Abstract: The objective of the paper is to study a new and innovative financing instrument which is focusing towards the environmental sustainability as the proceeds are invested only in the projects which are categorized as green. Today everyone is concerned about the sustainability as the environment around us is trying to combat climate change and contribute towards green growth. The research objective is to identify factors determining the development of the green bonds market and analyze the potential of such market to shift towards a sustainable economy. The benefits and potential of the green bond as an investment tool and as a tool for green growth with the international and domestic guidelines will help in expanding the market with a proper and mandatory regulatory structure in place. The paper summarizes some vital insights from the experts in this area, and formalizes a sequence of steps which will be required by these bonds developing them into a significant and reliable tool in the sustainability finance toolkit.

Key Words: Green bonds, sustainability, environment

I. INTRODUCTION

Green municipal Bonds worldwide have come up as a source of new investment avenue for a smooth transition to a sustainable global economy which can provide environmental benefits too. Green Bonds are the instruments utilized in financing green projects and are differentiated with normal bonds based on the commitment of the use of the funds explicitly for environmental sustainability. The green bond requirements for the disclosure of the use of proceeds help in developing a green bond market by eluding ‘green-washing’.

The continuous and accumulative dilapidation of the environment and resulting climatic changes need a firm decision making by the people experiencing the same with an objective striking a balance between the environment and the business. The negative impact of the climatic change can be reduced by acclimating these two factors. (Kane, Shogren 2000).

The market for the green bonds is increasing exponentially from the time it has been introduced and the financial predictions advise that the attractiveness will be unceasingly grow as many other institutions may come up with a demand from their investors for these bonds due to their positive environmental impact [1].

Green Bonds-Characteristics

These bonds are generally larger than other conventional bonds and carry a higher credit rating with a longer maturity period. It is a plain vanilla fixed income security/instrument offering investors an opportunity to contribute in the green projects helping to mitigate the climate change. They are less likely subjected to the state imposed taxes and also not being sold with the other credit guarantees. As they satisfy the current market requirements, they are considered to be an innovative means of financing which is also the necessity of environmental sustainability and also referred to as climate bonds. The world bank is the biggest issuer of these bonds.

There are four major categories of the green bonds and new additions can be made as per the market requirements. The bonds are: Standard green use of proceeds bond, green revenue bond, green project bond and green securitized bond (GBP process guidelines, June 2018).

The objective of this paper is to see the impact of 3-Is identified as Issuer, Investor and the Instrument on the Green bonds over a period of nine years and trace the events in India from 2010 to 2019. The updated study will focus on the opportunities and challenges confronted by the green municipal bonds in India. Such a study relates and shows a path way for a safe and greener future with good returns and also provide a comprehensive perspective for consideration by various stakeholders and policy makers in India.

Global Trends

It was the first green bond which was issued in the year 2007 by the European Investment bank (EIB) that triggered the expansion and widening of the Green bond market. Since then the market has been expanding and in March 2013 it was evident as IFC sold USD $1 billion green bond within an hour of issue. The reflection can be seen with new issue of stocks in previous years resulting for approx. 80% of total outstanding (Moid, 2017). As mentioned in the below in Figure 1, the total outstanding investments in Green Bonds as on October 2014 is USD 54 billion, which includes USD 32.5 billion of fresh issues, more than cumulative one of the Green Bonds over years.

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Indian Trends

With the endeavoring energy goals to improve on energy access, India also tends to take action on the climate change for which the Government of India is working with contrasting players towards mobilization of finances. In India the Green bond market shuddered in the year 2015, when Yes Bank issued its first green infrastructure bonds in Euro denomination R10 Billion for 10 years with AA+ rating followed by EXIM Bank (Mar 2015), IDBI bank (Nov 2015) and BIREDA (Jan 2016). However, the issue size in India has a variation in size ranging from $100 Million to $1 billion but the expansion towards being international needs a movement towards only big issue sizes. (TERI 2018). A number of government agencies have contributed to the green bond issuance like IREDA (Indian Renewable Energy Development Agency) and IRFC (Indian Railways Finance Corporation), SBI (State Bank of India), the largest entity in the banking sector has also made its way by issuing USD650 million certified climate bonds (CBI report, 2018).

