

Green Finance and Sustainable Investment Trends in Indian Capital Markets

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ABSTRACT

Growing emphasis on environmental concerns has resulted in green finance gaining significance within contemporary financial systems, particularly in emerging economies such as India. Indian capital markets have increasingly begun to integrate sustainability linked financial instruments aimed at fostering environmentally responsible economic development. This study aims to examine the development and recent trends of green finance and sustainable investment in India, with specific reference to green bonds, ESG based financial products, and sustainability linked market indicators. The research relies exclusively on secondary data obtained from regulatory documents, stock exchange disclosures, and globally recognized sustainability databases. A descriptive and analytical research design is adopted, using trend analysis, growth measures, and comparative indicators to evaluate the expansion of sustainable investment avenues over time. The findings reveal a clear rise in green bond issuances and growing participation in ESG oriented investments, along with enhanced regulatory involvement in promoting sustainable finance practices. However, the study also identifies persistent challenges, including restricted market reach, absence of standardized ESG disclosure frameworks, and comparatively low levels of investor awareness. By presenting a consolidated overview of green finance initiatives within Indian capital markets, the study contributes to the existing literature and highlights the need for stronger policy support, improved transparency, and broader market participation to accelerate sustainable investment growth in emerging economies.

Keywords: Green Finance, Sustainable Investment, ESG, Indian Capital Markets, Sustainability

INTRODUCTION

The accelerating pace of climate change, environmental degradation, and depletion of natural resources has transformed sustainability from a peripheral policy of concern into a central objective of economic and financial systems worldwide. Governments, corporations, and investors are increasingly recognizing that long term economic growth cannot be sustained without addressing environmental risks, social inequalities, and governance failures. Within this evolving global context, the financial sector has assumed a pivotal role in channeling capital towards environmentally responsible and socially inclusive activities. The concept of green finance has thus gained prominence as a framework that seeks to align financial flows with sustainable development goals by incorporating environmental, social, and governance considerations into investment and financing decisions.

Green finance refers broadly to financial activities that support sustainable development by promoting investments in renewable energy, energy efficiency, clean transportation, climate resilient infrastructure, and other environmentally beneficial projects. It encompasses a wide range of instruments, including green bonds, sustainability linked loans, ESG based mutual funds, and climate-focused equity indices. Sustainable

investment, in turn, represents an investment approach that integrates ESG factors into portfolio selection and risk assessment, with the objective of achieving competitive financial returns while contributing to positive environmental and social outcomes. Together, green finance and sustainable investment constitute key components of the global transition towards a low carbon and resource efficient economy.

In recent years, international policy frameworks such as the Paris Agreement and the United Nations Sustainable Development Goals have further strengthened the momentum for sustainable finance. These initiatives emphasize the necessity of mobilizing large-scale private capital to complement public funding in addressing climate mitigation, adaptation, and sustainable infrastructure requirements. As a result, capital markets across both developed and emerging economies have begun to introduce regulatory standards, disclosure requirements, and market-based instruments aimed at facilitating the growth of sustainable finance. Green bond markets have expanded rapidly; ESG reporting has become more standardized, and institutional investors have increasingly incorporated sustainability criteria into their asset allocation strategies.

India, as one of the world's largest emerging economies, occupies a critical position in the global sustainability landscape. The country faces significant developmental imperatives, including rapid urbanization, rising energy demand, and infrastructure expansion, alongside mounting environmental challenges such as air pollution, water scarcity, and climate vulnerability. India's commitments under international climate agreements, coupled with national policy initiatives promoting renewable energy, clean transportation, and sustainable urban development, have heightened the relevance of green finance within its financial system. Recognizing the scale of investment required to achieve these objectives, Indian policymakers and regulators have sought to strengthen the role of capital markets in mobilizing resources for sustainable development.

Over the past decade, Indian capital markets have witnessed the gradual emergence of green financial instruments. Green bonds have become an important channel for financing renewable energy and climate-related projects, attracting both domestic and international investors. At the same time, ESG based mutual funds and sustainability themed equity indices have gained visibility, reflecting a growing, though still limited, shift in investor preferences towards responsible investment strategies. Regulatory bodies such as the Securities and Exchange Board of India and the Reserve Bank of India have introduced disclosure frameworks and guidelines aimed at improving transparency, standardization, and risk assessment related to ESG and climate factors.

Despite these developments, the integration of green finance into Indian capital markets remains at an early stage when compared with advanced economies. Market depth in green bonds is still limited; ESG data quality and comparability continue to pose challenges, and retail investor participation in sustainable investment products remains modest. Moreover, much of the existing empirical literature examines green bonds, ESG funds, or sustainability indices in isolation, without providing a consolidated assessment of their combined evolution within the broader capital market framework.

In this context, the present study seeks to analyze the trends and patterns of green finance and sustainable investment in Indian capital markets by jointly examining green bond issuances, ESG oriented financial products, and sustainability linked market indicators. By adopting a descriptive and analytical approach based on secondary data, the study aims to provide an integrated perspective on how sustainability considerations are being incorporated into India's financial architecture, the extent of progress achieved, and the challenges that continue to impede broader adoption. The analysis is intended to contribute to the growing body of literature on sustainable finance in emerging markets and to offer insights relevant for policymakers, regulators, institutional investors, and market participants seeking to strengthen the role of capital markets in supporting India's transition towards a sustainable and low carbon economy.

