematic literature review

Credit quality and liquidity's effect on the yield spread of corporate green bonds were studied by Chang et al. (2021) using a panel data analysis. Difference in yield between government treasury bonds and corporate green bonds is referred to as the yield spread on corporate green bonds. They bolster prior bond evidence suggesting an adverse relationship between credit grade and market liquidity and yield spread.

The converse pattern was also seen, with a positive yield spread between green and non-green bonds. Green bonds are somewhat more expensive for the issuer than non-green bonds, as evidenced by a little positive premium (0.5 bps) discovered by Larcker and Watts (2020) in their analysis of a pool of 640 US municipal green bonds. The poorer creditworthiness of green bonds led to this conclusion. In addition, the authors did not discover any discernible distinction in yield between green and non-green bonds of equivalent risk. This is due to the fact that the yield from the difference is zero in 85% of all examples.

The issuer's perspective was explained to Greenium by Karpf and Mandel (2018). Since green bond issuers are assumed to have stronger economic and credit foundations, the study's authors reasoned that this factor was responsible for the lower pricing of green bonds. Because of the higher perceived risk associated with green bonds, investors may demand a lower yield from them.

According to Partridge and Medda (2020), bond traders' ability to resale green bonds for higher prices due to the instrument's relative rarity provides sufficient rationale for the Greenium's existence in the secondary market rather than the primary market. This allowed Partridge and Medda to guard the Greenium. The authors argue that a green bond issuer (together with the banks that are developing their offering packages) cannot have comparable information in their offerings if they want to boost performance. This is the same situation that secondary market merchants face.

The multi-criteria decision-making Analytic Hierarchy Process (AHP) technique was used by Tu et al. (2020a) on a group of experts in the field. With this method, we can assess how many factors have affected the growth of the green bond market in Vietnam. The outcomes validated the significance of a conducive legislative environment and steady monetary policy in expanding Vietnam's green bond market. In order to give decision-makers with meaningful signals to help orient their judgements, this contribution is original and novel and should be replicated in diverse geographic locations.

Countries with strong international green commitments (high National Determined Contributions within the framework of the Paris Agreement) were found to issue significantly more green bonds in renewable energy than countries with weaker international environmental protection commitments (Tolliver et al., 2020b). Furthermore, added to the existing body of knowledge by demonstrating how growth in the green bond market is being propelled by improvements in macroeconomic and institutional factors.

3. Research Methodology

- Secondary data is used to understand how green finance can be used in sustainable development.
- On Google Scholar, a comprehensive search was carried out by searching for article abstracts in addition to searching for text inside the articles themselves.
- Using Scopus, being the biggest data base for the authentic journal and other kind of research papers.