It is the announcements by the Narendra Modi led government to triple the energy generation from renewable sources to 175 gigawatts by 2022, which has fueled many companies to enter the green bonds market. On these lines Adani Green Energy kicked off for a potential dollar bond issue. Combining Greenko’s debt issue and Rural Electrification Corp.’s $450 million note, in the starting months of 2017, green bonds issued in India has increased to $2.1 billion (Bloomberg, BNEF data reports).

Organization of Contents

This paper is organized into 7 parts, as under.

I. Review of Literature
II. Research Design
III. Methodology
IV. Analysis-Discussion and findings
V. Conclusion
VI. Suggestions and Way forward
VII. References

II. REVIEW OF LITERATURE

Considering the importance of clean energy and climate change with the steps taken towards them, the government should back a revenue neutral price on green bonds as a step towards its conservation. The green bond market initiated in the year 2007 by EIB (European Investment Bank) with the issue of first ever climate awareness bonds which was also trailed by a green bond issues through the World Bank in the year 2008. In general, it is a very limited number of bonds which comes under the umbrella of “green” specifically as the green market is really very small (Schroders, 2015). The demand for the green bonds is surging day by day but factors like Pro-environmental policy of international financial institutions, green financial market development and raising investors awareness for environmentally responsible investments are stimulating the development of global green bonds market. (Anna Laskowska, 2018). Parallel to the growth prospects and the factors contributing to the same there are some barriers which act as a deterrent in the development of the green bond market like superficiality of green bonds policy, high costs of certifying green bonds, country’s idleness in environmental policy, maturity mismatch and low credit rating (Sana Moid, 2017).

Having emerged recently these bonds also face enormous threats by the climatic change. The absence of government regulators has led to decentralization by private governance regimes which are faster to implement and more responsive to the market needs but may suffer from legitimacy, accountability and consistency leading to greenwashing (Stephen Kim Park, 2018). Regulatory arbitrage allows the firms to select a framework most conducive leading to a disjunction between firm’s transnational activities and inconsistent domestic regimes which can be exploited by the individual firms. (Cristina M. Banahan, 2019) understands this region to be broadly unregulated and regulations insufficient for a stable green bond market for addressing the climate change initiatives. Keeping the environmental integrity intact the focus is ensuring a proper regulatory body, which will focus on this aspect individually. In the Spring of (2017, Luke Trompeter) highlighted that The Securities and Exchange Commission ("SEC"), Environmental Protection Agency ("EPA"), and the Municipal Securities Rulemaking Board ("MSRB") are the agencies which would be responsible for providing clear definitions and revelation laws for green bond projects, providing issuers clearness as well as ensuring investors about their funds being suitably used for ecological and sustainable development adding to the environmental sustainability. In Indian context, the issue and listing of Green Bonds shall be administered by existing SEBI regulations for issuance of Corporate Bonds i.e. SEBI (Issue and Listing of Debt Securities) Regulations, 2008 with few additional disclosures like definition of what is green to be changed time to time with investors expectation, necessity for a third party reviewer and the mandate for the escrow account.

Barring all the issues aside the green bonds market can be developed by referring to supply(issuers), demand (investors) and anticipations regarding the functioning of the market, which are stimulated by extensive involvement of the international development banks, constant expansion of range of new instruments into new types, increase in the liquidity in the capital market, potential of ecologically responsible investors and con-
tinuous work on the credibility of the green bond label. The solution to all these issues can be taken up with the help of ecological education to the participants (Anna Laskowska, 2017).

In the field of business (Zhang, 2018) talks about the impact of the issuance of the green bonds on the stock prices also reflects a significant reaction and suggest that existing shareholders will derive net benefits from such an issuance in terms of increased institutional ownership and improved liquidity. (Tomasz Bieliński, Magdalena Mosienek-Schweda, 2018) analyze the structure of the green bond market and case studies of national markets like US, China and France of such bonds signpost that the private sector can become a major source of financing for the pro-environmental projects in the EU. In continuation to the pro-environmental preferences on the bond prices (Olivier, David Zerbib, 2018) identifies that the yield of a green bond is lower than that of a conventional bond as the effect of non-pecuniary motives, which will not be encumbrance for different stakeholders with interests towards the growth of the green bond market.