REVIEW OF LITERATURE

The concept of green finance and sustainable investment has attracted increasing scholarly attention over the past two decades, particularly in the context of climate change, environmental risk, and long-term financial stability. Existing literature broadly examines three interrelated dimensions: the theoretical foundations of sustainable finance, the role of green bonds as a financing instrument, and the performance and relevance of

ESG based investments in capital markets. A growing body of empirical research also emphasizes the importance of regulatory frameworks and disclosure standards in shaping the development of sustainable financial systems, especially in emerging economies.

Conceptual Foundations of Green Finance and Sustainable Investment

Early academic contributions established the theoretical linkage between sustainability and financial performance by challenging the traditional view that environmental and social considerations impose additional costs on firms and investors. Friede, Busch, and Bassen synthesized evidence from many empirical studies and concluded that the integration of ESG factors into investment analysis exhibits a neutral or positive relationship with financial performance. This finding provided a solid foundation for the argument that sustainable investment strategies can enhance risk adjusted returns by improving corporate governance quality, reducing exposure to environmental liabilities, and strengthening stakeholder relationships.

Sachs and coauthors emphasized the macroeconomic role of green finance in mobilizing long term capital for climate mitigation and sustainable infrastructure, particularly in developing and emerging economies where public resources are insufficient to meet large scale investment requirements. Their work highlighted that financial systems must be structurally aligned with sustainability objectives through appropriate incentives, regulatory standards, and risk pricing mechanisms. At the same time, Busch, Bauer, and Orlitzky pointed out that the absence of uniform ESG measurement and reporting standards creates comparability issues, thereby limiting the effectiveness of sustainability-based investment decisions. This problem is especially pronounced in emerging markets, where disclosure practices and data availability remain uneven.

Literature on Green Bonds

Green bonds have emerged as one of the most prominent instruments within the green finance framework. Flammer examined corporate green bond issuance and found that firms issuing such instruments tend to demonstrate measurable improvements in environmental performance after issuance, suggesting that green bonds function not merely as signaling tools but also as commitment mechanisms that bind issuers to sustainability objectives. Tang and Zhang analyzed stock market reactions to green bond announcements and reported positive abnormal returns, indicating favorable investor perception and confidence in the credibility of green financing.

In the context of emerging markets, Tolliver, Keeley, and Managi observed that while green bond markets have expanded rapidly, issuance remains concentrated among a limited set of countries, sectors, and large issuers. Their findings indicate that market depth and diversification are still evolving, and that regulatory support and sovereign participation play a crucial role in broadening the investor base. Reports by international agencies have also highlighted concerns regarding greenwashing and the lack of globally harmonized certification standards, which may undermine investor trust and hinder market development if not addressed through robust verification and disclosure mechanisms.

ESG Based Investments and Market Performance

The relationship between ESG performance and financial returns has been widely debated in empirical finance literature. Broadstock and colleagues demonstrated that portfolios with strong ESG characteristics exhibited greater resilience during periods of market stress, including the COVID period, suggesting that sustainability-oriented firms may benefit from lower downside risk and stronger stakeholder confidence. Albuquerque and coauthors similarly found that firms with superior ESG profiles experienced reduced volatility and higher investor trust during crisis periods, reinforcing the risk mitigation role of sustainable investment strategies.

However, other studies have reported mixed or context-dependent outcomes. Revelli and Viviani argued that ESG integration does not automatically lead to superior returns, and that outcomes depend on market structure, investor behavior, and the quality of sustainability disclosures. These findings underscore the importance of country specific analysis, as the effectiveness of ESG based investment strategies may vary across developed and emerging markets depending on regulatory maturity, disclosure standards, and institutional frameworks.

Regulatory Frameworks and the Indian Context

Regulatory intervention is widely recognized as a key driver of sustainable finance adoption. Schoenmaker and Schramade emphasized that disclosure mandates, sustainability taxonomies, and climate risk integration into financial supervision are essential for aligning capital markets with environmental objectives. In India, the evolution of sustainability reporting has been shaped by initiatives of the Securities and Exchange Board of India, particularly the transition from voluntary business responsibility reporting to the Business Responsibility and Sustainability Reporting framework. Studies focusing on Indian corporations have highlighted that while regulatory guidelines have improved transparency, challenges remain in terms of data comparability, assurance, and integration of ESG factors into mainstream investment analysis.

Research on Indian capital markets also points to limited investor awareness and the nascent stage of ESG product development. Kumar and Prakash noted that sustainability reporting and ESG integration are still evolving, with significant variation in disclosure quality across firms and sectors. These constraints restrict the scalability and effectiveness of green finance initiatives and highlight the need for stronger institutional support, standardized metrics, and enhanced investor education.

Summary and Research Gap

The existing literature establishes that green finance and sustainable investment can contribute positively to both environmental objectives and financial performance. Empirical evidence supports the relevance of green bonds as a financing mechanism and highlights the potential risk mitigation benefits of ESG based investment strategies. Regulatory frameworks and disclosure standards are identified as critical enablers of market development and investor confidence.