3.1 Research flowchart:

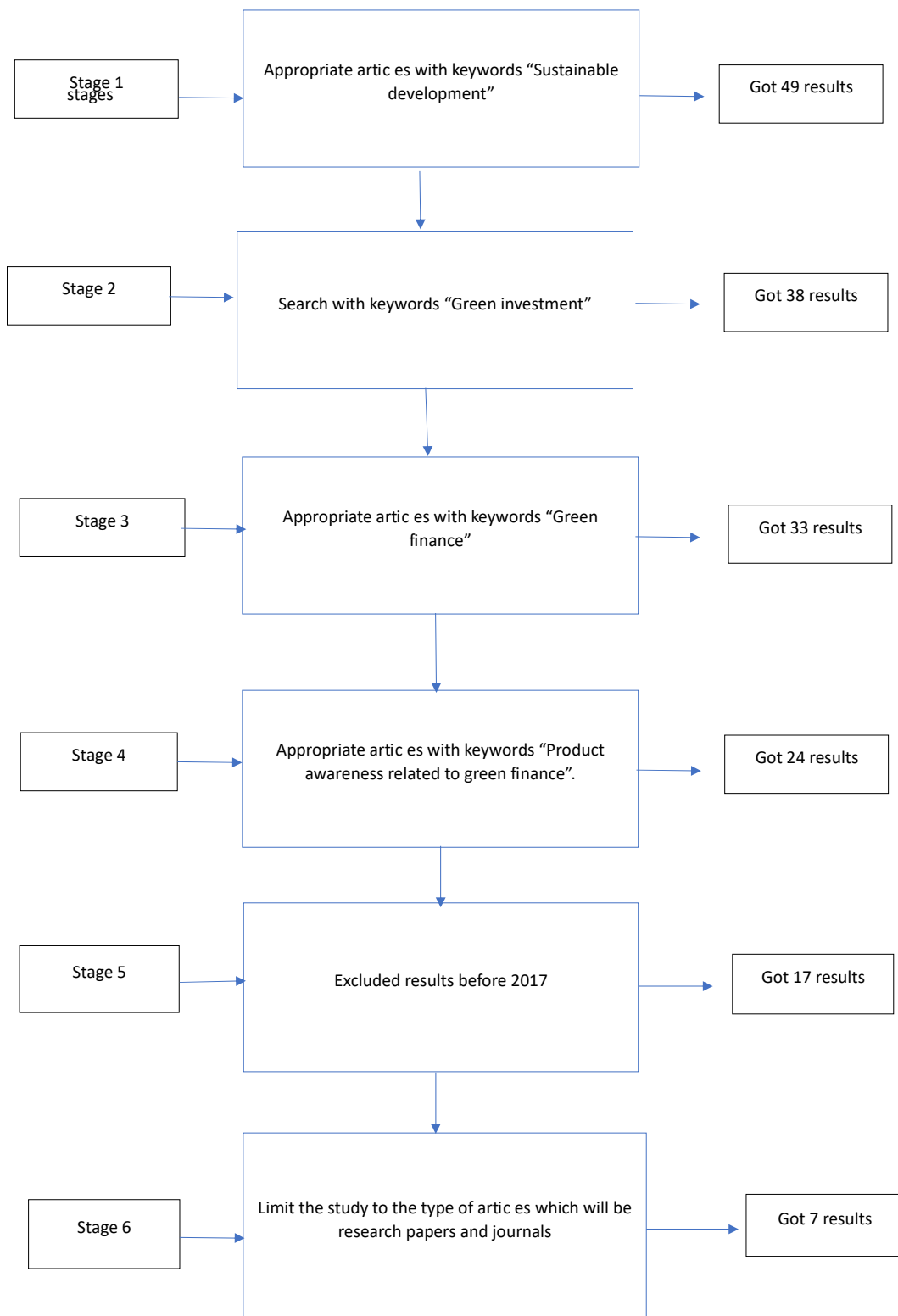


Fig 1: flowchart of research

4. Theory of Change in Green Banking

4.1 Application of theory of change

The theory of change framework, as is generally agreed upon, is an examination of the many sorts of interventions and how they are expected to bring about the intended changes and accomplishments by analysing their inputs, actions, outputs, results, and impacts. The theory of change framework explains why changes and goals are being made, while also shedding light on the causal relationship between inputs and outputs.

The theory of change is an effective strategic framework and methodology for analysing the existing status of green banking, doing a gap analysis, determining the steps that need to be taken to close the gaps and remove the barriers, and outlining the desired outcomes and benefits. Considering the dearth of prior research, a theory of change can guide decisions about what data should be collected and how it should be analysed in the future. It's possible to achieve this goal by deciding what information must be gathered. To determine and address the discrepancy between green banking's change aims and its actual potential, the theory of change model will be linked to the sector through barriers and gaps rather than inputs. To do this, we will connect the theory of change model with eco-friendly banking by focusing on obstacles and gaps in services. In addition, outputs, outcomes, and results will be combined into one single category. The data on obstacles and actions were gathered and created based on a research of the relevant literature as well as observations of the market. The goal of green banking is to help reduce greenhouse gas emissions and strengthen sustainable development in a way that can withstand the effects of climate change. The results and impacts of these activities are the desired outcomes.

4.2 Theory of change at the sectoral level

Green banking theorists often discuss how to implement structural shifts throughout an entire financial sector as part of their theory of change. These changes and improvements may increase interest in, and the availability of, green banking products and services. Therefore, it encompasses a wider spectrum of actors than the theory of change at the institutional level, such as project designers, beneficiaries, and policymakers. This is because the notion of institutional transformation emphasises the role of the individual. As can be seen in Figure 2, certain sectors face restrictions that can have an impact on banking activity and can give rise to additional institutional hurdles.

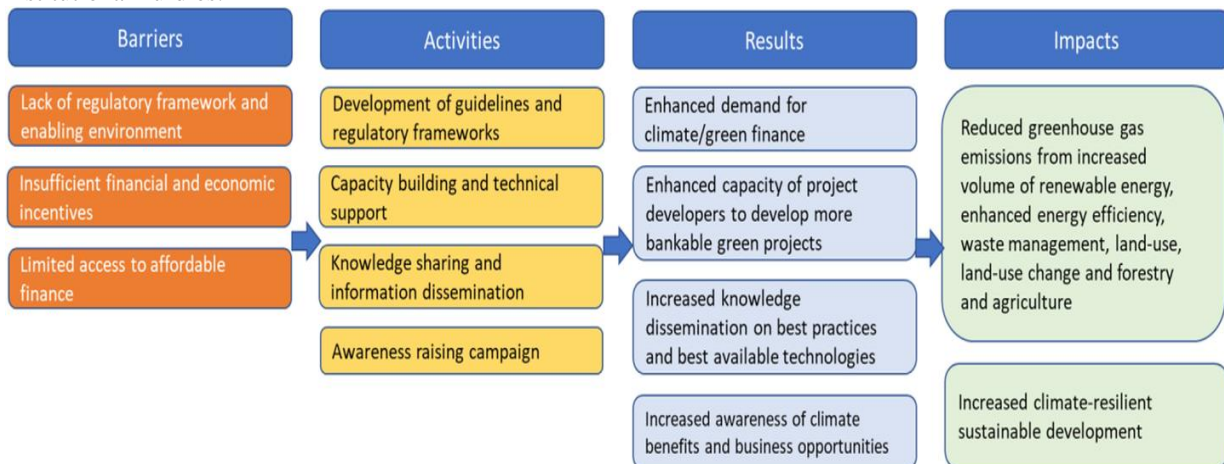


Fig. 2 Green banking's sector-level change theory

Due to the high level of regulation in the banking industry, banks frequently face disincentives to participate in "green banking" operations if the necessary regulatory framework and enabling environment do not exist. For instance, the financial sector can implement criteria for the companies that they choose to finance, particularly those that operate in carbon-intensive industries. This would reduce the risks associated with an energy transition and, as a result, would lead to a more sustainable economy (DNB 2016). Inadequate financial incentives for banks and project developers are two other instances of sectoral barriers.

