

INVESTOR PERCEPTION OF GREEN BONDS AS A SUSTAINABLE INVESTMENT OPTION

By: Rakshith I R

Dayananda Sagar Business School (DSBS), Bangalore, Karnataka, India

Under the guidance of

Sekappa N Makkalageri

Associate Professor Dayananda Sagar Business School (DSBS)

Abstract

As the global economy increasingly prioritizes sustainable development and environmental resilience, green bonds have emerged as a crucial financial instrument to fund eco-friendly initiatives while offering competitive returns to investors. This study investigates investor perception of green bonds as a viable and sustainable investment option in the Indian context. With the financial sector adapting to environmental, social, and governance (ESG) frameworks, understanding how investors perceive the credibility, risk, and returns of green bonds is vital for scaling sustainable finance. The research explores key determinants such as investor awareness, transparency, governance frameworks, tax incentives, market dynamics, and green product innovation. Using a structured questionnaire, data were collected from 76 respondents through random sampling. The study applied Exploratory Factor Analysis (EFA) using SPSS to identify core factors influencing investor sentiment. Findings reveal that investors generally view green bonds favorably, associating them with both financial profitability and environmental responsibility. Transparency and governance emerged as dominant factors that build trust and encourage participation. However, the study also notes limitations such as low investor awareness and lack of access among retail investors. The research underscores the need for enhanced policy support, standardized regulations, investor education, and broader institutional involvement to unlock the full potential of the green bond market in India. These insights are pivotal for issuers, regulators, and financial institutions aiming to align investment behavior with sustainable development goals.

Keywords: Green Bonds, Investor Perception, Sustainable Investment, ESG Framework, Exploratory Factor Analysis (EFA)

1. INTRODUCTION

The twenty-first century has witnessed an escalating urgency to address global climate change, biodiversity loss, and environmental degradation. In response to these mounting challenges, sustainable development has become a central focus, prompting governments, corporations, and societies to align financial systems with environmental priorities. The financial sector, as a critical driver of global economic activity, now plays a pivotal role in integrating sustainability into investment decisions—a movement broadly termed sustainable finance. Among the most innovative developments in this space is the emergence of green bonds, which have rapidly evolved into a key instrument for financing environmental projects and advancing the transition toward a low-carbon economy.

Green bonds are debt securities specifically designed to fund projects with direct, measurable environmental benefits, such as renewable energy, sustainable infrastructure, pollution control, and water conservation. Since their introduction by the European Investment Bank in 2007 and the World Bank in 2008, green bonds have gained traction due to their dual appeal: they offer investors competitive financial returns while supporting long-term sustainability goals. Structurally similar to conventional bonds, green bonds are distinguished by the requirement that proceeds are allocated exclusively to environmentally beneficial projects. To ensure credibility and transparency, issuers often adhere to international frameworks like the Green Bond Principles (GBP) and the Climate Bonds Standard, which emphasize accountability, third-party verification, and clear sustainability targets.

Despite their growing popularity, the green bond market has yet to reach its full potential. Investor perception remains a decisive factor in the market's development. Both institutional and retail investors shape demand, with their views on credibility, risk, financial returns, and environmental impact influencing investment decisions. Understanding these perceptions is crucial for several reasons. First, it sheds light on the drivers of green investment behavior, including compliance with environmental, social, and governance (ESG) criteria, ethical considerations, and long-term risk management. Second, it helps identify barriers to market expansion, such as concerns over greenwashing, inconsistent regulation, market illiquidity, and high issuance costs. Finally, insights into investor attitudes can guide policymakers and issuers in designing green bonds that better align with investor expectations, thereby fostering a robust and trustworthy sustainable finance ecosystem.

The perspectives of institutional and retail investors on green bonds vary significantly. Institutional investors—such as pension funds, insurance companies, and sovereign wealth funds—are increasingly integrating ESG criteria into their portfolio strategies, partly in response to regulatory pressures like the Task Force on Climate-related Financial Disclosures (TCFD). For these investors, green bonds offer a means to match long-term liabilities with climate-resilient assets. Retail investors, on the other hand, often view green bonds as an opportunity to support environmental causes while earning a financial return. However, their participation is frequently limited by a lack of awareness, difficulties in assessing environmental impact, and restricted access to green bond products on mainstream investment platforms. Both investor segments are vital to the market's growth, making it essential to understand their motivations, concerns, and informational needs.