However, most studies either focus on developed economies or examine individual components of sustainable finance in isolation. Within the Indian context, research tends to analyze green bonds, ESG disclosures, or sustainability indices separately, without offering an integrated assessment of their combined evolution within capital markets. Moreover, limited empirical work systematically evaluates recent trend patterns and the interaction between regulatory developments and market growth using consolidated secondary data. This gap underscores the need for a comprehensive analysis that jointly examines green bond issuance, ESG oriented investment products, and sustainability linked market indicators within the framework of Indian capital markets.

Objectives of the Study

Based on the identified research gap and the scope of the present analysis, the study is guided by the following refined objectives:

1. To examine the growth trends and structural characteristics of green bond issuance in Indian capital markets.
2. To analyze the expansion and performance of ESG based investment products and sustainability linked market indices in India.
3. To assess the role of regulatory and institutional initiatives in promoting the development of green finance and sustainable investment in Indian capital markets.
4. To assess the growth, stability, and regulatory responsiveness of green bond issuance as a key ESG (Environmental, Social, and Governance) financing instrument in Indian capital markets using statistical indicators derived from secondary data.

RESEARCH METHODOLOGY

The present study adopts a descriptive and analytical research design to examine the development and trends of green finance and sustainable investment in Indian capital markets. The methodological framework is

structured to provide a systematic assessment of the growth patterns of green bonds, ESG based investment products, and sustainability linked market indicators, as well as the role of regulatory and institutional initiatives in shaping these developments.

Research Design

A descriptive research design is employed to document and summarize the historical evolution and status of green finance instruments in India. This approach enables the study to capture changes in issuance volumes, investment flows, and market performance over time. An analytical component is incorporated to interpret observed trends, compare sustainability-oriented indicators with conventional benchmarks, and assess the implications of regulatory interventions. The combination of descriptive and analytical methods is considered appropriate, as the study aims to understand patterns and relationships rather than establish causal linkages through econometric modeling.

Nature and Sources of Data

The study is based exclusively on secondary data collected from reliable and publicly available sources. These include regulatory publications and circulars issued by the Securities and Exchange Board of India and the Reserve Bank of India, annual and periodic reports of the National Stock Exchange and the Bombay Stock Exchange, databases and reports from sustainability focused organizations, and relevant academic literature. Data relating to green bond issuances, ESG mutual fund assets under management, fund inflows, and sustainability index performance are compiled from these sources to ensure consistency and credibility.

The reliance on secondary data allows for comprehensive coverage of market level trends and facilitates comparison across time periods. At the same time, the study acknowledges that the analysis is constrained by the quality, availability, and uniformity of published information, particularly in relation to ESG disclosure practices and classification standards.

Period of the Study

The analysis covers a multiyear period to capture the evolving nature of green finance and sustainable investment in India. The selected time frame encompasses the phase during which green bond markets, ESG based mutual funds, and sustainability indices began to gain prominence, as well as the period of intensified regulatory focus on sustainability reporting and climate risk. This temporal scope enables the identification of growth patterns, cyclical fluctuations, and structural shifts associated with macroeconomic conditions and policy initiatives.

Variables Considered

The key variables examined in the study include the value and number of green bond issuances, issuer wise and market wise distribution of bonds, assets under management and inflows of ESG based mutual funds, and performance indicators of sustainability indices such as the NIFTY 100 ESG Index and the S&P BSE Greenex. Regulatory variables include major policy announcements, disclosure frameworks, and guidelines related to green finance and ESG integration issued by Indian regulatory authorities. These variables are selected in alignment with the study's objectives and consistent secondary data availability.

Scope of the Study

The scope of the study is confined to the analysis of green finance and sustainable investment within the framework of Indian capital markets. It focuses on market-based instruments and indicators, rather than bank lending or project-level financing. The study examines trends at an aggregate level and does not undertake firm specific or sector specific causal analysis. The emphasis is on understanding broad market developments, regulatory influences, and investor participation patterns.

Limitations of the Study

The study is subject to certain limitations. As it relies entirely on secondary data, the analysis is dependent on the accuracy, completeness, and consistency of published sources. Differences in ESG definitions, reporting standards, and classification methodologies across agencies may affect comparability. The study does not incorporate primary survey data or econometric testing of causal relationships. Furthermore, sustainability related financial markets in India are still evolving, and recent developments may not be fully captured within the selected time frame.

Tools for Analysis

To examine the trends and developments of green finance and sustainable investment in Indian capital markets, the study employs a set of descriptive and analytical tools suitable for secondary data analysis.

Trend Analysis

Trend analysis is used to examine year-wise changes in green bond issuance volumes, ESG mutual fund assets under management, and sustainability index values. This technique helps identify long term growth patterns, cyclical movements, and periods of acceleration or slowdown in sustainable finance activities.

Growth Rate Analysis

Growth rate analysis is applied to measure the pace of expansion of green bond markets and ESG-oriented investment products over the study period. Compound and annual growth measures are used to assess the relative speed of development of different segments of the sustainable finance ecosystem.

