

2nd International Conference on Economics and Development

Track: Finance and Investments

*Topic: Review On Green Bonds For Harnessing Sustainable
Ecosystem*

Submitted By:

**Dr. Deepa Gupta*

***Mrs. Trupti Bhosale*

****Dr. Deepa Pillai*

Symbiosis International (Deemed University)

Introduction

- ▶ Combating climate change is repeatedly debated and has been one of the utmost challenges faced across the globe
- ▶ Green bonds are viable option, a subset of the bond market financing “green projects”
- ▶ Moody’s findings indicate cumulative green bond issuance in India doubled to \$6.5 billion since SEBI issued its green bond regulations in May 2017
- ▶ S& P Global rating specify the growth in green bond market has been by 80% over the past five years due to political push to address climate change
- ▶ Renewable energy, energy efficiency, low-carbon transport, sustainable water, and waste and pollution are financed through green bonds
- ▶ In developing countries, green bonds are financing projects such as renewable energy, urban mass transit systems and water distribution
- ▶ The Green Bond Principles (GBP) are voluntary guidelines created for ensuring a credible market

Growth of Green Bond Market

2007

€600m

The European Investment Bank issues a €600 million Climate Awareness Bond focused on renewable energy and energy efficiency, the first transaction of its kind.

2008

\$440m

The World Bank issues the world's first labeled green bond, raising the Swedish krona equivalent of \$440 million.

2010

\$200m

IFC issues its first green bond, raising \$200 million.

2012

\$2.6bn

Annual global green bond issuance rises to \$2.6 billion.

2013

\$1bn

IFC issues a \$1 billion green bond, the largest in the market to date, setting new global benchmarks.

2014

\$36.6bn

Launch of new voluntary guidelines, the Green Bond Principles, as annual issuance rises to \$36.6 billion.

2015

\$1bn

China's first green bond raises \$1 billion for the Agricultural Bank of China.

2016

\$4.3bn

China's Bank of Communications raises \$4.3 billion in the world's single largest green bond at the time.

2017

\$155bn

Annual issuance increases to more than \$155 billion.

2018

\$1.4bn

IFC and Amundi launch the world's largest green bond fund to date, raising \$1.4 billion for the the Amundi Planet Emerging Green One (EGO) fund.

Significance of the study

- ▶ Step towards inclusive development of environment, capital market and financial system
- ▶ Traditional debt financing are deficient for immense green investment thus recognizing new means of financing for leveraging a wider investor base is imperative
- ▶ Green bonds facilitate in nurturing eco friendly industries
- ▶ Investors can have existence of environment footprint in their portfolio
- ▶ Investments are in diversified sectors which fulfill the medium and long term preferences of institutional investors

Origin of the Study

- ▶ Investment in renewable energy of USD 264bn for confronting the issue of climate change by year 2022
- ▶ Renewable energy originators find mismatch in asset & liabilities, Higher interest cost and sectoral limits
- ▶ Inadequate finance for large number of green projects
- ▶ Lack of understanding about the instrument amongst domestic investors perceiving them as risky investments
- ▶ Existence of exclusion of financing unusual sectors : Marine and forest conservations
- ▶ Smaller projects leading to issue of small size issues

Research Objectives

The review propose to achieve the aforesaid objectives linked to green bonds:

- i) The Implications of green bond issuance
- ii) Emergence of new practices in the capital markets
- iii) Strategic paybacks to the stakeholders
- iv) Limitations restricting the growth of green bonds

Methodology

- ▶ Review based study was undertaken on Green Bonds
- ▶ Data extraction was undertaken by the authors from Elsevier, Scopus and Ebsco database using a predefined matrix to summarize the findings
- ▶ Search Key words such as green bonds, sustainability, green investments and green finance were used extensively
- ▶ Overall 47 research papers were reviewed across different economies to understand the potential and challenges for green finance

Definition review on Green Bonds

Source	Definition	Relevance
The Climate Bonds Initiative	“An instruments in which the proceeds will be exclusively applied towards new and existing Green Projects – defined here as projects and activities that promote climate or other environmental sustainability purposes”	Environmental sustainability. Stress on deliverables.
International Capital Market Association (2016)	“Funds are raised for environmentally friendly projects or existing projects with environmental benefits”	Emphasizes on raising of funds and to reap the benefits on investment.
World Bank (2016)	“Fixed income investors to support the World Bank lending for eligible projects that seek to mitigate climate change or help affected people to adapt to it”	Investors centric approach.
OECD	“Green bonds are debt instruments used to finance green projects that deliver environmental benefits”	Focus on investment in green projects.

Literature Search

Source of Listed Journals	No. of Journal articles referred	No. of articles selected for review
<ul style="list-style-type: none">• Elsevier	<ul style="list-style-type: none">• 21	<ul style="list-style-type: none">• 18
<ul style="list-style-type: none">• Francis & Taylor	<ul style="list-style-type: none">• 8	<ul style="list-style-type: none">• 6
<ul style="list-style-type: none">• Springer	<ul style="list-style-type: none">• 3	<ul style="list-style-type: none">• 2
<ul style="list-style-type: none">• Research Reports	<ul style="list-style-type: none">• 12	<ul style="list-style-type: none">• 7
<ul style="list-style-type: none">• Newspaper articles	<ul style="list-style-type: none">• 14	<ul style="list-style-type: none">• 10
<ul style="list-style-type: none">• Dissertations	<ul style="list-style-type: none">• 3	<ul style="list-style-type: none">• 2
<ul style="list-style-type: none">• Working papers	<ul style="list-style-type: none">• 4	<ul style="list-style-type: none">• 2