Latest studies show indices that incorporate environmental considerations are outpacing those without the same social and environmental criteria [2]. While different countries developed different regulatory structures for their green bond markets, international standards are available to guide in the consistency of their development [3]. The most prominent guidelines are the Green Bond Principles (GBP) established by the United Nations Program on the Environment to help guide issuers in setting up credible green bonds. However, Flammer (2018) mentions that green bond issuances encourage ownership with the involvement of long term investors in green bonds. Nonetheless, the European Commission (2016) report identifies several obstacles in the development of the green bond market like lack of green bond definition, framework and transparency.

The 3I framework takes into consideration Issuer, Investor and the instrument (green bonds) which are the most important amongst the other areas relating to any security.

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Issuer</td>
<td>Identify different revenue streams inculcating financial discipline. State level authorities, municipalities, other development authorities.</td>
</tr>
<tr>
<td>Investor</td>
<td>Banks, Pension funds, insurance companies, households and individuals</td>
</tr>
<tr>
<td>Instrument</td>
<td>Green municipal bonds with fixed interest bearing and tax advantage</td>
</tr>
</tbody>
</table>

The below mentioned features quite evident with the above review in respect of Issuer, Investor and the instrument

1. Opportunities & challenges- There are a number of opportunities in terms of different types of green bonds like Clean Renewable Energy Bonds, Climate Awareness Bonds, Green Bonds, Breeze Bonds, Green Investment, Climate Investment Funds (John A Mathews & Sean Kidney, 2012). These bonds are categorized under seven major categories (OECD & Bloomberg philanthropies, 2015) which can be expanded as per the requirement and work in progress. However, the challenges will always be associated with them and these relate majorly to the issuer’s perspectives with legal bindings as well as what to consider as green.

2. Regulatory framework- The regulatory framework is not very stable and the agencies involved in Indian context as well as on the global platform have not defined different aspects on a similar ground. The International Capital Market Association (“ICMA”) established the Green Bond Principles (“GBP”) in 2014 as a private sector solution to green bond disclosure and verification [4]. The GBP have four core components: Use of Proceeds; Process for Project Evaluation and Selection; Management of Proceeds; and Reporting [5]

3. Growth prospects- Considering the movement towards an environmentally sustainable economy and the current surge in the number on green bonds already making a move in the market, there is no deficiency of the positive outcomes in terms of the successful bond issues and the returns thereof. India follows an all-inclusive approach for attaining the SDG (sustainable development goals) by executing a range of schemes like swachh Bharat Mission (SBM), Beti Bachao Beti Pad Hao (BBBP), Pradhan Mantri Awas Yojana (PMA Y), Pradhan Mantri Jan-Dhan Yojana (PMJDY) which are contributing to the progress of the country like India. The growth curve for achieving SDGs(inequality) is impressive in some cases as compared to other SDGs. NITI Aayog has established a composite index for different state and the Union Territories with a compilation of progress towards each SDG(www.indiabudget.gov.in). The Figure below mentions that the states of Himachal Pradesh and Kerala are the leaders amongst all the given and Chandigarh and Puducherry are amongst the leaders the union territories. These traits are the reflection of good health and prosperity in the state, while reducing the inequalities and preserving the ecosystem.

Summary of the 3-I framework

![Summary of the 3-I framework](image-url)
The papers and reports reviewed thus far provide the following insights:

1. The literature available is from 2007 to 2019.
2. The market for green bonds is well-established in USA and other developed countries.
3. There is enough data for empirical research on pricing, premium, risk and returns.
4. There are issuers and the investors in abundance in the markets as investors look for non-pecuniary benefits also.
5. Aspects such as regulatory framework, existing challenges, financial jurisdiction need to be identified and addressed for proper and timely growth and development.

In context of this paper following gaps arise

i. The data and reports post 2007 should be studied in detail specifically after the Climate Bond Initiative in place and the success of the initial bonds
ii. The opportunities and challenges in respect of the issuer and the investor are not focused, which are vital elements
iii. A clear framework of guidelines for Indian green bonds market need to be developed
iv. The way forward considering the pitfalls need to be implemented in the future course of action

III. RESEARCH DESIGN

The exponential growth in the “corporate green bonds” issued for financing the environmental friendly projects has triggered the need to check the impact of these bonds on the results and the contribution of the issuers on their financial performance. A study by Caroline Flammer, HBR (2018) finds that this latest innovation in impact capitalizing triggers a positive market response, improves financial and environmental performance and attract long term investors in green financing and also will come out with positive outcomes in fighting climate change globally even in the absence of the actions taken or not by the governments.