Percentage and Composition Analysis

Percentage analysis is employed to examine the relative contribution of distinct categories, such as issuer-wise distribution of green bonds and the share of ESG funds within the overall mutual fund industry. This facilitates an understanding of market structure and concentration.

Comparative Analysis

Comparative analysis is used to evaluate the performance of sustainability indices in relation to conventional benchmark indices. This comparison helps assess whether ESG-oriented investments exhibit return and risk characteristics comparable to or distinct from the broader market.

Tabular and Graphical Presentation

The collected secondary data are systematically presented in tabular and graphical form to enhance clarity, facilitate comparison, and support effective interpretation of trends and patterns. Tables are used to summarize year wise values, growth rates, and category wise distributions, while graphs and charts are employed to visually depict movements in green bond issuance, ESG mutual fund growth, and sustainability index performance over the study period. Such visual representation assists in identifying long term trends, fluctuations, and structural shifts in sustainable finance indicators within Indian capital markets and strengthens the analytical discussion by providing clear empirical support to the findings.

Data Analysis and Interpretation

This section presents a detailed analysis of secondary data relating to green bond issuance, ESG based mutual funds, sustainability indices, and regulatory developments in Indian capital markets. The objective is to examine growth patterns, structural characteristics, and performance trends of key sustainable finance instruments and to interpret their implications in the context of emerging market dynamics.

Trend Analysis of Green Bond Issuance in India

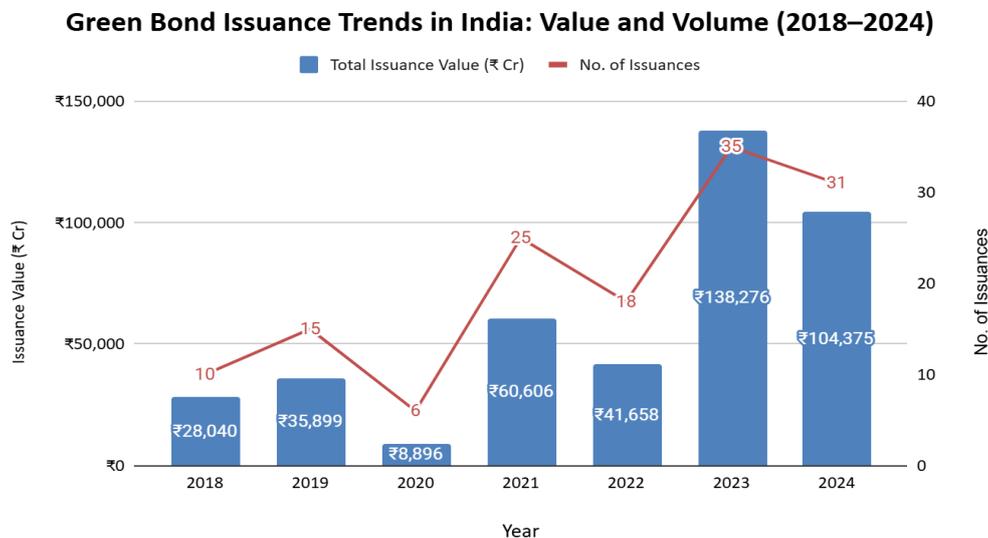


Figure 1: Annual Trends in Green Bond Issuance: Market Value vs. Number of Issuances

The evolution of the green bond market in India reflects a gradual transition from a nascent financing segment to a more structured and increasingly significant component of the capital market. Year-wise data on green bond issuance indicate an overall upward trend, punctuated by periods of volatility associated with macroeconomic conditions and policy developments.

During the initial phase, green bond issuance volumes were modest, reflecting limited issuer participation and low investor awareness. As renewable energy and infrastructure projects gained momentum and regulatory clarity improved, issuance volumes began to increase steadily. A temporary contraction was observed during the period of global economic disruption caused by the COVID pandemic, when uncertainty in financial markets led to a slowdown in new issuances and risk aversion among investors. However, the subsequent recovery phase witnessed a sharp rebound in issuance activity, supported by renewed investor confidence, improved liquidity conditions, and the introduction of government-backed green bond frameworks.

