THE IMPACT OF ESG PERFORMANCE ON STOCK RETURNS, LIQUIDITY AND VOLATILITY IN INDIA

A Dissertation for

Course code and Course Title: COM-651 & Dissertation

Credits: 16

Submitted in partial fulfilment of Masters of Commerce Degree

In Accounting and Finance Specialization

by

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DECLARATION BY STUDENT

I hereby declare that the data presented in this Dissertation report entitled, "The Impact of ESG Performance on Stock Returns, Liquidity and Volatility in India" is based on the results of investigations carried out by me in the Discipline of Commerce at the Goa Business School, Goa University under the supervision of Sr. Prof. Y. V. Reddy and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations/ experimental or other findings given in the dissertation.

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PREFACE

This study looks at how ESG rankings impact stock returns, liquidity, and volatility. My interest in sustainability triggered the discussion, which focused on the influence on present and future generations. In 2019, I came across an article in McKinsey Quarterly titled "Five ways that ESG creates value".

This area is critical in understanding how ESG rankings influence stock returns, liquidity, and volatility. Understanding the impact on businesses and shareholders is critical for us. The purpose of this research is to investigate the influence of ESG ratings on stock returns, liquidity, and volatility, both positive or negative.

The purpose of this paper is to study the current literature review in order to obtain a better understanding of the issue and previous research initiatives. This paper contains research questions, goals, and aims. Next, we plan to formulate our hypothesis and define the scope of the study. We collect, clean, and assess the data using panel regression analysis.

ACKNOWLEDGMENTS

I would like to convey my deepest appreciation to Goa Business School for giving me with the chance to complete my Master of Commerce degree. The University's resources, facilities, and academic environment have all played an important role in my study. I am extremely thankful to my dissertation guide, Sr. Prof. Y. V. Reddy, for his constant support, encouragement, advice, and patience throughout my academic career. His guidance played a role in moulding my study.

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ABBREVIATIONS USED

Entity	Abbreviation
Bombay Stock Exchange	BSE
Business Responsibility and Sustainability Report	BRSR
Business Responsibility Reporting	BRR
Chief Information Officer	CIOs
Corporate Social Responsibility	CSR
Environment, Social, and Governance	ESG
Government of India	GOI
Gross Domestic Product	GDP
Hypothesis	H
Key Performance Indicators	KPIs
Maximum	Max.
Minimum	Min.
Ministry of Corporate Affairs	MCA
National Guidelines on Responsible Business Conduct	NGRBC
National Stock Exchange	NSE
National Voluntary Guidelines	NVG
Research Question	RQ
Reserve Bank of India	RBI
Security Exchange Board of India	SEBI
Standard Deviation	Std. dev.
Sustainable Development Goals	SDGs

ABSTRACT

The topic of ESG and its relationship with returns, liquidity and volatility has been studied by researchers in the last few years separately. This study tries to understand the relationship between ESG scores on stock returns, liquidity and volatility. For this objective, we use yearly data, including 30 listed Indian companies from the BSE Sensex Index that do ESG ratings regularly. This research follows a quantitative research design using secondary data taken from the Bloomberg and BSE databases. The study investigates the relationship between variables over the years 2015–2021 in the form of a panel data study. Panel data has the advantage of taking into consideration both cross-sectional variations and variations over time in a time series dimension. Not only is it more informative than the one-dimensional method, but the results can also be more easily generalized as it minimizes the possible effects of temporal errors that could affect the data. The collected data was edited, classified and analysed using the panel data regression technique.

