

Green Bonds-Means of Green financing: Issues and challenges in India

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ABSTRACT

A green bond is a new entrant in the field of finance and it significantly draws the attention of many researchers, scholars and policy makers of the different nations. The market of green bonds has suddenly increased to a new height, especially after the COP 21 agreement. To keep the climate change under control, it is very vital and essential to introduce a new instrument in the capital market and this new instrument is known as green bond. After the United Nations Framework Convention on Climate Change (UNFCC) and the Kyoto Protocol, the 2015 Paris Agreement is the first treaty that brings together all nations - including the United States of America - for collective action by an international public legal agreement that constitutes at the same time a platform for investors to fight against climate change. Green Bonds are consequently considered to fulfill this argument and key in the implementation and capital raising of the Nationally Determined Contributions (NDCs) to the 2015 Paris Climate agreement. They provide a suitable and simultaneously risk-managed tool for both public and private investors. This research article is an endeavor to look at the issuance and implementation issues related with the Indian economy and also at the global level.

1. Introduction

Awareness about green practices is taking place across the globe; the business fraternity not only wants a rapid growth but also seeking for sustainable growth. Entrepreneurs and managers are becoming sensitive not only towards economic development but also ecologic development of the world. Although the pace is very slow, many efforts are needed to convert the concern into action.

Vision 2030 is to transform the world to sustainable development world by adopting green practices like increasing the use of renewable energy, construction of green building, proper waste management, reusability of water by setting up water treatment plants, water conservation etc. To achieve the goal of sustainable development, the old practices have to transform to the green practices and the new setups should also done in line with the sustainable objective. Finance is required in both the cases. We have numerous of traditional sources to raise finance for the organizations but we have to think for such a means of finance which can work as a catalyst and provoke the global financial practice towards sustainable development goal.

Johnson (2015) has emphasized the significant role of finance, that shortage of finance compels the use of sub-optimal technical choices for social, economic and ecological implications. The concept of green finance comes in to picture to overcome this problem of traditional financing patterns. According to UNEP (2016) green finance has emerged as the keystone of financial market development. Green financing can broadly be defined as the financing of projects and technologies that develop and use of green practices for the

betterment of ecological system. Keerthi (2013) precisely defined Green Finance involves the use of financial products like loans for conversion to renewable energy driven vehicles, green building solar and wind energy, financing of green modes of transport, etc. Gilbert and Fekete (2012) define green finance as “financial investments flowing into sustainable development projects and initiatives, environmental products, and policies that encourage the development of a more sustainable economy”. Ravat and Narang, (2016), In this context, emphasized on green bonds which allow firms to raise green finance from domestic and foreign investors with focused interests in sustainability and responsible investment.

1.1 Green Bond:

Green bonds are any type of bond instruments whose proceeds will be exclusively applied to finance or re-finance, in part or in full, new or existing eligible projects that will promote progress on environmentally sustainable activities. Potential eligible projects explicitly recognized by the Green Bonds Principles (GBP) include:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Sustainable water management (including clean and/or drinking water)
- Climate change adaptation

1.2 Types of Green Bonds

High-Yield Green Bonds	'High-Yield Green Bonds' Are Non-Investment Grade And Use Of Proceeds Bonds. They Includes Robust Reporting. Issued The First High Yield Green Bond In August 2014 For \$500 Million.
Corporate Green Bond	Green corporate "earmarked" bonds helped create depth in the green market. Share of corporate issuance in the market is relatively small, ranging from \$1 billion to \$3 billion.
Municipal Green Bonds	Started in the US in 2014 under green properties for universities and sustainable water projects. This was followed by green bonds issued by European cities and municipalities, leading to an increasing trend and several new entrants.
Commercial Bank Green Bonds	Bank green bonds use proceeds to finance a mixture of renewable energy, such as solar, wind and hydropower projects, and energy efficient property.
Asset- Backed Securities (ABS)	Toyota brought the first ABS bond in the market with \$1.75 billion. The innovative bond showcased how proceeds from a bond backed by car leases and loans can be earmarked for future green vehicles.
Labeled Green Covered Bond	First labeled green covered bond – a bond with dual recourse to the issuer and a cover pool of assets – was issued by real estate and mortgage bank Berlin in May 2015 for €500 million (\$568 million). The bond received a very positive reception and was four times oversubscribed.

