Project Title:	Essays on Sovereign Green Bond Markets: An Emerging Markets Study	
Project Number	IMURA1069	
Monash Main Supervisor (Name, Email Id, Phone)	Dr. Jean Pierre Fenech Jeanpierre.fenech@monash.edu	*Full name, Email*
Monash Co-supervisor(s) (Name, Email Id, Phone)		
Monash Head of Dept/Centre (Name,Email)	Professor Yulia Merkoulova Yulia.markoulova@monash.edu	*Full name, email*
Monash Department:	Department of Banking and Finance	
Monash ADGR (Name,Email)	Professor Russel Smyth Russel.smyth@monash.edu	*Full name, email*
IITB Main Supervisor (Name, Email Id, Phone)	Dr. Piyush Pandey piyush@som.iitb.ac.in	*Full name, Email*
IITB Co-supervisor(s) (Name, Email Id, Phone)	-	*Full name, Email*
IITB Head of Dept (Name, Email, Phone)	Prof. S Narayan Rao hod@som.iitb.ac.in	*Full name, email*
IITB Department:	SJM School of Management	

Research Clusters:

Research Themes:

Highlight which of the Academy's CLUSTERS this project will address? *(Please nominate JUST __one.__ For more information, see www.iitbmonash.org)*	**Highlight which of the Academy's Theme(s) this project will address?** *(Feel free to nominate more than one. For more information, see www.iitbmonash.org)*	
1 *Material Science/Engineering (including Nano, Metallurgy)*	*1* *Artificial Intelligence and Advanced Computational Modelling*	
2 *Energy, Green Chem, Chemistry, Catalysis, Reaction Eng*	2 *Circular Economy*	
3 *Math, CFD, Modelling, Manufacturing*	3 *Clean Energy*	
4 *CSE, IT, Optimisation, Data, Sensors, Systems, Signal Processing, Control*	4 *Health Sciences*	
5 *Earth Sciences and Civil Engineering (Geo, Water, Climate)*	5 *Smart Materials*	
6 *Bio, Stem Cells, Bio Chem, Pharma, Food*	6 *Sustainable Societies*	
7 *Semi-Conductors, Optics, Photonics, Networks, Telecomm, Power Eng*	7 *Infrastructure*	
8 *HSS, Design, Management*		

The research problem

Climate Change is a problem of humankind leading to impending damages for the global economy (Calel et al., 2020; Diaz and Moore, 2017). Hence, national climate policy aimed at meeting respective environmental, social and governance (ESG) commitments in line with the global international treaties- Paris Agreement, the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction- would lead to transition towards a low-carbon economy. The recent COP 26 in responding to the serious problem of climate change has pointed out that, the current provision towards climate finance to promote sustainability is insufficient, particularly in developing economies (COP 26, 2021). Sustainable finance is soaring in popularity across geography to financially support the green transition as the world aims to address compelling climate change and clean energy issues while also recovering from the on-going COVID-19 pandemic. In response to sustainability and sustainable development, Green Bond, a new sustainable finance tool, a growing subset of the ESG investing universe has recently emerged among companies and investors looking to reorient capital flows towards more sustainable investments (Kila, 2020). A sustainability-focused financial tool like green bonds is a better way to harness the opportunities with the growing demand of ESG-seeking investors (Sisodia et al., 2022).

Green bonds, also known as climate bonds, were first issued by the European Investment Bank in 2007 called the "Climate Awareness Bond" (Tu et al., 2020), followed by the World Bank which issued the second GB in the globe to finance green projects. Since then, many of the world's largest institutions, commercial banks, and municipalities, have started the issuance of GB (Banga, 2018). UNCTAD estimates a $5-7 trillion requirement by 2030 to meet Sustainable Development Goals (SDGs) (UNCTAD, 2014) and the challenges of the recent pandemic added the ingredients to it (Lukšić et al., 2022). While companies have been issuing green bonds, sovereign green bond issuance is a relatively new phenomenon. The first sovereign green bonds were issued by Poland as recently as 2016. As of mid-2022, there are 26 countries with combined volumes of $227 billion in sovereign green debt. The recent COP 26 observed the current provision towards climate finance to promote sustainability is insufficient, particularly in developing economies (COP 26, 2021).