Issuer-wise Distribution of Green Bonds in India

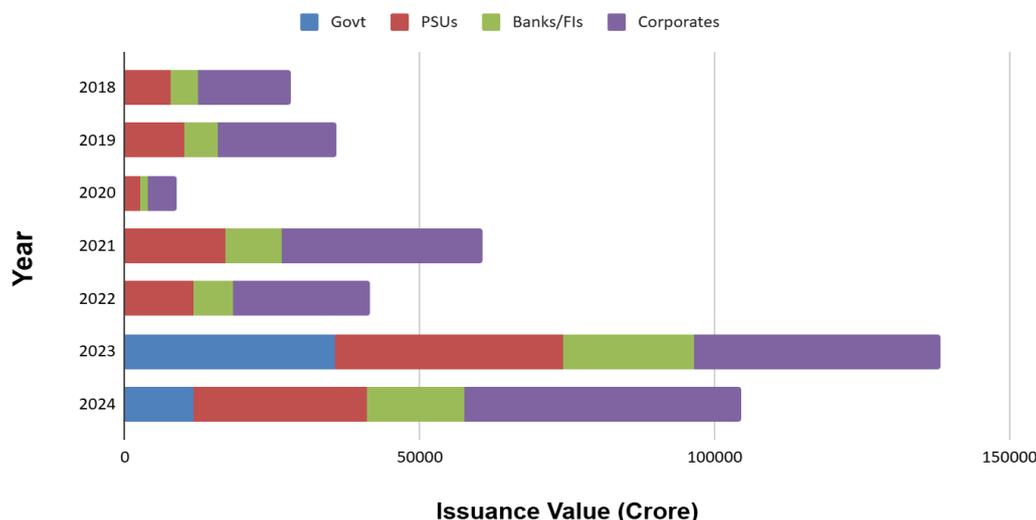


Figure 2: Issuer-wise Distribution of Green Bonds by Sector: Government, PSUs, Banks, and Corporates

Issuer wise analysis reveals that corporate entities and public sector undertakings have been the dominant contributors to green bond issuance in India. Financial institutions have also played a key role in channeling funds towards climate-related and sustainability-oriented projects. In contrast, sovereign participation remained limited until the recent introduction of government issued green bonds, which marked an important milestone in strengthening the credibility and depth of the market. The growing presence of international investors in green bond subscriptions indicates that India’s sustainable finance initiatives are increasingly aligned with global capital flows and international sustainability standards.

Domestic vs Overseas Green Bond Issuance

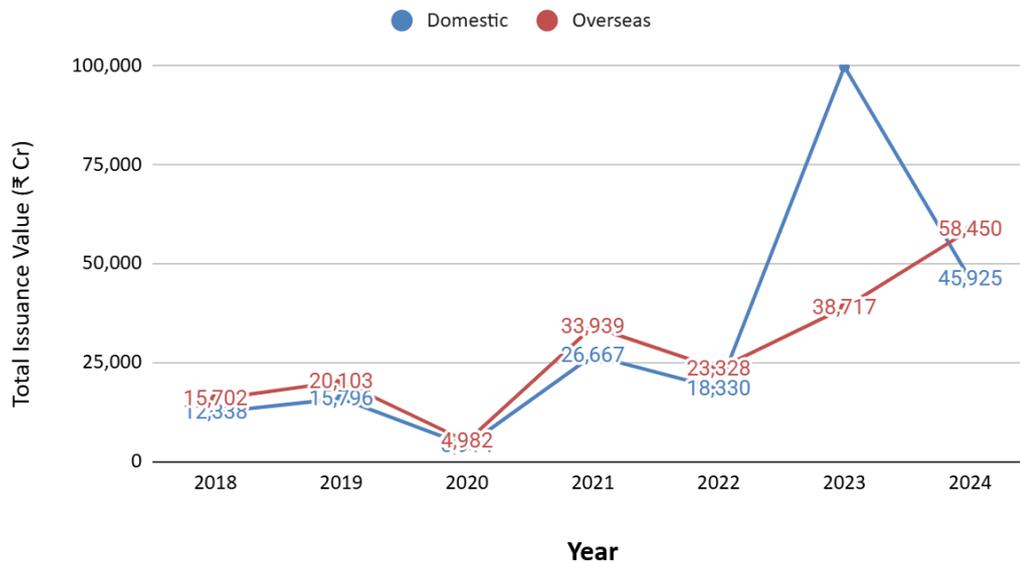


Figure 3: Domestic vs Overseas Green Bond Issuance Value in India (2018–2024)

A comparison between domestic and overseas issuances suggests that a substantial proportion of Indian green bonds have been placed in international markets. This reflects stronger demand from foreign institutional investors, greater familiarity with green bond standards, and the availability of larger pools of long-term capital abroad. At the same time, the gradual increase in domestic issuance points to improving awareness and participation among Indian investors, supported by regulatory initiatives and the expansion of domestic sustainable investment products.

Overall, the trend analysis indicates that the green bond market in India has moved beyond the experimental stage and is gradually becoming an integral part of the broader debt market. Nevertheless, market concentration among a limited number of issuers and sectors highlights the need for diversification and broader participation to enhance resilience and scalability.

Growth Dynamics of Green Bond Issuance

$$CAGR = \left(\frac{\text{Final Value}}{\text{Initial Value}} \right)^{\frac{1}{n}} - 1$$

where n = number of years

Indicator	2018 (₹ Cr)	2024 (₹ Cr)	CAGR (%)
Total Green Bond Issuance	28,040	1,04,375	24.5
Domestic Issuance	12,338	45,925	24.4
Overseas Issuance	15,702	58,450	24.6

Table 1: Growth Dynamics of Green Bond Issuance (CAGR Analysis, 2018–2024)

Green bond issuance in India is growing at a **rapid average annual rate of about 25 percent**, indicating strong expansion of ESG-aligned financing within capital markets. The similarity in growth rates across domestic and overseas issuances suggests that expansion is **market-wide and scale-driven**, rather than dependent on a single source of capital. As green bonds represent the environmental component of ESG finance, this trend reflects increasing integration of ESG considerations into Indian capital markets.