The Climate Bonds Initiative (CBI), which promotes these kind of debt instruments, presents comprehensive sector-specific guidelines for prospect issuers of green bonds. The categories qualifying an undertaking for the issuance of green bonds are presented in the diagram below.

Figure: 2 Performance of States and UTs on SDG Composite India Index
Source: NITI Aayog’s SDG India Index Baseline Report, 2018

Figure: 3 The Climate Bond Taxonomy underpins the CB Standard
Source: https://www.climatebonds.net/standard/taxonomy

The research design comprises of
1) Proclamation of the Research issue
2) Analysis of the data and reports
3) Analytical techniques are used for determining a policy template

IV. METHODOLOGY

The complete paper is majorly of review nature which uses secondary sources of information for various research reports as well as academic journals over a period of 9 years from 2010-2019. In different pioneering researches in the field of finance and environmental sustainability, Mitra and Mitra (2011) exhibit how financial emotion can be picked out from news feeds. The academic papers highlight useful information which is extracted through the news analytics. Such social statistics empower researchers to define and measure occurrences in society to quantify the forces which steer markets.

The first set of field consists of three variables opportunities & challenges, regulatory framework and growth prospects related to the green bonds. The second set of variables encompass three aspects: Issuer, Investor and Instrument. These three I’s constitute the most important aspects in respect of the environmental bonds. The relationship and impact of the first three variables namely opportunities & challenges, regulations and future growth with respect to Issuer (issuing authority), investor (people expecting good returns from the investments in the green bonds) and the instrument (green bonds) is studied with the help of the academic literature and the various reports published in...
coalition with various nonprofit making bodies like CBI (Climate Bond Initiative), SDG and NITI Aayog in India.

V. ANALYSIS –DISCUSSION AND FINDINGS

The green bond market can provide a bonus source of financing to bank loaning and equity financing, which can facilitate long term financing to specific projects in the area with limited supply of long term loans. The demand for these bonds have seen a steep rise from USD 41.8 bn in 2015 to 65.4 bn in 2016 [6], which is attracting many diverse issuers to the market place in need of financing.

A. Opportunities & Challenges

For adoption of the 2030 agenda for sustainable development, major economies and countries like India are heading towards a nation free from poverty, economic and gender inequality to ensure peace and prosperity for next generations to come.

India at 11th position in global country ranking accounts for 33% of the Certified Climate bonds. Moving forward, the possible capital market structures for sustainable finance may include Real Estate Investment Trusts (REITs) and Infrastructure Investment Trusts (InvITs) used for allocation of green and sustainable assets such as energy efficient buildings, renewable power projects, mass transportation systems.

The issuers are the entities who are categorized as borrowers of the money like Bank and other financial institutions, municipalities and corporations.

The credit risk is always dependent on the quality of the issuers. On the other hand, the investors can be classified as the institutional investors like insurance companies and pension funds and private investors like commercial banks and household savings.

Green bonds are very popular as they are bundled with the tax benefits as well as serve the socially conscious need with good investment grade ratings. The green bonds are more preferred mode of investment as they are high quality ones sharing a similar risk return features like the global bond market.

It becomes the win-win situation for both the parties Issuer and the investor as the tax benefits can be replaced by the interest payments to the issuer. Government can also provide rebates to the bond issuers for the subsidized interest payments. The admiration for these bonds is due to the fact that they are commonly oversubscribed, which makes it easier to sell but problematic to deal on the secondary market.

**Figure:4 Oversubscribed Green bonds**

<table>
<thead>
<tr>
<th>Case studies of selected oversubscribed green bonds</th>
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<tbody>
<tr>
<td><strong>Issuer</strong></td>
</tr>
<tr>
<td><strong>Tenure (in years)</strong></td>
</tr>
<tr>
<td><strong>Currency</strong></td>
</tr>
<tr>
<td><strong>Issue value (in)</strong></td>
</tr>
<tr>
<td><strong>Volume subscribed</strong></td>
</tr>
<tr>
<td><strong>Oversubscribed</strong></td>
</tr>
<tr>
<td><strong>Type of green bond</strong></td>
</tr>
<tr>
<td><strong>Use of proceeds</strong></td>
</tr>
</tbody>
</table>