The regulatory environment is another critical factor influencing investor perceptions. Recent global efforts, such as the European Union's Green Bond Standard and the Sustainable Finance Disclosure Regulation (SFDR), aim to increase transparency, prevent greenwashing, and protect investors. These regulatory advances promote both the supply of and demand for green bonds by establishing clearer standards and boosting investor confidence. However, challenges remain, including regulatory fragmentation across jurisdictions, inconsistent impact assessment methodologies, and a lack of standardization in certification processes. Addressing these issues requires ongoing research into investor perspectives to ensure that policy reforms are responsive to real-world market concerns.

In emerging economies like India, green bonds present a significant opportunity to finance sustainable growth while addressing climate vulnerabilities. The Indian green bond market has shown promise, with increasing participation from public and private sectors, but faces challenges such as limited investor awareness, regulatory uncertainty, and inadequate impact reporting. Understanding investor perceptions in this context is especially relevant, as it can inform national strategies to balance economic development with environmental protection. The findings of this research are expected to provide valuable guidance for regulators, issuers, and financial institutions aiming to foster a resilient and holistic green finance market in India and beyond.

2. LITERATURE REVIEW

Green bonds in India, guided by ICMA's principles and SEBI regulations, have grown to \$21 billion by February 2023. The utilities sector leads in issuance, but local government participation remains limited. (Dr Poonam Mahajan -, 2024 July)

The higher the level of green innovation in terms of product development, the more positive is the perception of investors, thus confirming that environmentally friendly products increase attractiveness of the firm to investors and lead to better financial prospects. (Investor Perception, Green Innovation, and Financial Performance: Insights from Indian Manufacturing Firms, Sep 2023) The growing demand for green bonds reflects increasing investor interest in sustainability, climate risk, and environmental impact. Though direct environmental benefits are still hard to measure, green bonds help issuers build internal capacity and offer investors a path toward greener portfolios. (Christa Clapp, Jan 2023)

Green bonds are becoming increasingly popular among both environmentally conscious investors and those seeking portfolio diversification. The paper highlights the growing role of green bonds in reshaping financial markets and supporting a more sustainable economy, especially under global frameworks like the Paris Agreement. (Krishna Reddy, Mar 2024)

While green bonds are seen as a promising tool for climate finance and have gained investor appeal, weak governance frameworks limit their effectiveness in promoting sustainable development. Strengthening these governance structures is crucial for the market's long-term integrity and growth. (Kathrin Berensmann, Aug 2018)

Green bonds play a vital role in funding sustainable projects in India, aligning with the country's climate goals. However, challenges like high issuance costs, low investor awareness, and regulatory hurdles hinder their full potential, calling for targeted policy support and broader investor participation. (Poonam Shekhawat, Dec 2024)

The global green bond market is expanding rapidly, including in developing countries like Ukraine. Transparent disclosure by issuers significantly boosts investor confidence and market participation, while challenges like vague criteria, regulatory gaps, and liquidity risks still hinder broader adoption.(Oksana Hrubliak, Jan 2024)

China is a global leader in green bond issuance, contributing 39% of worldwide green bond volume. Its strong green finance policies position Chinese green bonds as a crucial driver of global sustainable development and investment.(Nimish Garg, Jan 2020)

Investor perception plays a vital role in shaping the demand for green bonds, influencing market growth and pricing. Market dynamics, including regulatory support, transparency, and credibility of green projects, significantly impact investor confidence and the overall success of green bond initiatives.(Dr.M.Theivanayaki -, Mar 2025)

Green bonds are highlighted as a key financial tool for promoting environmental sustainability, offering benefits like tax incentives and transparency that attract investors. The study also emphasizes the importance of governance structures—public, private, or hybrid—in shaping the effectiveness and credibility of green bond markets.(Binhan Elif Yilmaz, Jan 2022)

Broadcom Inc., a global technology leader with roots in AT&T/Bell Labs and HP/Agilent, has grown through major acquisitions like LSI, Brocade, CA Technologies, and Symantec. These mergers strengthen its position in connecting the world through advanced infrastructure solutions.(Makkalageri, April 2024)

Medical tourism in India, especially Karnataka, is booming due to advanced healthcare and cutting-edge technology attracting patients from the Gulf region. However, to sustain this growth, hospitals must invest in modern facilities and Hospital Information Systems to offer seamless, world-class care. (Sambrani, March 2016)

Sl. No	Variable	Definition	Citation	Question
1	Investor Perception	How investors view and evaluate green bonds in terms of risk, return, and sustainability impact.	(Dr Poonam Mahajan -, 2024 July)	I believe green bonds are a reliable and profitable sustainable investment option.
2	Green Product Innovation	Development of new or improved products that reduce environmental impact throughout their life cycle.	(Investor Perception, Green Innovation, and Financial Performance: Insights from Indian Manufacturing Firms, Sep 2023)	Green product innovation enhances the attractiveness of green bonds for investors like me.