Volatility Analysis Using Coefficient of Variation (CV)

$$CV = \frac{\text{Standard Deviation}}{\text{Mean}}$$

Variable	Mean (₹ Cr)	Standard Deviation (₹ Cr)	CV
Total Issuance	54,536	44,982	0.83
Domestic Issuance	31,790	32,688	1.03
Overseas Issuance	27,889	17,524	0.63

Table 2: Volatility Analysis Using Coefficient of Variation (CV) of Issuance

Domestic green bond issuance shows **higher volatility**, indicating sensitivity to regulatory developments and investor sentiment within the domestic ESG market. Overseas issuance exhibits relatively **lower variability**, reflecting stable participation from international ESG-oriented investors. This suggests that while India’s ESG financing market is expanding rapidly, it is yet to achieve long-term stability, particularly in domestic participation.

Overseas Dependence Ratio

$$\text{Overseas Dependence Ratio} = \frac{\text{Overseas Issuance}}{\text{Total Issuance}}$$

Year	Overseas Issuance (₹ Cr)	Total Issuance (₹ Cr)	Overseas Dependence
2018	15,702	28,040	0.56
2019	20,103	35,899	0.56
2020	4,982	8,896	0.56
2021	33,939	60,606	0.56
2022	23,328	41,658	0.56
2023	38,717	1,38,276	0.28
2024	58,450	1,04,375	0.56

Table 3: Overseas Dependence Ratio on Issuance

The overseas dependence ratio indicates that **more than half of India’s green bond financing has historically been sourced from international markets**, highlighting continued reliance on foreign ESG capital. The sharp reduction in overseas dependence in 2023 corresponds with the introduction of sovereign green bonds, suggesting that regulatory and governance interventions can significantly enhance domestic ESG market participation.

Growth of ESG Investment Products in Indian Capital Markets

Year	Number of ESG Mutual Fund Schemes
2018	1
2019	3
2020	6
2021	17
2022	17
2023	18
2024	20

Table 4: Growth in Number of ESG Mutual Fund Schemes in India (2018–2024)

Table 4 shows a steady expansion in ESG-oriented investment products in Indian capital markets, measured through the number of ESG mutual fund schemes. ESG schemes were absent before 2018, indicating limited early adoption of sustainable investment products. A sharp increase is observed between **2019 and 2021**, when the number of schemes rose from **three to seventeen**, reflecting heightened awareness of sustainability issues and growing institutional interest in ESG-based offerings.

After 2021, the growth in the number of ESG schemes moderated, with only marginal additions observed between **2022 and 2024**. This trend suggests that while ESG investment products have gained recognition, their market penetration remains limited compared to conventional mutual funds. Overall, the data indicates gradual institutional acceptance of ESG investing, while highlighting the need for stronger investor awareness and supportive regulatory measures to accelerate the adoption of sustainable investment products in India.

Performance of Sustainability Indices

Sustainability indices such as the NIFTY 100 ESG Index and the S&P BSE Greenex serve as important benchmarks for evaluating the market performance of ESG compliant firms. Analysis of index values over time indicates that these indices have exhibited growth patterns comparable to broader market benchmarks, albeit with periods of differential performance.

Performance Trend of NIFTY100 ESG Index vs NIFTY 50 (2018–24)

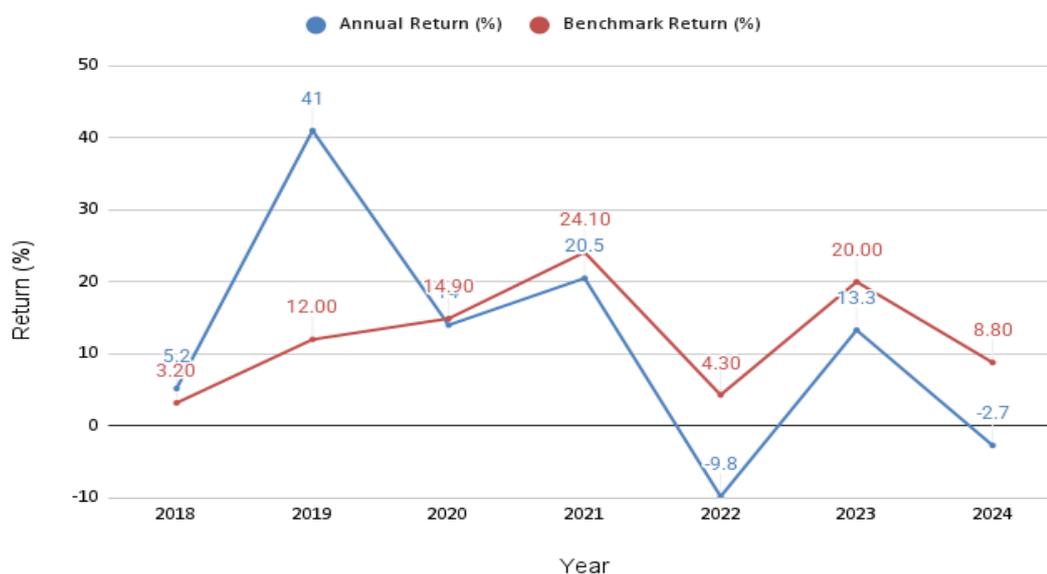


Figure 4: Performance Analysis: NIFTY100 ESG Index vs. NIFTY 50 Benchmark (2018–2024)