The study reveals that ESG factors impact stock returns, liquidity and volatility. This is achievable because India is gradually adopting new norms and laws to better fit with global expectations. Stakeholders perceive no discrepancy between ESG goals and sustainable practices, fostering a positive relationship between stakeholders and businesses. ESG initiatives offer immediate financial benefits like energy efficiency, waste reduction, and lower operational costs.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Over the years, there has been a growing movement to conserve the planet, and because corporations consume a significant percentage of nature's resources, concerns have been raised, with requests that they use resources effectively and efficiently while adhering to corporate ethics. The acclaimed Brundtland Report from the World Commission on Environment and Development, published in 1987, provided a comprehensive understanding of "corporate sustainability." This report spoke about incorporating economic, social and environmental factors into the daily operations of a business (Brundtland Report, 2021). Since then, global organizations have focused on achieving high-quality socio-economic growth through sustainable development. There were numerous pressing concerns that needed to be handled, including pollution, corruption, bribery, and unsustainable development projects, and society acknowledged the need for corporations to change their methods which would help this movement in a large scale. To address these issues, the United Nations Conference on Environment and Development (UNCED) convened the Earth Summit in Rio de Janeiro, Brazil, in 1992, where world leaders pledged to foster sustainable development and terminate the exploitation of natural resources (Cicin-Sain & Knecht, 1995; Brundtland & Khalid, 1991; Weiss, 1992). Thus, the term "Corporate Social Responsibility" (CSR) was introduced. The word CSR has evolved over the years and goes beyond basic philanthropic initiatives, demanding an awareness of its historical growth to fully grasp its current global and Indian context (Latapí et al., 2019). In 2000, the United Nations held the Millennium Summit, where leaders discussed human rights, working conditions, environment, and anti-corruption. The MDGs established eight targets by 2015, encouraging ESG conversations. In the same year, the Carbon Disclosure Project was established, encouraging investors to inquire about businesses' climate impact. In 2004, United Nations Global

Compact introduced the ESG concept as a practical framework for promoting sustainable development (Singh, 2020; Rajesh and Rajendran, 2020).

ESG is a non-financial assessment methodology that consists of three pillars: environmental (E), social (S), and governance (G). This methodical strategy promotes both socioeconomic and corporate sustainability, with a focus on improving the welfare of society while also pursuing the economic success of enterprises. As we look into each pillar of the multi-layered ESG framework, we uncover the complexities of each dimension. The environmental pillar extends beyond simple metrics like carbon footprint and resource use. A thorough assessment investigates a company's commitment to sustainability through investments in green technologies, eco-friendly R&D, and rapid response to environmental concerns. Therefore, environmental ESG goes beyond compliance by encouraging a culture of continuous improvement and resilience in the face of a dynamic environment (ESG and Financial Constraints, 2023; Mgbame et al., 2020; Starr, 2022). As we change our focus to the social pillar, we analyse not only internal workplace behaviours but also the exterior implications that companies might have. Companies take proactive steps to address systemic social issues, extending beyond the workplace to tackle broader societal challenges. Initiatives targeting income inequality, access to education, and healthcare disparities become integral components of a company's social responsibility portfolio (Jane et al., 2002; Singh & Misra, 2020). Companies also hire workforce from different diversities and actively engage in philanthropic endeavours and strategic partnerships that contribute positively to the communities in which they operate. This proactive stance reflects their commitment to society by recognizing that a company's impact extends far beyond its immediate stakeholders and influences broader societal well-being through positive contributions (Time to Rethink the S in ESG, 2020). Under the governance pillar, there is an emphasis on transparency, accountability and ethical conduct which has huge benefits to a company. Governance frameworks are utilized for ensuring legal compliances as well as for embedding ethical consideration of the organization values and help in the decision-making process. Enabling in acquiring a culture of

integrity, not only acknowledging but ingraining ethical considerations into every aspect of the companies ethics (What is the "G" in ESG?, 2022). The practices for developing these framework help in addressing potential conflicts, ensuring effective board oversight and create an atmosphere of accountability. A company with strong governance becomes a cornerstone for building and maintaining trust among shareholders, safe guarding long term interest of both the company and the stakeholders (Defining the 'G' in ESG, 2022; Vinodkumar & Alarifi, 2020). There is a growing global trend towards implementing ESG practises at the social, firm and market levels (Kumar et al., 2020; Hill, 2020; Umar et al., 2020).