3	Sustainability	Meeting current needs without compromising the ability of future generations to meet theirs.	(Christa Clapp, Jan 2023)	Investing in green bonds significantly contributes to sustainability goals.
4	Governance Framework	The system of rules, practices, and processes by which green bonds are regulated and monitored.	(Krishna Reddy, Mar 2024)	A strong governance framework increases my confidence in investing in green bonds.
5	Green Bond Market	The financial market where green bonds are issued, traded, and evaluated.	(Kathrin Berensmann, Aug 2018)	The current green bond market offers sufficient opportunities for sustainable investments.
6	Investor Awareness	The extent to which investors are informed about green bonds and their benefits.	(Poonam Shekhawat, Dec 2024)	I am well-informed about the benefits and risks associated with green bonds.
7	Transparency	The clarity and completeness of information disclosed about green bond issuance and impacts.	(Oksana Hrubliak, Jan 2024)	Transparent reporting makes me more likely to invest in green bonds.
8	Green Investment	Investment in projects or instruments that positively impact the environment.	(Nimish Garg, Jan 2020)	I prefer to invest in projects that promote environmental sustainability, such as green bonds.
9	Market Dynamics	The forces affecting the green bond market, such as supply, demand, and regulatory trends.	(Dr.M.Theivanayaki -, Mar 2025)	Changes in market conditions affect my willingness to invest in green bonds.
10	Tax Advantages	Incentives like tax credits or exemptions offered for green bond investments.	(Binhan Elif Yilmaz, Jan 2022)	Tax benefits influence my decision to invest in green bonds.

3. RESEARCH METHODOLOGY

This chapter mainly focuses on the methods and approaches adopted towards problem solving.

Primary data collection method is through questionnaire method. The researcher approached through social media, and the Google form link to approach with the respondents. Face-to-face approach in the questionnaire method, in a random manner. Multiple follow-ups were required to finally get 76 number of responses. Software for Data Analysis: For initial data formatting, Statistical Data Analysis, and Exploratory factor analysis SPSS is used.

3.1 Statement of Research Problem

For the present research study, the research problems are as follows:

- Investigating the perception of investors towards green bonds as a sustainable investment option.
- Exploring the influence of environmental awareness, financial return expectations, and trust on investor decision-making.

3.2 Research Conceptualization

This research aims to scrutinize the factors influencing the perception of green bonds among investors, examining how awareness, returns, risk perception, and trust impact investment decisions, offering insights crucial for promoting sustainable finance instruments.

3.3 Objectives of the Study

- To evaluate investor behaviour towards green bonds.
- To analyze the key determinants of investment preference for green bonds.