Performance Trend of S&P BSE Greenex vs SENSEX (2018-24)



Figure 5: Annual Return Comparison: S&P BSE Greenex vs. SENSEX Benchmark (2018–2024)

During phases of economic expansion, sustainability indices recorded steady appreciation, reflecting powerful performance of firms with higher ESG scores. In periods of market correction, these indices experienced declines like conventional indices, but in some instances demonstrated lower volatility and smaller drawdowns. This pattern suggests potential risk mitigation characteristics associated with ESG compliant firms, due to stronger governance practices, lower regulatory risk, and more stable stakeholder relationships.

Comparative analysis with benchmark indices such as the NIFTY 50 and BSE Sensex indicates that sustainability indices have not consistently outperformed the broader market in terms of absolute returns. However, their performance has remained broadly competitive, supporting the view that integrating ESG considerations does not necessarily entail a tradeoff between sustainability and financial performance. The relative stability observed during certain downturns reinforces the argument that ESG-oriented investments may offer diversification and downside protection benefits over the long term.

Regulatory and Policy Developments

The growth of green finance and sustainable investment in India has been associated with the evolution of regulatory and policy frameworks. A chronological review of major initiatives reveals a gradual shift from voluntary disclosure and guidance-based approaches to more structured and mandatory requirements.

Year	Authority	Policy / Guideline Name	Key Focus Area	Remarks
2018	SEBI	Introduction of Voluntary ESG Disclosure (BRR Continuation)	ESG reporting by listed companies	Built on Business Responsibility Reports (BRR); early stage of ESG disclosure in India
2019	SEBI	Disclosure of ESG Risks & Opportunities	Transparency in sustainability practices	Encouraged listed firms to improve non-financial disclosures
2020	RBI	Climate Risk Discussion in Financial Stability Report	Climate risk & financial stability	First formal recognition of climate-related financial risks by RBI
2021	SEBI	Business Responsibility and Sustainability Report (BRSR) Framework	Mandatory ESG disclosure framework	Replaced BRR; aligned with global ESG standards
2022	SEBI	Mandatory BRSR for Top 1000 Listed Companies	ESG disclosure compliance	Made sustainability reporting compulsory for large, listed firms

2022	RBI	Discussion Paper on Climate Risk and Sustainable Finance	Green finance & risk management	Encouraged banks to integrate climate risk into lending decisions
2023	SEBI	BRSR Core & ESG Assurance Framework	Standardization and verification of ESG data	Introduced assured ESG metrics to improve credibility
2023	Government of India	Sovereign Green Bond Framework	Green bond issuance	Enabled India's first sovereign green bond issuance
2024	SEBI	Expansion of BRSR Core & ESG Ratings Oversight	ESG ratings & data quality	Strengthened regulation of ESG rating providers
2024	RBI	Climate Stress Testing & Sustainable Finance Guidance	Climate resilience of financial institutions	Advanced integration of climate risk into financial supervision

Table 5: Timeline of Key ESG Regulatory and Policy Frameworks in India (2018–2024)

Early regulatory efforts focused on encouraging corporate transparency through sustainability and responsibility reporting. Over time, these initiatives were strengthened through the introduction of standardized disclosure frameworks aligned with international ESG norms. The implementation of mandatory sustainability reporting for large, listed companies enhanced the availability and comparability of non-financial information, thereby supporting investor assessment and risk evaluation.

Parallel developments in monetary and financial regulation emphasized the importance of climate-related risks for financial stability. Guidance on integrating environmental risk considerations into lending and supervision practices signaled growing institutional recognition of sustainability as a systemic issue. The introduction of a sovereign green bond framework further reinforced policy commitment by enabling direct government participation in the green bond market and setting benchmarks for transparency and credibility.

The temporal alignment between regulatory milestones and periods of increased green bond issuance and ESG investment growth suggests that policy support has played a catalytic role in shaping market development. Improved disclosure, clearer standards, and enhanced oversight have contributed to greater investor confidence and have facilitated the gradual integration of sustainability considerations into capital market activities.

FINDINGS AND DISCUSSION

This section synthesizes the results of the data analysis and interprets them in relation to the objectives of the study and the existing literature on green finance and sustainable investment.

Growth of the Green Bond Market

One of the principal findings of the study is the substantial expansion of the green bond market in India over the selected period. The year-wise trend analysis indicates that green bond issuance has increased significantly, particularly after the initial phase of market development. Although temporary slowdowns were observed during periods of macroeconomic stress, notably during the COVID-related disruption, the overall trajectory remained positive. The subsequent recovery phase was marked by a sharp rise in issuance volumes, reflecting renewed investor confidence and increased financing requirements for renewable energy, clean transportation, and climate resilient infrastructure projects.