ESG ratings assess firms based on environmental, social, and governance pillars, all of which have a significant impact on stock returns, liquidity, and volatility. Businesses with higher ESG ratings typically have better financial performance and reduced volatility in stock returns (Kaiser, 2020). It also helps to attract more investors and improve financial access, since investors are increasingly valuing ESG aspects when making investment decisions. Firms with high ESG ratings are seen as not just more sustainable and socially responsible, but also as better long-term investment potential. (Zhou and Zhou, 2021; Bennani et al., 2018).

Although the adoption of ESG practices has become more widespread and has been beneficial for both businesses and society, it is essential to acknowledge counter arguments questioning the practicality and success of these practices (Naeem et al., 2022; ESG Disclosure and Firm Performance, 2022). ESG practices frequently face criticism for potentially compromising economic growth and financial performance. Critics claim that prioritizing green technologies, social initiatives, and governance improvements may impede companies' profitability and competitiveness in the market (Malkiel, 2020). They also doubt the dependability and consistency of ESG metrics and scoring systems due to their lack of consistency and clear criteria for assessing environmental, social, and governance factors. This complicates the ability to accurately evaluate and compare ESG performance

of companies, potentially impacting stock returns and investor behaviour (Taparia, 2021). Critics are also skeptical about the overall impact of ESG scores on investor actions and market attitudes, suggesting that while they could appeal to socially aware investors, the market's heavy dependence on these scores as a main measure of a company's future sustainability and prosperity may be exaggerated. They contend that investment decisions and market valuations should take into account other essential financial and operational factors. (Yu et al., 2023; Financial Advisors' Perspectives on the ESG Debate, 2023; How does ESG investing differ from socially responsible investing? (S&P Global, 2022)

In 2021, India's GDP ranks fifth globally, reaching $2,256.6 trillion (2022 Union budget of India, 2021; CMIE, 2023). This impressive accomplishment shows a rapid climb from its 11th position ten years ago. With a predicted increase of 7% in 2022, it has outperformed the UK's economy (Goodman, 2022; Das & Das, 2019). Due to the ongoing growth, it is essential to conserve resources and safeguard the environment for upcoming generations. India's growing middle class (Roy, 2018) and successful public markets are fuelling economic development (Mishra et al., 2019), drawing in investments and attention from both international and local investors. Despite the extensive research on social responsibility in the United States and Europe, only a small number of studies have investigated developing economies such as India (Gupta, 2020; Ramakrishnan, 2017; Dahiya & Singh, 2020). Developing nations encounter multiple obstacles in contrast to developed countries, such as inadequate institutions, criteria, and grievance mechanisms (Keefer & Knack, 1997; Khalid et al., 2020). The Sustainable Development Goals (2015-2030) issued by the United Nations are a worldwide summons for countries to allocate financial resources, enhance institutional capabilities, and give precedence to environmental protection, social inclusion, and economic growth (Pradhan et al., 2017; Hoàng et al., 2023).

1.2 PILLARS OF ESG

ESG is built on three pillars: environment, social and governance.

Environmental (E): Climate change and greenhouse gas emissions, pollution (air, water, soil) resource depletion (e.g. water, energy), waste management and recycling, biodiversity and ecosystem services, are some examples of environmental pillars.

The "environmental" pillar examines and monitors a company's impact on the climate, environmental liabilities, and production of eco-friendly products to promote sustainability.

Social (S): Customer engagement and social impact, labour practices (e.g. fair wages, working conditions, employee rights), customer relations and product safety, diversity, equity and inclusion (DE&I) and human rights considerations within the companies supply chain, these are some examples of social pillars.

The "social" pillar prioritizes societal value by addressing human rights, workplace health and safety, labour training and management, community engagement, and consumer interactions.

Governance (G): Anti-corruption measures, executive compensation, business ethics and compliance, board composition and structure, risk management practices and corporation transparency and accountability.

The "governance" pillar covers a company's corporate structures and behaviour.