Source: Schneeweiß (2015), 14–15; Poland’s Ministry of Finance (2017), 6

The green bond market faces a range of hurdles and challenges to its growth. Recent studies by G20 Green finance study group (2016) 7, OECD and Bloomberg (2016), CBI has recorded some bottlenecks which be utilized by any country. These bottlenecks and challenges posed to the green bond market are categorized as:

a) Greenwashing- The term is used when the bondholders are not confident of the use of proceeds of the bonds into environment friendly projects leading to the sustainability

b) High certifying costs-the verification of the green bond status and its certification by specialized entities involves a high cost, which becomes a barrier for small issuers

c) lack of environmental policy- with the scarce natural resources a pro-environmental policy framework is the need of the hour, which can be done with the help of public education and awareness towards the same.

d) lack of aggregation mechanisms for green projects- This mentions that not many big projects are available for financing by means of green bonds, which can be addressed by aggregation of loans or the bundling of cash flows in asset backed securities.

e) lack of clear risk profile of green investments as well as information and market knowledge- The absence of the knowledge and understanding related to the green projects leads to difficulties in getting good credit ratings, leading to non-transparency of the right use of proceeds and therefore a clear bond standard needs to be developed and followed for avoiding such issues.

Currently the challenge is the lack of supply of the bonds with good credit ratings, which is a resultant of less bankable projects, universal standards and others. The demand side constraints relate to reduced risk appetite of the investor and information asymmetry.

These bottlenecks are also detailed with a different perspective in the diagram below

**Figure:5 Bottle necks with issuers and investors**
B. Regulatory Framework

The continuous progression and the growth in the green bond market is making a successful way in the mainstream of the developing bond markets like India too. From the issuer’s perspective the internal validation related to underwriting and other aspects is inadequate leading to greenwashing. There are groupings of regulatory standards, procedures and institutions which informally govern facets of sale, marketing and trading of the bonds. The government regulators find it difficult to address many issues related to the environment and social impacts and therefore the role of private governance fills the governance gaps which is made by current economic globalization and the scarcity of the international law on companies.

The markets where the regulators have managed a promising environment for the green bonds, the bonds have made their way smoothly and created portfolios without compromising on the risk return objectives.

The green bond indices also play an important role for the informational regulation and the guidelines. It uses the disclosure of the information related to the firm, which influences the market decisions by the consumers (investors) as well as the issuers. The sustainability indices like Dow Jones sustainability indexes and the FTSE4 Good Index series are very commonly used as good governance tools [10].

The International Capital Market Association (“ICMA”) is the body which has established the Green Bond Principles in the year 2014 for providing solution to aspects like green bond disclosure and verification [8]. The Green Bond Principles promote integrity in the market with the help of guidelines recommending transparency, disclosure and reporting [9]. The GBP defines a clear process for issuers, which in assistance with investors, banks, underwriters and others can be used to apprehend the basic characteristics of any given bond.

The principles given by GBP are majorly divided into four modes related to the use of bond Proceeds, Process followed for the evaluation of the project and the selection, the management of the Proceeds and the Reporting of the completion.

Another body of regulation relates to the certification feature of governance, Climatic Bonds Initiative (CBI) which involves the creation and establishment of standards, label, accreditation of the certifier and monitoring of the compliances. It is only after the certification by CBI an issuer is entitled a logo for a specific issuance of a green bond under the terms and conditions agreed upon.

It is with the help of proper regulatory body and principles in place that the environmental integrity of the green investments can be maintained.

Having compared both the standards and principles it is understood that both are prescriptive as they are driven by external verification which differentiates based on certification and principle based standards. For the certification to be a green bond CBI (Climate bonds initiative) needs an external assessor ensuring issuers compliance with the Climate bonds standards. The private governance comes with the legitimacy challenges of its effectiveness and the credibility as well as the responsibility of determination of greenness of any specific security or instrument for instrument. The sustainable financing suffers some major challenges out of the private governance which are categorized as regulatory capture and regulatory arbitrage (Stephen Kim Park, 2018).

Out of the two the regulatory capture relates to barriers to democratic accountability in global companies as the private governance systems which are dominated by the industry can mold the rules as per their economic interests, which may be lacking public accountability systems. The other relates to selection of most conducive framework of regulations to the interests of the issuers, which is also expedited by the global nature of the international business of the firms/issuers.