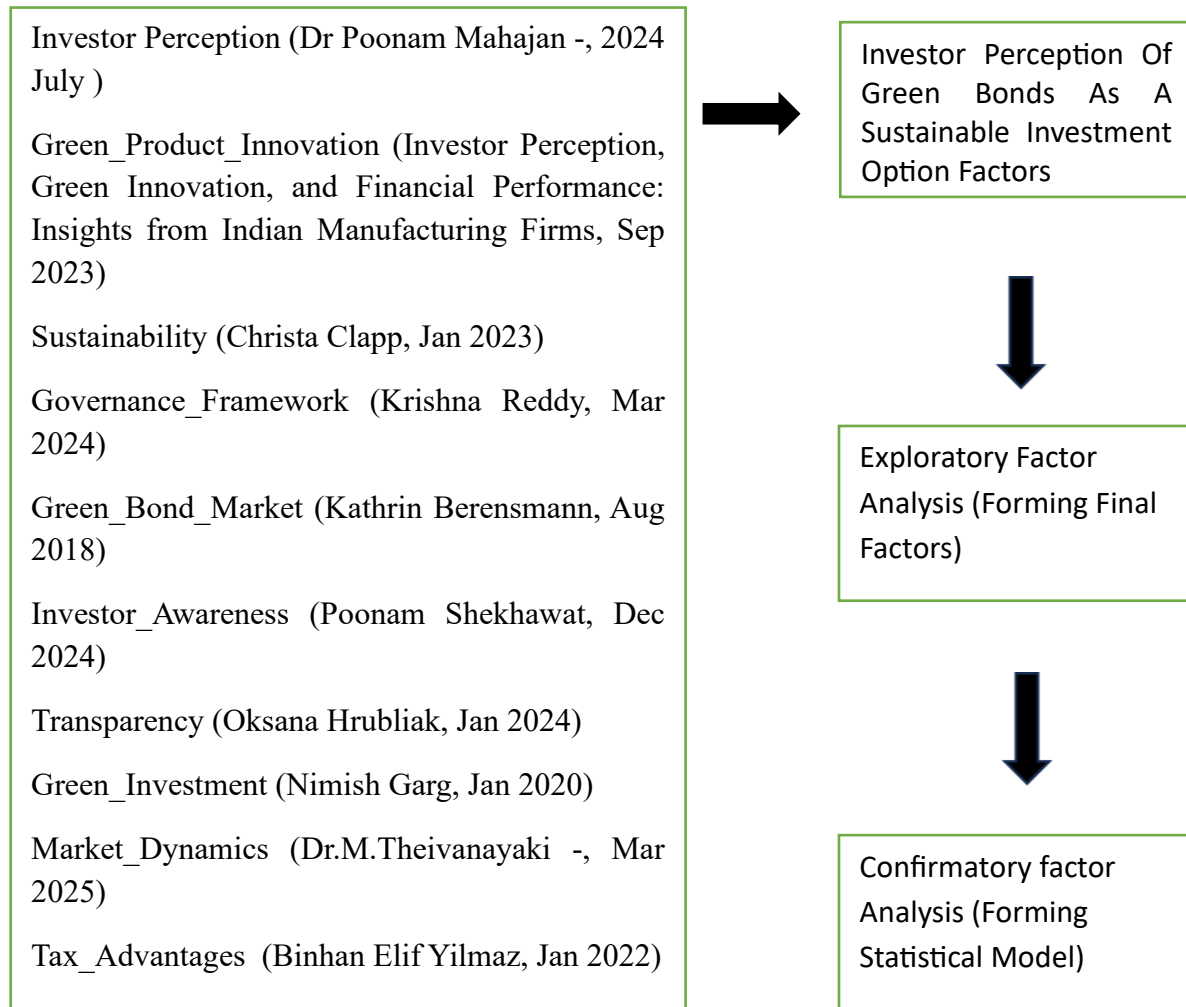
3.4 Methodology Adopted

Designing a proper research methodology is very important as it sets the direction for the research by providing concrete steps to follow. Also, the researcher can reach to a conclusion based on the outcome of the research methodology adopted.

3.4.1 Conceptual framework

From the available literature following variables/indicators were identified to start the initial work. These are listed below.

Figure 1: Conceptual Framework



3.4.2 Sources of Data

- **Secondary Data:** Collected from journals, research articles, reports, and publications related to green bonds, sustainable finance, and investor behaviour through sources like Google Scholar and ResearchGate.
- **Primary Data:** Collected through structured questionnaires distributed via online platforms.

3.4.3 Sampling Method

The sampling method utilized in the study involved employing **random sampling** techniques to select participants from a broad investor base, ensuring a diverse representation across age, income, and investment experience, thereby enhancing the reliability and validity of the research findings.

3.4.4 Sample Size

The final study includes a factor analysis, with a sample size of 76 respondents collected to ensure greater robustness.

3.4.5 Sample Size Validity

As the researcher intends to conduct Exploratory Factor Analysis (EFA), the KMO value, Bartlett's Test of Sphericity, and Anti-image matrices are checked for adequacy.

Table 3.1 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.704
Bartlett's Test of Sphericity	Approx. Chi-Square	167.024
	df	45
	Sig.	.000

*KMO \geq 0.7 is accepted reference value

All above tests are done through IBM SPSS

All the above KMO value is .704 ($>.7$) Which is sufficient for adequate sample size to perform factor analysis.