Figure 1.1

Source: IASgyan

1.3 THEORIES LEADING TO ESG

The concept that companies should consider environmental and social concerns in addition to profits is not new, although the abbreviation ESG is. The UN Global Compact's "Who Cares Wins" research, published in 2004, popularized the notion by emphasizing the financial benefits of robust ESG practices. Around the same time, the Carbon Disclosure Project arose, requiring companies to report their environmental effect. Since then, ESG has gained pace and emerged as a critical aspect in determining whether or not prudent investments are made. Here are some of the fundamental hypotheses that drive ESG creation.

Corporate Social Responsibility (CSR):

Theoretical frameworks such as CSR emerged in the mid-20th century, emphasizing that businesses have responsibilities beyond profit maximization. Scholars like Archie Carroll and Howard Bowen laid the groundwork for CSR, arguing that businesses should consider societal and environmental impacts in their operations.

Stakeholder Theory:

Developed in the 1980s by scholars such as R. Edward Freeman, stakeholder theory posit that companies should consider the interests of all stakeholders, not just shareholders. This theory underscores the importance of addressing ESG concerns to maintain positive relationships with stakeholders.

Agency Theory:

Agency theory, which gained prominence in the 1970s and 1980s, focuses on the relationship between principals (shareholders) and agents (management). It suggests that aligning the interests of managers with those of shareholders can mitigate agency conflicts and enhance firm value. ESG factors play a role in this alignment by influencing managerial decisions that impact long-term value creation.

Sustainable Development Goals (SDGs):

The United Nations Sustainable Development Goals (SDGs), adopted in 2015, provide a global framework for addressing environmental, social, and governance challenges. The SDGs serve as a guiding principle for businesses and investors seeking to integrate ESG considerations into their strategies.

1.4 KEY MILESTONES

These are the significant milestones at a global level over the years of ESG (Environmental, Social, and Governance) implementation has evolved alongside. Here's an exploration of the key milestones:

1990: Domini 400 Social Index

Amy Domini, who manages KLD Research and Analytics, created the Domini 400 Social Index, which focuses on companies that prioritise social and environmental responsibility. In 2001, she founded the Domini Social Impact Equity Fund, which raised $1.3 billion and outperformed the S&P 500 by 15.08%. The Domini 400 is now known as the MSCI KLD 400 Social Index. The weighted index contains 400 US equities and prioritizes companies with strong ESG ratings over those with goods that have negative social or environmental consequences.

1992: United Nations Framework Conventions on Climate Change

At the Earth Summit in Rio de Janeiro, 154 countries signed a treaty to combat climate change, which includes research, ongoing meetings, and policy agreements. The treaty also established the Conference of the Parties (COP) to discuss and revise goals aimed at promoting international efforts to reduce and eventually cap greenhouse gas emissions.

1995: First Sustainable Investment Inventory in the U.S.A

The U.S. Social Investment Forum Foundation (SIF Foundation) has compiled the first inventory of sustainable investments, revealing $639 billion in U.S. assets. The Global Sustainable Investment Alliance estimated $35.3 trillion in sustainable assets by 2020. The U.S. SIF's December 2022 report listed $8.4 trillion in ESG and sustainable investments, down from $17.1 trillion in 2020. However, this still accounted for 12.6% of all professionally managed U.S. investment assets.

1997: Kyoto Protocol

The Kyoto Protocol, adopted in 1997, aimed to reduce greenhouse gas emissions by 192 countries, with 36 signing on for the initial commitment period. Nine countries had to fund climate reduction programmes in other countries because they had already met their targets. While China and the United States were absent because China did not set binding targets and the United States never ratified the treaty. Canada initially participated, but withdrew in 2012 after incurring $14 billion in fines for missing targets.

1997: Global Reporting Initiative

The Global Reporting Initiative (GRI) was established to address environmental issues. The group broadened its mandate to include social and governance issues. In 2016, it shifted from providing guidance to ratifying the first global sustainability reporting standards.