The issuer and the investors both need a strong regulatory base of principles and guidelines, which need to be followed for the proper understanding and implementation of the issuing authority, investors as well as the instrument which is green bonds. The growth and prospects of the green bond market centers on the issuers for their capability to float more number of bonds in the market as well as the investors in terms of their economic value and the bearing on the environment. To make the green bonds fall out of the niche status the sustainability aspect needs to look at the process which can assess critically the environmental impact of these bonds.

It is observed that the private governance is dominating the bond market but parallel to this the public regulation is also gaining great heights. For example, a country like China is subjected to public regulation and following the regulations defined by People’s Bank of China (PBoC), which is the central bank [12].

Considering Indian scenario, The Securities Exchange Board of India (SEBI), which is public regulator of the securities market has approved and issued guidelines in January 2016 and it also reserves the right to define the criterion for green bonds [13]. The current situations also highlight the fact that the regulatory race can also influence the issuers and investors response to the legal benefits arising from the green bond financing, specifi-
ically in cases where this finance is used for environment friendly projects or the funds are being utilized for refi-
nancing the currently working projects. It is with SEBI regulations in place that new prospects for different financial 
stitutions and companies are likely to come up in the market which has vibrant forecasts for their future growth. 
These regulations see green bond market as a critical tool for fulfilling the requirement of India’s Intended Nationally 
Determined Contribution (INDC) target for serving India’s climate change action plan [14].

In view of all this one can say that India has a favorable future in green and sustainable financing. CBI in year 2016 
publicized that India has approximately $15.7 billion unlabeled climate aligned bonds, which can be utilized for low 
carbon transport assets as well as renewable hydro energy.

C. Growth Prospects

The chief issuers like Multilateral Development Banks, EIB (European Investment Bank) and the world bank have 
instigated the green bond market in the year 2007-08. It is till the year 2013, the green bond market developed at a slow 
pace but took a sharp turn at the end of the same year when corporate green bonds were issued for the first time and this 
market tripled in size reaching USD 11 billion. The global debt securities market has seen these securities growing 
exponentially in years between 2012-17.

Figure:6 The value of green bonds issued in 2012-2017 
(USD billion)

The total value of the bonds has increased from $3 billion to 155.6 billion, which involves strict norms of being only green. The proceedings from the green bond market are 
majorly used to finance projects connected to renewable energy, investments in low carbon buildings and energy efficiency.

Booming Markets-China

Recently, China has dispensed green bonds worth RMB 551.1 billion within the country’s efforts towards the sus-
tainable development, (Source: Wind, a market leader in China’s financial information services industry). This 
growth has been consistent since 2015 when first green bond was issued by the Agricultural Bank of China. The country as a leader has accounted for 45% of new green bonds across the world by the end of 2016. The renewable energy capacity is continuously expanding and is helping to find out solutions to the related problems. As far as future prospects are concerned the country is in process of increasing the share of renewable energy to 15% of the total energy consumption by the year 2020.

European Union

The green bond market has become more attractive recently in the year 2017 when it contributed over 30% of the global issues. The EU green bond markets have performed better and have been developed as it is based on prevailing finance infrastructure. The creation of Green bond standards by EU, based on current market prices will certainly help the process of regularisation and will help issuers from anywhere in the world to cite compliance, if their plans are independently verified by an EU-accredited assessor. With the cumulative issuance worth EUR 122 billion, Europe has become the keystone of the green bond market (Bloomberg, March 2019). There are European issuers covering the continent with a variety of the types of issuers accumulating to one third of the total global issuances. The future expectation for the market is the growth with Europe singly needing about 180 billion euros additionally to reach out to the targets for 2030 which is set by the European Union in the 2015 Paris Agreement on climate change (Bloomberg, 2019).

Indian case

As an emerging significant Green Bond market India is among the top issuers in the debut year (2015) of the bonds itself. The Green bond issues from India were to the tune of US$1.95 billion in Sep 2017, which makes it the fifth largest issuer in terms of size in the world for that quarter. YES Bank was the first institution to enter the green bond market for financing the renewable and clean energy projects mainly, for wind and solar. Progressively, the green bond market has expanded to several public sector undertaking like state-owned commercial banks, financial institutions, corporates, and the banking sector. There have been numerous innovations in the market since its first time issues, which is quite visible in the timelines graph below.