Table 3.2 Anti image Covariance and correlation matrix

Anti-image Matrices											
		Investor_Perc eption	Green_Produ ct_Innovation	Sustainability	Governance_ Framework	Green_Bond_ Market	Investor_Awar eness	Transparency	Green_Invest ment	Market_Dyna mics	Tax_Advantag es
Anti-image Covariance	Investor_Perception	.597	-.102	-.001	.099	-.007	-.074	.048	-.164	-.208	-.112
	Green_Product_Innovation	-.102	.677	-.216	-.018	-.127	.072	-.091	-.073	.065	.013
	Sustainability	-.001	-.216	.538	-.204	.110	-.060	-.091	.129	-.167	-.112
	Governance_Framework	.099	-.018	-.204	.621	-.053	-.106	.088	-.146	.045	-.149
	Green_Bond_Market	-.007	-.127	.110	-.053	.679	-.163	-.074	.065	-.220	-.134
	Investor_Awareness	-.074	.072	-.060	-.106	-.163	.909	.016	-.017	.051	.113
	Transparency	.048	-.091	-.091	.088	-.074	.016	.856	-.189	-.045	.094
	Green_Investment	-.164	-.073	.129	-.146	.065	-.017	-.189	.640	-.026	-.165
	Market_Dynamics	-.208	.065	-.167	.045	-.220	.051	-.045	-.026	.577	.001
	Tax_Advantages	-.112	.013	-.112	-.149	-.134	.113	.094	-.165	.001	.561
Anti-image Correlation	Investor_Perception	.749 ^a	-.161	-.001	.163	-.011	-.100	.066	-.266	-.354	-.193
	Green_Product_Innovation	-.161	.764 ^a	-.359	-.028	-.187	.092	-.119	-.111	.104	.021
	Sustainability	-.001	-.359	.653 ^a	-.353	.182	-.086	-.133	.220	-.300	-.204
	Governance_Framework	.163	-.028	-.353	.695 ^a	-.081	-.141	.121	-.232	.075	-.252
	Green_Bond_Market	-.011	-.187	.182	-.081	.686 ^a	-.208	-.097	.098	-.352	-.218
	Investor_Awareness	-.100	.092	-.086	-.141	-.208	.436 ^a	.019	-.023	.071	.158
	Transparency	.066	-.119	-.133	.121	-.097	.019	.586 ^a	-.255	-.064	.136
	Green_Investment	-.266	-.111	.220	-.232	.098	-.023	-.255	.682 ^a	-.043	-.275
	Market_Dynamics	-.354	.104	-.300	.075	-.352	.071	-.064	-.043	.714 ^a	.002
	Tax_Advantages	-.193	.021	-.204	-.252	-.218	.158	.136	-.275	.002	.773 ^a

a. Measures of Sampling Adequacy(MSA)

3.4.6 Tools for Analysis

The data for this study was collected with the aid of the survey questionnaire method. Extreme measures were taken to reduce sampling error, such as choosing the largest possible number for a sample size, and ensuring correct data entry so that systematic bias might not creep in. The data were analyzed using Exploratory Factor Analysis (EFA).

IBM SPSS Statistics was used in all statistical and analytical procedures.

3.5 Limitations

1. Many respondents may have limited knowledge or awareness about green bonds, affecting the reliability and depth of the insights into investor perceptions.
2. The study may not fully capture the diversity of the broader investor population, especially institutional investors, due to constraints in reaching a balanced sample across different demographics and investment profiles.

4. DATA ANALYSIS

4.1 Collection and analysis of data

The research study "Investor Perception of Green Bonds as a Sustainable Investment Option" involved gathering data on investor behavior, environmental awareness, financial expectations, and the impact of green certification. The collected data scrutinized investors' psychological drivers, risk perceptions, and financial motivations associated with green bonds. The analysis aims to provide valuable insights into how investors perceive green bonds compared to conventional financial instruments and what factors significantly influence their sustainable investment decisions.

4.2 Multivariate Outlier analysis

Multivariate outlier analysis is essential when multiple variables are present and considered in a study. It helps detect unusual data patterns that might influence the results disproportionately.

As this data has multiple variables, the researcher chose to follow the Mahalanobis Distance Test for multivariate analysis for outlier determination.

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.15	5.01	3.97	.639	74
Std. Predicted Value	-2.857	1.617	.000	1.000	74
Standard Error of Predicted Value	.109	.487	.295	.078	74
Adjusted Predicted Value	2.20	5.01	3.97	.659	74
Residual	-2.549	1.464	.000	.778	74
Std. Residual	-3.069	1.763	.000	.936	74
Stud. Residual	-3.255	2.114	.004	1.011	74
Deleted Residual	-2.867	2.105	.007	.911	74
Stud. Deleted Residual	-3.536	2.175	-.002	1.036	74
Mahal. Distance	.274	24.139	8.878	5.029	74
Cook's Distance	.000	.196	.018	.036	74
Centered Leverage Value	.004	.331	.122	.069	74

a. Dependent Variable: DV

4.3 Multicollinearity

Multicollinearity refers to a situation where two or more independent variables in a dataset are highly correlated, typically with a correlation coefficient greater than 0.90. This strong interrelationship can create difficulties in data analysis, leading to biased or unreliable results, and therefore should be addressed or eliminated. In this study, no pair of indicators exhibited a correlation exceeding 0.90, indicating that multicollinearity is not present in the data.

4.4 (Multivariate) Normality analysis

Conducting a normality analysis is an essential preliminary step before the main data analysis in research. It provides insight into the distribution of the collected data and helps determine the appropriate analytical methods to use. Since the primary objective of this study is to perform factor analysis, it is important that the data approximates normality, which it does in this case.