2. Review of Literature

Findings	References
<ul style="list-style-type: none"> Examined the impact of green funding by privet sector on return, using regression analysis 	Rakov (2017)
<ul style="list-style-type: none"> Emphasized on demographic and urbanization trends green financing practices clean energy. 	Grafakos, Gianoli and Tsatsou (2016)
<ul style="list-style-type: none"> Determined the major challenges faced by green start-ups financing were credit risk, moderate return and long tenure of investments. Suggested intervention of intermediaries with specialized knowledge can reduce the gap between the investor's apprehension towards ordinary investment and green investment options. 	Bergset (2015)
<ul style="list-style-type: none"> Compared the green practices across the developing economies and the role of governments in green financing initiatives. Suggest the importance of green financing in sustainable development. 	Moldovan (2015)
<ul style="list-style-type: none"> Assess the role of banks and financial institutions in promoting environmentally sustainable development. 	Sudhalakshmi and Chinnadorai (2014)
<ul style="list-style-type: none"> Highlighted recent trends and future opportunities for India in the area of green financing. 	Keerthi B. S. (2013)
<ul style="list-style-type: none"> Poor role of Indian banks and financial institutions in the area of green financing. On the basis of international practices, high credit risk was involved in green financing. NPA of the banks has increased due to closure of firms on account of failure to meet environmental standards. 	Sahoo and Nayak (2008)

3. Global Green Financing Initiatives

A brain storming submit was conducted in 1992 at Rio which is considered as a stepping stone for addressing the climate change issues with the adoption of the United Nations Framework Convention for Climate Change (UNFCCC) . The enforcement of Kyoto Protocol, in 2005 gave the momentum for the commitment to mitigation and adaption of the green house gas concentration.

It was estimated that developing countries would require investments to the tune of \$1350 to \$175 billion per year over the period of 20 years to mitigate and adaptation climate

change. In this context much effort has been made towards green finance. Launching of the United Nations Environment Programme Finance Initiative (UNEPFI), in the early 1990s boosted financial institutions across the globe since then the market of green finance is continuous increasing. The UNEPFI "advocates for a precautionary approach towards environmental management and suggests integrating environmental considerations into the regular business operations, asset management, and other business decisions of the banks", Sahu and Nayak (2008). The UNEPFI estimates financial requirement to the tune of USD 30 trillion till 2030.

According to the World Economic Forum Green Investment Report (2013), there has been an increase in the financing of clean energy asset creation in the developing countries as a result of increased effort towards green growth strategies. The report underlines the significant role of public finance in accelerating the movement towards green investment by helping scale up private financial flows through guarantees and incentives. Among the modes of green investment, of particular interest is the development of green bonds as a financing solution for sustainable development. Green bonds are financial instruments whose proceeds are dedicated to green projects. There are two categories of green bonds that have emerged. Green labeled bonds which are certified as Green and unlabelled green bonds where the proceeds are linked to environmentally beneficial projects. Issuance of green bonds has been growing exponentially in recent years, developing countries also entering into the market.

Green bonds were first issued by European Investment Bank in 2007, followed by the World Bank in 2008. In 2010 the International Finance Corporation and governments at various levels also issued green bonds. Green bonds market is expanding with a total of 45 countries to have issued green bonds. Interestingly, 64 percent of these issuers were new issuers, indicating the better prospects of green bonds markets.

4. Status of Green Bonds around The World

The first green bond was issued in 2007. The “Climate Awareness Bond” was issued by the European Investment Bank (EIB) in 2007, followed by the World Bank issuing a “Green Bond” in 2008. Between 2007 and 2012, governments began to join international organizations and issue their own green bonds and the market reached \$10 billion by mid-2012. In 2015, the largest issuer was the EIB, with KfW, EDF, and the Agricultural Bank of China. New investors including Credit Agricole and HSBC made first time pledges, and various consortia of banks formed to issue guidance on impact reporting, aimed at bringing companies to market. Corporate sector engagement has increased substantially since 2013, indicating high demand among investors, including overall growth in the issuance of green bonds as well as the volume, diversity and size of issues. In 2014, the green bond market reached \$37 billion, almost triple the total level of investment in 2013.

The United Kingdom, China, Germany, Japan, the Netherlands, Norway, and the United States have shown significant growth in the green bonds market since 2014. Seven new markets released \$3.2 billion worth of green bonds in 2015 – Brazil, Denmark, Estonia, Hong Kong, India, Mexico. \$46 billion worth of green bonds were sold worldwide in 2015, according to Bloomberg New Energy Finance.