Figure:7 Timelines of Green bonds in India
As the requirement for funds for addressing the climate change issues expands its base, a revolution in the same context has led to the evolution of the green bond market, which entails three most important entities in the name of institutions or bodies issuing the bonds, the people or associations of people interested in investing and the last instrument which is the green bonds having all the features covering the investor’s interest areas and fixed returns with without risk and governed by some regulations in place.

a) Issuer

The issuers play quite a vital role in the evolution of the green bond market leading to the much needed environmental sustainability. Issuers like Development banks (SIDBI) and (NABARD) have come up with the green issues to support the cause with the same objective towards being pro-environment. Other government entities in India like IBEDA, PFC and IRFC also have some bond issuances in the second half of 2017, focusing more on the renewable energy sector, leaving aside a large untapped potential for the green bond market to be explored. YES Bank also has made its way recently in the green bond market by issuing bonds of that nature. As the issuing authorities are varied in terms of categories like banks, pension funds, insurance companies and individuals too, they are governed by a different set of regulations and the principles. It is also taken into consideration at primacy the contribution of the policy makers towards a strong investor base by providing governmental cash rebates to the issuers for subsidizing the net interest payment.

b) Investor

If the investor’s perspective is taken care of, largely green bonds are more popular as they are a new innovation bundled with the tax benefits and also serve a social cause which gives a deep satisfaction of being attached and concerned about the environment around directly impacting the human lives. The past experience of the oversubscription of these bonds have developed a faith in the investors to sell them easily on the secondary market platform as and when required. With the good investment grade rating and returns the investors find it easy to replace some portion of their bond portfolios with the green bond, which can also allow them to use it as hedging tool against the climate risk. Potential investors in bonds market as an asset class are individuals and households, insurance companies, pension funds, debt mutual funds and probably banks.

A major contribution from SEBI’s regulation is the earmarking of revenue streams to protect investor interests, together with listing and disclosure norms

c) Instrument

There are quite a few prominent features which have been emphasized throughout different studies and reports. Out of many some commonly observant are clear revenue streams, tax free interest rates, easy liquidity with the help of listing and constant price discovery with the market making. The green bond offerings in financial terms focus on the returns on assets and equity in the long run, which are in limelight as this instrument

Source: TERI (The energy and resources institute)

The green bond market is accelerated with the help of exchanges in place ad these institutions can help in the robust development of such market. They act as an important bridge between the issuer and the investor. India’s Bombay stock exchange (BSE) promoted the first international exchange namely India INX, which can encourage green projects and promotes ESG standards across all issuing authorities. These exchanges create standards, which not only follow global standards but also align domestically as their adoption will help standardizing the framework providing transparency and the correct evaluation criterion to keep Indian green bond issuers the needed confidence and faith in the market and its future prospects.

CBI Report 2017 suggests that Asia has surpassed the green bond issuance as compared to Europe, Latin America, Africa and some other countries. The complete transformation of India into a strict green economy largely requires sincere efforts towards two vital fronts having an access to finance the requirement and the effective and proper deployment of those funds adding to the environmental sustainability by investing only in green projects, which can be in the areas of water, sewerage, transport, hydro and others in the segment of renewable energy.

The instrument which is green bond has all the characteristic features which are imperative for the current requirement of sustainable financing and also bountiful in terms of returns. The growth prospects for this instrument look quite prosperous as it can be a part of the construction of 100 smart cities initiative led by the Modi Government for the required infrastructural growth in the Indian economy. It is one of the aspect of oversubscription of the green bond issuances in the past that shows there is a high level interest in the issuance of the green bonds from both issuers and the investors. Furthermore, Indian Government has set an ambitious target of building 175 gigawatt of renewable energy by 2020 which necessitates funding to the tune of a monumental USD 200 billion. (SEBI)

The 3-I framework

There were reports from various government agencies and institutions which are studied and analyzed for the three I framework which encompasses the most important aspects -Issuer, investor and the Instrument.
also helps fulfilling the goal of better environmental outcome by reducing CO2 emissions and observing a good environmental rating. At this nascent stage of development in the Indian debt markets, it may be advisable for the bonds to be plain-vanilla, coupon-bearing instruments. Due to the financial risk in connection with the uncertainty of effects and hitches in raising capital, the green bonds are offered in guaranteed form also in the name of hybrid and revenue bonds (Marszałek & Dyszynka-Zygadlo, 2016, p.947). The innovations could come in the forms of tax incentives, listing and credit enhancements. A new innovation in the form of call option features embedded by issuers could be a dampener for investors.