2000: United Nations Global Compact

The United Nations' Global Compact establishes principles in a variety of areas, including human rights, labour, the environment, and anti-corruption. Over 13,000 corporate and agency stakeholders from 170 countries participate.

The goals, presented as a forum rather than a regulation, are intentionally vague in order to elicit discussions, negotiations, and other measures through dialogue-specific projects. According to a KPMG survey, 78% of the world's 250 largest companies will use GRI standards in 2022. Today, there are more than 20,000 stakeholders.

2000: Carbon Disclosure Report

Paul Dickinson co-founded the Carbon Disclosure Project (CDP), which allows large investors to request climate disclosures from companies. In 2002, 35 investors requested disclosures from the 500 largest companies. The project assisted the Task Force on Climate-Related Financial Disclosures, which contacted over 8,000 businesses. By 2021, 64% of market capitalization had responded with climate disclosures. CDP expanded its efforts to improve water security and reduce deforestation, representing investors worth more than $136 trillion in assets.

2004: First “Who Cares Wins” Report

A group of banks and investment firms, at the U.N.'s invitation, published a report titled "Who Cares Wins," popularizing ESG. The report recommended integrating ESG factors in analysis, asset management, and securities brokerages, aiming for more stable markets.

2006: Principles for Responsible Investment

A group of 70 investment and environmental experts published six principles urging institutional investors to take into account ESG factors in their decisions. The principles encourage investors to consider ESG issues, become active owners, request disclosures, promote ESG analysis, improve ESG effectiveness, and track progress. The United Nations Principles for Responsible Investment (PRI) were established in 2006 to encourage responsible investing and engage businesses on ESG issues.

2007: Climate Disclosure Standards Board

The Climate Disclosure Standards Board (CDSB) was founded by major climate organisations to provide a framework for reporting on climate change risks and opportunities, such as strategies, financial performance, water security, and forest risks. It aims to standardise reporting on greenhouse gas emissions and natural capital by facilitating data sharing through the Extensible Business Reporting Language.

2011: Sustainability Accounting Standards Board

Jean Rogers founded the Sustainability Accounting Standards Board to develop accounting standards for measuring the impact of environmental, social, and governance (ESG) factors on a company's bottom line. These standards aim to provide consistency in reporting on the risks and opportunities associated with meeting sustainability goals, similar to traditional accounting metrics used in value investment decisions. The board created standards for 77 industries across 11 sectors.

2015: United Nations Sustainable Development

The United Nations General Assembly established 17 Sustainable Development Goals (SDGs), which were later refined to include 169 specific targets and 232 progress indicators, addressing issues such as poverty, food security, health, water, clean energy, infrastructure, and climate.

2017: The Compact for Responsive and Responsible Leadership

At the World Economic Forum in Davos, Switzerland, over 140 CEOs signed The Compact for Responsive and Responsible Leadership, committing to work together to achieve the United Nations' Sustainable Development Goals (SDGs) for the benefit of their businesses and the global community.

2017: State Street Global Advisors and Board Diversity Issues

State Street Global Advisors, with its "Fearless Girl" campaign, urged 600 US, UK, and Australian businesses to vote against boards with no female directors or candidates. Within months, 42 companies pledged to increase diversity, seven added female board members, and 400 failed to launch diversity initiatives.

2020: Davos Manifesto 2020

The WEF's Davos Manifesto 2020 outlines ethical principles for companies in the Fourth Industrial Revolution, focusing on serving employees, customers, suppliers, stakeholders, and local communities, treating people with dignity, integrating human rights, and achieving ESG goals. It was conducted on

2020: Standardized Stakeholders Capitalism Metrics

The WEF and the Big Four accounting firms published a whitepaper titled “Measuring Stakeholders Capitalism: Towards Common Metrics and Consistence Reporting of Sustainable Value Creation” which standardised ESG progress metrics for companies, which resulted in over 50 companies incorporating these metrics into their reports and 90 more committing to implementing them.