Literature Analysis- Implications of Green

Author/ Source, Year	Discussion	Inference
FICCI Report (2016)	An Investment opportunity with lower operational risk and higher liquidity in the bond market	All green projects may not possess same risks and liquidity
	Green bonds considered as an option with low interest rate and stable long run returns	Returns depend on the viability of investment undertaken
S& P Global Rating (2018)	Chinese banks have contributed significantly to the increase in green bond issuance following the government's decision to build a green financial system in China	One of the leading emerging economies in bond markets
I4CE – Institute for Climate Economics (2016)	Green bonds can help investors implement their long-term climate strategies and enable responsible investors to have alternatives to broaden their portfolios	Investor can be benefitted by increasing the transparency of the underlying assets and companies
	Creating internal synergies between financial and sustainability departments	Improving relationships with debt providers and broadening the ‘investor base’

Literature Analysis- New Practices

- ▶ **Caroline Flammer (2018)** “Corporate Green Bonds”: *Company’s commitment for corporate sustainability, create environmentally responsible public image, attract investors that values natural environment*
- ▶ **Sergey Orlov et. al. (2018)** study evidence that *Green Bonds reduce intergenerational inequalities and facilitates transition to low carbon economy*
- ▶ **Yao Wang (2016)** indicates that the relevant policies of green finance ease the financing bottlenecks that government faces for up front investments further green bonds can hedge investment risk brought by environment and climate change
- ▶ **Merrill Lynch (2015)** report states that *the availability of a variety of ‘use of proceeds’ of bonds is attracting the corporate investors*

Literature Analysis- Payoffs

Author/ Report	Discussion	Comments
CBI(2017)	<i>Indicates green bonds yield substantial improvements in the company's environmental footprint</i>	Augments the brand image of the corporate entity reaping intangible benefits
Flammer (2015)	<i>Green bonds adds psychological benefits for investors, brand value and other indirect gains</i>	The proposition holds true whereby creating responsible citizens.
Cheng et. al. (2014)	<i>Confirms socially responsible firms have enhanced visibility in the capital markets</i>	Credibility of the entity will enhance leading to potential prospects.
Bernard Paraque (2014)	<i>The paper analyzes the ethical and social values in terms of economic, social and environmental development</i>	Investor Awareness is essential also devising mechanism for tracking the progress of project.
Greening India's Financial Market	<i>Green bonds can provide lower cost, stable funding for renewable energy projects while offering a competitive risk return profile compared to traditional bonds</i>	Need to develop strategies that can help strengthen and expand the green bond market by reducing cost of capital and diversifying the issuer base

Literature Analysis- Limitations

- ▶ Many investors are still considering the instrument as a "charity investment" and businesses still seem anxious about returns on investments (EY, 2016)
- ▶ Discussion paper on "The potential of Green Bonds" (2016), Investors are highly heterogeneous, with different needs and fiduciary duties

Research Gaps

Parameter	Research Gap
Theory on Green finance	Need to theoretically and empirically assess green investments both for private and public limited companies
	“Green projects” need to be defined at national context as each country differs in the green initiatives
Evaluation and Verification	There exist a dearth of literature on measuring the derived value by green bonds based on type of investments
	Lack of indicative studies on green innovation and corporate reputation and image
Risk	Inadequate precise models for mapping and managing the environmental exposure and its impact on investors
Investor perception	No counteractive mechanism preexist for creating awareness about green bonds and its paybacks
Reporting	Emphasis on progressing towards harmonized methodologies and consistent reporting to be formulated
	Progressive reporting norms to be set in place based on the project advancement

Conclusions

- ▶ Green bonds is an effective way for a company to show its commitment to environmental causes to demonstrate their green credentials
- ▶ Green bonds offer potential cost advantages with wider investor base both domestically and internationally thus creating better pricing for green bonds than regular bonds
- ▶ Policy initiatives such as tax reduction, interest subsidies and credit guarantees can reduce the funding costs for green bonds

Future scope of research

- ▶ Mapping the effect of green bonds on the other debt instruments of the company
- ▶ Assessing the association between the issuance of green bonds and the payoffs to the investors
- ▶ Identifying a mechanism for tracking the performance of the green project

Recommendations

- ▶ The projects and life of project to which the proceeds are to be allocated should be specified
- ▶ Country specific definition of “green initiatives” should be stated
- ▶ Enhanced reporting and transparency in issuance and usage of proceeds
- ▶ Initiatives for assessing the impact on the environment post issue of bonds

References

- ▶ *EY (2016). Green bonds - a fresh look at financing green projects. Technical report, EY.*
- ▶ *Green Bond Discussion, BoA, Merrill Lynch, May 21, 2015*
- ▶ *Yao Wang a, Qiang Zhia (2016) “The role of green finance in environmental protection: Two aspects of market mechanism and policies”, Energy Procedia.*
- ▶ *Flammer C. (2015)” Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach”, Management Science.*
- ▶ *Kim, J., Kaplan, R., 2004. Physical and psychological factors in sense of community: new Urbanist Kentlands and Nearby Orchard Village. Environ.*
- ▶ *HSBC green bond report- HSBC group (2017)*
- ▶ *G20 Green Finance **Study Group Synthesis Report***
- ▶ *Bernard Paraque, Christophe Revelli (2018) “Ethico-economic analysis of impact finance: The case of Green Bonds” Research in International Business and Finance.*
- ▶ *Christophe Schinckus “The valuation of social impact bonds: An introductory perspective with the Peterborough SIB”, Research in International Business and Finance*

THANK YOU!