The dominance of corporate entities and public sector undertakings as issuers suggests that large institutions have taken the lead in adopting green financing instruments. The late but strategically important entry of sovereign green bonds strengthened market credibility and provided a benchmark for pricing and disclosure. The significant share of overseas issuances further indicates strong interest from international investors and alignment with global sustainable finance practices. At the same time, it highlights the need to deepen domestic participation and broaden the issuer base to ensure long term market stability and diversification.

The analysis reveals that India's green bond market, as a core ESG financing mechanism, is experiencing rapid growth but remains volatile and significantly dependent on overseas capital. Regulatory initiatives, particularly sovereign green bond issuance and enhanced ESG disclosure frameworks, have played a critical role in strengthening governance and improving domestic market participation.

Expansion of ESG Based Mutual Funds

The analysis of ESG mutual funds reveals a steady, though gradual, increase in the number of schemes, assets under management, and investor inflows. While ESG-oriented funds still represent a small proportion of the overall mutual fund industry, their consistent growth indicates a progressive shift in investor preferences towards responsible and sustainability linked investment strategies. The positive inflow trend suggests increasing awareness of ESG considerations among both institutional and retail investors, supported by greater availability of dedicated products and improved disclosure practices.

However, the modest scale of ESG assets compared to conventional funds reflects persistent challenges, including limited investor familiarity with ESG concepts, concerns regarding data reliability, and the absence of standardized performance evaluation frameworks. These constraints underline the importance of investor education, transparent reporting, and regulatory oversight in fostering confidence and expanding participation in sustainable investment products.

Performance of Sustainability Indices

The comparative performance analysis of sustainability indices and conventional benchmark indices indicates that ESG compliant portfolios have delivered returns broadly comparable to the broader market. Although sustainability indices have not consistently outperformed benchmarks in all periods, their performance has remained competitive, and in certain phases they have exhibited lower volatility and smaller drawdowns during market downturns. This pattern supports the view that ESG integration does not necessarily compromise financial performance and may contribute to improved risk management and portfolio resilience.

These findings are consistent with international evidence suggesting that firms with stronger governance structures, better environmental risk management, and more stable stakeholder relationships may be better positioned to withstand periods of market stress. In the Indian context, the growing relevance of sustainability indices provides investors with credible benchmarks for evaluating ESG oriented investment strategies and reinforces the role of capital markets in supporting responsible corporate behavior.

Role of Regulatory and Institutional Frameworks

The study highlights the critical role of regulatory initiatives in shaping the development of green finance and sustainable investment in India. The transition from voluntary sustainability reporting to structured and mandatory disclosure frameworks has significantly enhanced the availability and comparability of ESG information. Regulatory guidance on climate risk assessment and the introduction of sovereign green bonds have further strengthened institutional commitment to sustainable finance and improved market confidence.

The temporal correspondence between major regulatory milestones and periods of accelerated growth in green bond issuance and ESG investment suggests that policy intervention has acted as an important catalyst for market development. At the same time, ongoing challenges related to data standardization, assurance, and monitoring indicate the need for continuous refinement of regulatory frameworks and closer alignment with international best practices.

CONCLUSION

The present study examined the development and emerging trends of green finance and sustainable investment in Indian capital markets with specific reference to green bonds, ESG based mutual funds, and sustainability linked stock indices. Using secondary data and a descriptive and analytical research design, the study provided an integrated assessment of how sustainability considerations are gradually being incorporated into India's financial system.

The findings indicate that the green bond market in India has experienced significant growth, supported by increased participation from corporates, public sector undertakings, and, more recently, the sovereign. The expansion of ESG-based mutual funds and the competitive performance of sustainability indices further demonstrate a gradual shift towards responsible investment practices. Regulatory initiatives, particularly in disclosure, climate risk integration, and sovereign participation, have played a pivotal role in strengthening transparency, credibility, and investor confidence.

Despite these positive developments, the study also identifies important constraints. Limited market depth, concentration of issuers, lack of fully standardized ESG metrics, and low domestic investor participation continue to restrict the pace of sustainable finance development. Addressing these challenges will require sustained policy support, enhanced regulatory harmonization, improved data quality, and broader investor awareness.

Overall, the study concludes that while India's green finance ecosystem has made meaningful progress, it remains at a developmental stage. Strengthening institutional frameworks, expanding product diversity, and deepening market participation will be essential for ensuring that Indian capital markets can effectively mobilize resources for the country's long term environmental and economic sustainability objectives.

IMPLICATIONS

Policy Implications

The findings underscore the need for continued regulatory efforts to standardize ESG disclosure, enhance assurance mechanisms, and align domestic frameworks with international sustainability standards. Strengthening the sovereign green bond program and encouraging participation from a wider range of issuers can further deepen the market and improve liquidity.

Investor Implications

For investors, the competitive performance and potential risk mitigation characteristics of ESG-oriented investments highlight the relevance of integrating sustainability considerations into portfolio construction. Improved availability of reliable ESG data and benchmarks can support more informed investment decisions and facilitate the growth of responsible investment strategies.

Corporate Implications

Corporates can benefit from adopting robust sustainability practices and transparent disclosure, which may enhance access to green financing, reduce the cost of capital, and strengthen stakeholder confidence. Alignment with regulatory expectations and international ESG standards can also improve long-term competitiveness.

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