VI. CONCLUSION

The literature suggests that however the green bond market is a new occurrence in the global financing, it emanates from the bouquet of fixed income securities, and the number of socially responsible investors are also emerging every year. Since so many years the fossil fuels have taken an upper hand in the usage which has led to the continuous degradation of the environment. In line to this it is time for the renewable sources of energy to come in the limelight reducing the carbon footprint.

The markets globally capture insights from EU, Chinese economy and US experiences giving an in depth analysis highlighting the role of private governance in the absence of the proper regulatory framework in place. The Chinese practices encourage policy recommendations, state owned enterprise actions and clear guidelines on the certification of the green bonds can lead to a fast pace development of the market.

A dedicated green bond segment on the stock exchange can also bring the investors to the market. A very important aspect to this market is the regulation of the green bond market which would aid in defining the types of qualifying projects, increasing the transparency and correcting the challenges eliciting the financial crisis. The MSRB need the disclosure of data from the issuers of the bonds to ensure the fulfillment of the sustainability promises relating to investments only in green projects and also allowing the bondholders to file lawsuits against the issuers subjecting to greenwashing. A simple asset pricing model in one of the studies underlined that there lies an investor preference for non-pecuniary attributes also.

SUGGESTIONS & WAY FORWARD

The market for the green bonds is observant of bright prospects globally as well as in the geographical boundaries of India. The most significant consideration is given on Regulations, guidelines which need to be formalized and reduction in the barriers hindering the progress.

The undermentioned suggestions, require further detailed assessment and pilot implementations, to develop the most effective frameworks, processes and deployment strategies.

i. A tier based approach for the classification of the green bonds can be adopted under which the projects are classified in several classes for different projects having green bond labels for retrieving the tax benefits.

ii. To maintain the legitimacy of the green bonds the independent verification system should be made mandatory before labeling the bonds green. This will allow transparency in the usage of the n-bond proceeds and also assure the investors about the legitimacy aspect.

iii. The involvement of SEC (Securities Exchange Commission) can help implementing regulation stating due diligence for companies issuing green bonds to offer periodic disclosures of the funds being used together with the progress and the updates of bond issuances.

iv. In case of the greenwash violation, an action like filling a lawsuit against the issuer will act as a deterrent against alike future damages. The lawsuits can also be used for exclusions and/or misleading statements, which may give more opportunities for the investors to bring required faith and positivity for the progress of the green bond market.

v. The ecological awareness of the investors and other participants is low as well as many countries are passive to the pro-environmental policies, which should be taken care of so that environmental protection is given a priority and can progressively lead to environmental sustainability. Educating for the ecological awareness can be considered as a viable solution for the same.

vi. The government intervention and support in this segment through it various entities can strengthen standardization processes, help in the creation of a guarantee fund for the credit enhancement, leveraging the domestic demand for green bonds with certain concessions and tax exemptions and issuing a sovereign green bond.

vii. The involvement of various development banks in different areas like industrial and agricultural development for designing such projects directing funding for the untapped sectors of the market.

viii. The priority lending sector guidelines of the central banks like RBI in Indian context can include some new sectors to make them more profitable to the bond issuers.

ix. A proper coordination between the bond issuers and the country’ energy offices should be there so that the new energy deals and risk sharing and arrays of interaction between the state and the institutions can be discussed.

x. The green bond indices should be developed which are lacking and can guide the investors to invest in the type of bonds meeting their criterion. The green credit ratings also should be promoted and the bonds rated with proper standards checking their alignment with the international guidelines like GBP (Green bond principles) and CBI (Climate Bond Initiative) standards helping the investors evaluating the impact of environmental factors on the complete risk outline of the issuers.

To conclude, it may be said that investor’s and the Issuer’s perspectives have been identified as the most-highlighted aspects in this paper. The Global scenario looks attrac-
tive but lacks a proper framework of formal guidelines for the governance, but has been rewarding till now with the private governance also. However, SEBI and other regulatory bodies need to take note of the enveloping factors arising from the other I also, for developing an enabling environment for the green bonds in India. There is a need for follow-up studies based on a primary data survey, and also for empirical studies based on transactional data sets as and when the secondary markets take off in India

NOTES


[5] See id. at 2 (presenting that these requirements will prevent issuers from misleading the market).


[8] See int’l cap. mktS. aSS”n, supra note 8


[14] https://www.moneycontrol.com

REFERENCES


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