Table 4.1 Descriptive statistic

Descriptive Statistics												
	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Error Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error Std. Error	Kurtosis Statistic	Std. Error Std. Error
Investor_Perception	74	4	1	5	3.97	.117	1.006	1.013	-.773	.279	-.060	.552
Green_Product_Innovation	74	4	1	5	3.70	.115	.989	.979	-.586	.279	.094	.552
Sustainability	74	4	1	5	3.99	.122	1.053	1.109	-.840	.279	-.165	.552
Governance_Framework	74	4	1	5	3.68	.128	1.099	1.208	-.717	.279	.048	.552
Green_Bond_Market	74	3	2	5	3.76	.117	1.004	1.009	-.239	.279	-1.038	.552
Investor_Awareness	74	4	1	5	3.89	.128	1.105	1.221	-.845	.279	.112	.552
Transparency	74	4	1	5	3.76	.132	1.132	1.282	-.549	.279	-.655	.552
Green_Investment	74	4	1	5	3.88	.120	1.033	1.067	-.900	.279	.657	.552
Market_Dynamics	74	3	2	5	3.88	.115	.992	.985	-.528	.279	-.724	.552
Tax_Advantages	74	4	1	5	3.80	.130	1.122	1.260	-.781	.279	-.123	.552
Valid N (listwise)	74											

Table 4.2 Correlation Matrix

Correlation Matrix ^a											
	Investor_Perc ception	Green_Produ ct_Innovation	Sustainability	Governance_ Framework	Green_Bond_ Market	Investor_Awar eness	Transparency	Green_Invest ment	Market_Dyna mics	Tax_Advantag es	
Correlation	Investor_Perception	1.000	.322	.258	.128	.305	.096	.114	.418	.504	.407
	Green_Product_Innovation	.322	1.000	.469	.275	.285	.020	.228	.272	.256	.303
	Sustainability	.258	.469	1.000	.469	.191	.105	.169	.150	.392	.403
	Governance_Framework	.128	.275	.469	1.000	.213	.162	.013	.315	.164	.457
	Green_Bond_Market	.305	.285	.191	.213	1.000	.198	.152	.182	.451	.345
	Investor_Awareness	.096	.020	.105	.162	.198	1.000	.012	.048	.063	.004
	Transparency	.114	.228	.169	.013	.152	.012	1.000	.244	.181	.036
	Green_Investment	.418	.272	.150	.315	.182	.048	.244	1.000	.253	.439
	Market_Dynamics	.504	.256	.392	.164	.451	.063	.181	.253	1.000	.334
	Tax_Advantages	.407	.303	.403	.457	.345	.004	.036	.439	.334	1.000
Sig. (1-tailed)	Investor_Perception		.003	.013	.138	.004	.208	.166	.000	.000	.000
	Green_Product_Innovation	.003		.000	.009	.007	.432	.025	.009	.014	.004
	Sustainability	.013	.000		.000	.051	.187	.074	.102	.000	.000
	Governance_Framework	.138	.009	.000		.034	.083	.457	.003	.081	.000
	Green_Bond_Market	.004	.007	.051	.034		.045	.098	.060	.000	.001
	Investor_Awareness	.208	.432	.187	.083	.045		.461	.341	.298	.486
	Transparency	.166	.025	.074	.457	.098	.461		.018	.062	.380
	Green_Investment	.000	.009	.102	.003	.060	.341	.018		.015	.000
	Market_Dynamics	.000	.014	.000	.081	.000	.298	.062	.015		.002
	Tax_Advantages	.000	.004	.000	.000	.001	.486	.380	.000	.002	

a. Determinant = .088

Table 4.3 ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.808	9	3.312	4.802	.000 ^b
	Residual	44.138	64	.690		
	Total	73.946	73			

a. Dependent Variable: DV

b. Predictors: (Constant), Tax_Advantages, Investor_Awareness, Transparency, Green_Product_Innovation, Market_Dynamics, Governance_Framework, Green_Investment, Green_Bond_Market, Sustainability

4.5 Reliability Test

For factor analysis we need to do reliability test so we can consider reliable items for factor analysis.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.755	.760	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Investor_Perception	34.32	28.359	.500	.403	.724
Green_Product_Innovation	34.59	28.683	.478	.323	.727
Sustainability	34.31	27.861	.518	.462	.720
Governance_Framework	34.62	28.458	.432	.379	.733
Green_Bond_Market	34.54	28.827	.454	.321	.730
Investor_Awareness	34.41	31.888	.130	.091	.775
Transparency	34.54	30.800	.211	.144	.765
Green_Investment	34.42	28.603	.458	.360	.729
Market_Dynamics	34.42	28.356	.510	.423	.722
Tax_Advantages	34.50	27.158	.540	.439	.716

4.6 Factor Analysis

Factor analysis is a data reduction technique where a large number of variables is reduced to a small number of factors.

Exploratory factor analysis is a process in which the large number of variables can be reduced to smaller number of sets of identified variables to find out underlying theoretical phenomenon.