As a step towards fulfilling its international commitment, constitutional ideal to preserve the environment and pursuant to the announcement made by the Finance Minister in the Union Budget 2022-23 of India (Budget) which led to RBI issuing its maiden Sovereign Green Bonds through auction held on January 25, 2023. RBI is slated to issues $1.9billion Sovereign Green Bonds in 2023. The issuance of green bonds will foster India's commitment towards its Nationally Determined Contributions (NDC) targets and build credibility in the global green finance ecosystem. India now stands committed to reduce emissions Intensity of its GDP by 45 percent by 2030, from 2005 level and achieving the target of net zero emissions by 2070. The Singapore government has indicated a pipeline of up to S$35 billion of sovereign and public sector green bonds that will be issued by 2030. The Australian government on the other hand will consider issuing sovereign green bonds if the cost of debt is low enough to offset the additional costs associated with using this form of financing. As the literature on sovereign green bonds is sparse and rather still evolving, pertinent research questions can be asked for sovereign emerging market countries which merits empirical investigation.

Project aims

1. What are the factors influencing sovereign green bond issuance?
2. Exploring the relationship between ESG performance and sovereign green bond issuance.
3. Information transmission between sovereign green bonds and conventional bonds

What is expected of the student when at IITB and when at Monash?

Highlight how the project will gain from the students stay at IITB and at Monash

At IITB:
Understand the theoretical framework around the research topic
Perform extensive review of literature and identify potential research gaps
Ascertain the data sources and requirements and review the empirical model specification
Run the empirical models and analyse and brainstorm the results
Compiling the results and writing research manuscript for possible publication in top tier journals

At Monash
Understand the context of Australia for sovereign green bonds by discussing with academics and industry
Present initials result and get feedback and inputs for improvements

Expected outcomes

Highlight the expected outcomes of the project

We expect to continue to make a strong contribution to the ever increasingly important field of Green Finance in general and Sovereign Green Bonds in particular. This will be in the form of conferences, publications, Invited Lectures etc.

How will the project address the Goals of the above Themes?

Describe how the project will address the goals of one or more of the 6 Themes listed above.

This project falls under the theme of Circular Economy. Sovereign Green Bonds are issued for mobilizing resources for green infrastructure. The proceeds are deployed in public sector projects which help in reducing the carbon intensity of the economy.

Potential RPCs from IITB and Monash

Provide names of the potential research progress committee members (RPCs) and describe why they are most suited for the proposed project

Prof. Trupti Mishra, Professor, SJMSOM (Research Area: Sustainable Finance)
Prof. SVD Nageswara Rao, SJMSOM (Research Area: Financial Markets, ESG)
Prof. S.N.Rao, SJMSOM ((Research Area: Financial Markets, ESG)

Capabilities and Degrees Required

List the ideal set of capabilities that a student should have for this project. Feel free to be as specific or as general as you like. These capabilities will be input into the online application form and students who opt for this project will be required to show that they can demonstrate these capabilities.

MBA or Master degree in Finance/Financial Economics
It is highly desirable to have candidates -
-with a basic knowledge in basics of finance and macroeconomics;
-who have undertaken courses in statistics/business analytics and familiarity in basic statistical software's;
- basic familiarity with coding in any programming languages.
-looking for highly motivated students who are excited about working on a global challenge in a highly interdisciplinary environment.

Necessary Courses

SOM607 Macroeconomics
SOM654 Fixed Income Securities
SOM724 Econometrics of Financial Markets
SOM654 Security Analysis and Portfolio Management

Potential Collaborators

Select up to **(4)** keywords from the Academy's approved keyword list **(available at http://www.iitbmonash.org/becoming-a-research-supervisor/)** relating to this project to make it easier for the students to apply.

Data Science, optimisation, algorithms
Miscellaneous / Uncategorised (Sustainability)
Green Finance
Management