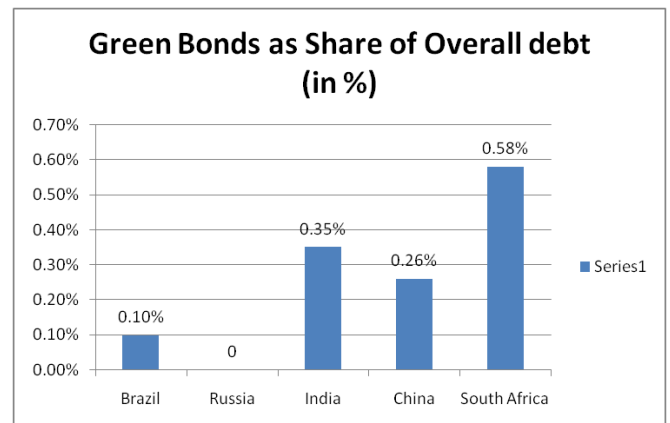
Investment is anticipated to continue increasing in 2019, following the strong climate agreement at the UNFCC climate negotiations in Paris. Overall, Europe hosts the highest number of green bonds, with nearly \$28.4 billion issued in 2018. About \$18.5 billion came from the U.S., where the market was mainly driven by municipal green bonds. Within the

next five years, China’s green bonds market may reap an estimated 2.5 trillion Yuan for renewable energy and environmental projects. The launch of diverse types of green bonds and geographic expansion has indicated that the market is maturing and investor interest is outpacing supply.

Total investment in green bonds is expected to exceed over \$250 billion in 2020.

Although this represents rapid growth of the green bonds market, it is still small compared to the overall \$100 trillion bond market. As the market matures, collaborative models are being created. For example, Green Bond Market Development Committees representing various stakeholders are currently being organized in Mexico, Brazil, Turkey, India, China, Canada and California to develop green bond markets.

4.1 Status of Green Bonds in BRICS Nation:



Source: TERI Report

4.2 Current Potential and market players of Green Bonds in India

To improve energy access to the people at bottom of the pyramid, India has set a target to increase the capacity of renewable energy by targeting to install 100GW of solar energy and 60GW of wind energy by 2022.

The Government of India is working with different market players to enable market creation and remove key obstacles for mobilizing finance. In this context the Government of India is interested in green bonds and has approached to some domestic lenders to raise low cost, long-tenure funds through green bond energy plans. Encouraging national players like the Rural Electrification Corporation (REC), Power Finance Corporation (PFC), and Industrial Development Bank of India (IDBI), Indian Renewable Energy Development Agency (IREDA), and private sector entities like India Infrastructure Finance Corporation Limited (IIFCL), ICICI Bank, and Yes Bank to enter the market would help scale up green bonds in India.

Opportunities by India 2030 source IFC (International Finance Corporation)

Renewable Energy	\$448 Billion
Green Building	\$1.4 TN
Transport Infrastructure	\$250 BN
Municipal solid waste management	\$11BN

Climate –smart urban water	\$128BN
Climate –smart agriculture	\$194BN

According to CBI, India is one of the top ten emerging markets for green bond. \$2.5tn required to meet the target of climate change mitigation by 2030. There are many players who could easily issue green bonds.

5. Key Barriers to the Expansion of Green Bonds in India

Some common barriers can suppress the growth of green bonds but these barriers can be overcome in a maturing market and through policy interventions.

- Need for Validation of “Green” Projects: There should be a transparent and credible certification of the quality and “greenness” of the projects. Establishment of strong standards and certification process are required to mitigate this risk.
- Liquidity: The liquidity of green bond is very thin as there is no secondary market for the bonds. Investors have to buy and hold till its maturity more over green bonds generally has a long tenure. But the dynamics will change as the market for the bond expands, diversifies and new investors enter, liquidity also increases.
- Additional Costs to Issuers: Green bonds may have some additional transactional costs associated because issuers must track, monitor and report on the use of proceeds. These costs are quickly declining

and expected to be driven down even more as green bonds scale, diversification improves the market, and demand increases. Additionally, many green bond issuers do not pass on this cost into the pricing of green bonds because the expense is offset by benefits, including:

- Highlighting their green assets and business.
- Providing a positive marketing story.
- Diversifying their investor base (as they can now attract ESG specialist investors)
- Improving internal collaboration of teams across different departments, such as sustainability, finance and operations.

6. Conclusion

After the follow-up of COP-21 agenda and the UN 17 sustainable development goals, the speed of access and recognition towards green bonds has increased a lot and the sustainable and responsible investment market sees increasing inflows and gets more and more attention. The process of channelizing funds from the green bonds always gets invested in the environmentally and eco-friendly projects. But still it requires a lot of distance to cover, as the proportion of green bonds in the overall debt of the BRICS nations is not a satisfactory figure and it requires the further improvement. However, even though the market of Green bonds doubled in terms of amounts issued from 2017 to 2018, the global Green bond market still consists of less than one percent of the overall bond market.

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