4.3 Theory of change at the institutional level

Most banks, as shown in Figure 3, do not actively offer green banking goods and services because the theory of institutional change in green banking argues that most banks do not consider the climate and green sector as commercially viable. The main reasons for this are the risks connected with climate change programmes and the difficulty or unwillingness of governments to establish and grow financial supply in the industry. Capital is either extremely short term or extremely expensive for most financial organisations in

developing countries. This hinders their ability to meet the growing demand for climate initiatives by restricting the availability of low-cost financing to its borrowers. A lack of overall climate change plans, as well as environmental and social protections, which are essential for effectively financing climate change projects, is another form of barrier. This type of barrier is characterised by a low level of awareness regarding economic prospects and the most effective climate technology currently accessible. The lack of expertise needed to design and implement environmentally friendly financial products and services, as well as the high startup costs often associated with evaluating and validating the performance of the technology, are just two of the many barriers that stand in the way of their development.

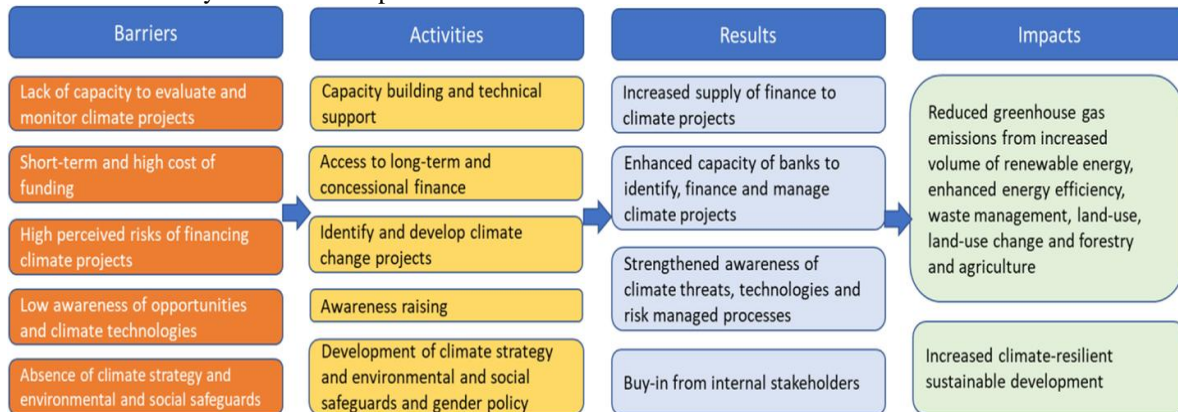


Fig. 3 Institutional level green banking change theory

The only way to get beyond these roadblocks is to strengthen one's capabilities and secure long-term, subsidised funding. Furthermore, financial institutions need to make more of an effort to recognise and create climate change-related projects, as well as raise awareness inside their own enterprises. All of these actions will ultimately result in an increase in the quantity of money that is available to projects addressing climate change. Securing support from internal stakeholders and efficiently managing the projects will be aided by the creation of a climate plan, environmental and social protections, and a gender policy.

Conclusion

The relevance of green funding continues to rise as a vital instrument in the fight for sustainable development. Increasingly, investors are considering their social responsibilities alongside their financial ones. Opportunities in green finance have expanded greatly as people have become more conscious of the importance of environmental protection and as green projects have received more financial support. The term "green finance" needs to be precisely defined by policymakers, researchers, environmentalists, governments, investors, and financial institutions. In order to prevent investors from being duped by a false "green" label, a proper regulatory framework must be established for assessing the viability of green initiatives. As a rising nation, India needs green financing to address environmental concerns such as renewable energy generation, safeguarding natural resources, efficient energy management, climate adoption, and more. Sustainable development may be aided by green finance provided it is administered appropriately.

Green financial products have also been released by a growing number of financial institutions, both individually and collectively, in an effort to increase their economic value and public standing. Banks can meet a variety of goals with the help of green financial products, including meeting government laws or advice, boosting their brand, and capitalising on new business prospects. The size of the green market has grown and is projected to expand even more. More customers may be attracted to a bank if it has a strong reputation as an industry pioneer. Strategically, it's also preferable to get people to change their spending patterns by pushing them to make heavy use of green financial products. Therefore, in order to manage their green financial products and meet the requirements of the legislation or guidelines, banks will need to create and apply stringent environmental and social protection standards.

Future scope

- Creating solutions for inclusive banking that promote long-term economic growth. local bank that does the most to promote sustainability in the community.
- The development of community entrepreneurship capacity through microcredit and the promotion of public-private partnerships on financing methods like green bonds.

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