2021: European Union’s Sustainable Finance Disclosure Regulation

The European Union's Sustainable Finance Disclosure Regulation mandates the identification of sustainable investment objectives, including non-sustainable ones, and the use of Principal Adverse Impact to characterize negative impacts. By 2023, sustainable funds must submit reports on water resource protection, circular economy transition, pollution control, and biodiversity restoration.

2022: Consolidation of Sustainability Standards

The International Financial Reporting Standards (IFRS) foundation maintains accounting standards for most countries, with the exception of the United States. The Value Reporting Foundation (VRF) and the Climate Disclosure Standards Board are merged into the IFRS to form the International Sustainability Standards Board. The Financial Accounting Standards Board manages the United States' Generally Accepted Accounting Principles separately. The Securities and Exchange Commission has proposed new rules requiring climate-related information in registration statements and annual reports.

2023: European Union's Corporate Sustainability Reporting Directive

A new European Union directive mandates EU and non-EU businesses to include sustainability disclosures in their 2024 year-end reports. These must include information about the environment and society, human rights, anti-corruption measures, and diversity. Companies with more than 250 employees, €40 million in annual revenue, and €20 million in total assets must submit these reports by 2025.

The ESG landscape is expected to rapidly evolve, with regulatory changes in climate-related disclosures and global central banks planning to conduct climate stress tests. ESG investing and regulation will broaden to include more topics, with the United States focusing on climate and the EU reporting on waste, circular economy, biodiversity, diversity, and inclusion. Companies must manage increased regulatory reporting at a higher granularity and complexity. To manage the growing number of metrics, CIOs must invest in the automation and industrialization of ESG data and metrics reporting, which will improve speed, efficiency, and interoperability. To ensure verification and independent assurance, CIOs must ensure that the data is properly governed and controlled.

1.5 Developments in India

Table 1.1: India's ESG Evolution

Year	ESG Initiatives
2007	RBI advise Commercial banks on CSR, sustainability and non-financial disclosure
2009	The Indian government and Ministry of Corporate Affairs (MCA) has released voluntary guidelines for CSR. They attempt to develop CSR policies, strategic plans, and a roadmap for projects. Companies should address six CSR policy elements: stakeholder care, ethical functioning, worker rights and welfare, human rights, the environment, and social and inclusive development initiatives.
2011	In 2009, the MCA and GOI updated the CSR Voluntary Guidelines and established the National Voluntary Guidelines (NVG) for businesses' social, environmental, and economic obligations. The voluntary adoption of nine principles, including the need for businesses to conserve, respect, and repair the environment, began in FY 2011-12.
2012	The Securities and Exchange Board of India (SEBI) has released instructions for top 100 listed entities to follow BRR procedures as per the framework.
2014	The Companies Act of 2013 established the groundbreaking CSR law, as stated in section 135 sub-section (4).
2015	In 2015, SEBI mandated reporting for the top 500 listed businesses under revised standards and BRR format.
2017	In a circular dated February 7, 2017, SEBI proposed that the top 500 listed businesses implement Integrated Reporting Disclosure Practices on a voluntary basis from FY 2017-18.
2019	SEBI expanded the requirements of BRR to the top 1000 listed businesses from FY 2019-20.
2021	SEBI issued a circular on May 10, 2021, requiring top 1000 listed businesses to produce Business Responsibility and Sustainability Reporting (BRSR) instead of BRR starting FY 2021-22. The SEBI introduced a new model for BRSR and reporting on company performance, based on nine principles from the National Guidelines on Responsible Business Conduct (NGRBC).
2022	The International Financial Corporation (IFC) launches the Green Finance Platform India, aiming to mobilize green finance for infrastructure projects. The RBI issues guidelines for issuance of green bonds by listed companies
2023	The BRSR Core and SEBI ESG Rating Framework have introduced mandatory KPIs (Key Performance Indicators) for top 150 listed entities, ensuring credibility and consistency of ESG ratings, as per a board meeting press release on March 29, 2023.