Correlation matrix determinant is +ve (0.001) reliable; KMO value (.704) is > 0.70 therefore sample is adequate. All anti-image values are > 0.5 and hence sample size is adequate for each variable for factor analysis. Also, Bartlett's Test of Sphericity shows it is significant (0.001). Therefore, data is suitable for analysis and formation of factors is possible. All the communalities values are > 0.5 which is good for factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.704
Bartlett's Test of Sphericity	Approx. Chi-Square	167.024
	df	45
	Sig.	.000

$KMO \geq 0.7$ is accepted reference value.

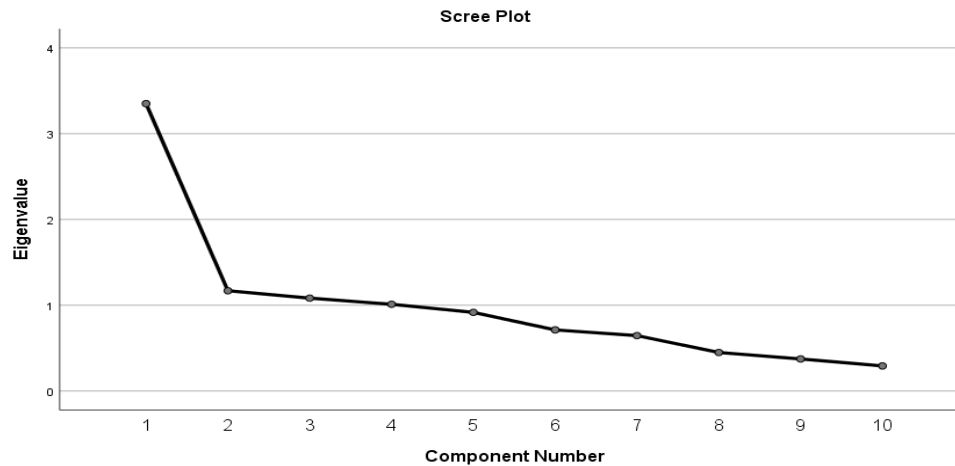
Interpretation of Total Variance Explained

- Sees a total of 03 factors emerging (whose eigen value is greater than 1.0)
- From the column of 'Cumulative %', it shows that 03 factors contribute 65.82% in total variance, which is substantial. Anything greater than 50% is good, and if it reaches 70% and above, it is excellent.
- From the Scree Plot (Fig), at the 4th factor, the graph flattens. Hence, from this, one would derive $4 - 1 = 3$ meaningful factors.

Total Variance Explained

Component	Total	Initial Eigenvalues		Extraction Sums of Squared Loadings		
		% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.350	33.499	33.499	3.350	33.499	33.499
2	1.169	11.685	45.184	1.169	11.685	45.184
3	1.082	10.824	56.008	1.082	10.824	56.008
4	1.011	10.106	66.115	1.011	10.106	66.115
5	.916	9.163	75.278			
6	.712	7.121	82.399			
7	.646	6.455	88.854			
8	.449	4.491	93.345			
9	.374	3.735	97.080			
10	.292	2.920	100.000			

Extraction Method: Principal Component Analysis.



5. FINDINGS, SUGGESTIONS, CONCLUSION, LIMITATIONS, FUTURE SCOPE OF RESEARCH.

5.1 Findings

1. Most investors perceive green bonds as a profitable and sustainable investment option, indicating growing trust in ESG instruments.
2. Transparency, governance, and product innovation are key factors influencing investor confidence in green bonds.

5.2 Suggestions

To strengthen green bond adoption, awareness campaigns should target both retail and institutional investors. Regulatory bodies must enforce stricter standards and promote third-party certification to avoid greenwashing. Tax incentives and improved accessibility on digital platforms can further boost investor participation.

5.3 Conclusion

The study highlights positive investor sentiment toward green bonds, driven by environmental concerns and financial viability. However, awareness and trust issues still hinder market growth. With proper regulation and outreach, green bonds can play a major role in sustainable investment in India.

5.4 Limitations

The study is limited by a small sample size and potential respondent bias due to uneven awareness levels.

5.5 Future Scope of Research

1. Future studies can focus on institutional investor strategies and their ESG integration practices.
2. Cross-country comparisons could offer broader insights into global investor perceptions and regulatory effectiveness

ANNEXURE

QUESTIONNAIRE

INVESTOR PERCEPTION OF GREEN BONDS AS A SUSTAINABLE INVESTMENT OPTION

Thank you for participating in this research study investor Perception of Green Bonds as a Sustainable Investment Option explores how investors view green bonds in terms of their environmental impact, financial returns, and credibility as sustainable financial instruments. It examines the growing interest among investors in aligning their portfolios with eco-friendly values while assessing the risks, transparency, and benefits associated with green bond investments.

1. Email
2. Age
3. Gender
4. Income Level
5. Occupation

Strongly agree =5, Agree= 4, Neutral = 3, Disagree =2, Strongly Disagree =1

Questions	5	4	3	2	1
I believe green bonds are a reliable and profitable sustainable investment option.					
Green product innovation enhances the attractiveness of green bonds for investors like me.					
Investing in green bonds significantly contributes to sustainability goals.					
A strong governance framework increases my confidence in investing in green bonds.					
The current green bond market offers sufficient opportunities for sustainable investments.					
I am well-informed about the benefits and risks associated with green bonds.					
Transparent reporting makes me more likely to invest in green bonds.					
I prefer to invest in projects that promote environmental sustainability, such as green bonds.					
Changes in market conditions affect my willingness to invest in green bonds.					
Tax benefits influence my decision to invest in green bonds.					

REFERENCES

1. <https://ppl-ai-file-upload.s3.amazonaws.com/web/direct-files/attachments/58648855/64cf1846-54da-443f-9382-5a840e4ae8fc/paste.txt>
2. <https://paperpal.com/blog/researcher-resources/research-advice/length-of-the-research-paper>
3. <https://www.sjsu.edu/writingcenter/docs/handouts/Introduction%20of%20Research%20Papers.pdf>
4. <https://www.linkedin.com/pulse/how-write-introduction-any-research-paper-step-guide-aneela-majeed-fwelc>
5. <https://www.scribbr.com/working-with-sources/how-to-summarize/>
6. <https://www.efzg.unizg.hr/UserDocsImages/PDS/vleko/how-to-write-a-two-page-paper.pdf>
7. <https://cambridge-research.org/blogs/how-to-write-a-research-paper/>
8. <https://paperpal.com/blog/researcher-resources/research-advice/research-paper-summary>
9. <https://www.sciencebuddies.org/science-fair-projects/science-fair/how-to-format-a-research-paper>
10. <https://paperpal.com/blog/researcher-resources/how-to-write-a-research-paper-introduction-with-examples>
11. https://afforai.com/blog/how_to_summarize_a_research_article
12. <https://www.grammarly.com/blog/academic-writing/how-to-write-a-research-paper/>
13. <https://www.uhcl.edu/writing-center/documents/tip-sheets/resource-papers-100523.pdf>
14. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6398294/>
15. <https://thinkscience.co.jp/en/articles/effective-introductions-to-original-research>
16. <https://www.editage.com/insights/10-tips-reduce-length-your-manuscript>
17. https://writingcenter.uconn.edu/wp-content/uploads/sites/593/2014/06/How_to_Summarize_a_Research_Article1.pdf

Citations:

Binhan Elif Yilmaz, S. A. (Jan 2022). *Are Green Bonds Really Green?* .

Christa Clapp, K. L. (Jan 2023). Green bonds: investor, issuer and climate perspectives.

Dr Poonam Mahajan -, D. S.-,. (2024 July). Green Bonds as A New Investment Tool For Sustainable Development In India. *International Journal For Multidisciplinary Research*.

Dr.M.Theivanayaki -, M. M. (Mar 2025). Investor Perception and Market Dynamics of Green Bonds . *International Journal on Science and Technology*.

Investor Perception, Green Innovation, and Financial Performance: Insights from Indian Manufacturing Firms. (Sep 2023). *Futurity Economics&Law*.

Kathrin Berensmann, N. L. (Aug 2018). *Demystifying green bonds*.

Krishna Reddy, A. S. (Mar 2024). Green Bonds: A Pathway to Sustainable Investment and Environmental Resilience. *International Journal Of Recent Trends In Multidisciplinary Research*.

Makkalageri, S. S. (April 2024). Broadcom Inc.'s acquisition of vmware: When technology meets technology. *JIMS8M The Journal of Indian Management & Strategy*.

Nimish Garg, C. K. (Jan 2020). *China as a Leader on Green Bonds* .

Oksana Hrubliak, A. O. (Jan 2024). Green bonds as a tool for attracting investment in environmental projects. *Galician economic journal*.

Poonam Shekhawat, N. N. (Dec 2024). GREEN BONDS AND SUSTAINABLE INVESTMENT: THE RISE OF ECO-CONSCIOUS FINANCING IN INDIA. *INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN COMMERCE, MANAGEMENT & SOCIAL SCIENCE* .

Sambrani, S. N. (March 2016). Innovation and Technology for medical tourism in Karnataka. *International Journal of Research in Management*.