Source: MCA, SEBI, Companies Act, 2013, and CRISIL ESG report, 2021, 2022, Goldman Sachs report: APAC ESG Regulation A new era for ESG in Asia Pacific

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

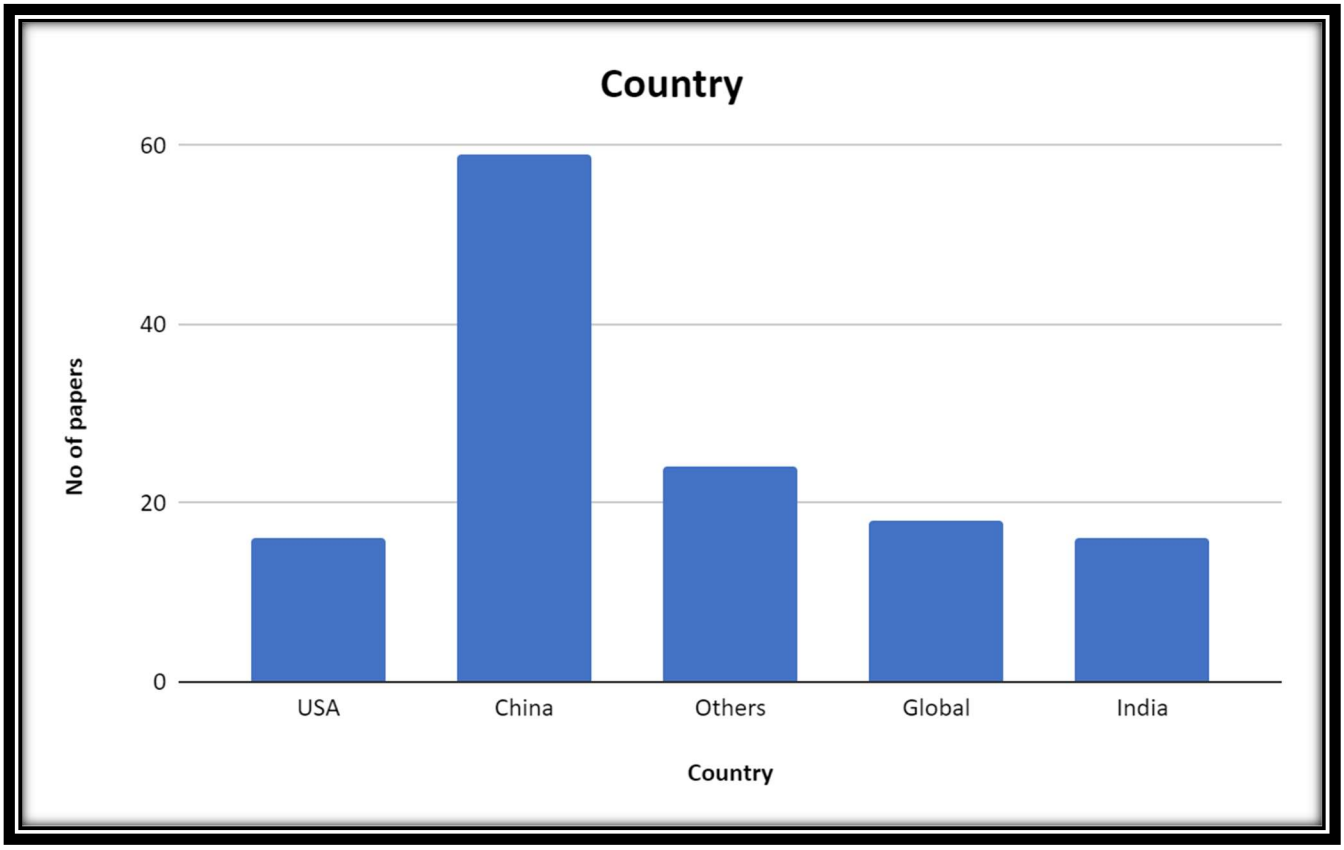
A thorough review of the available literature is an essential component of any research efforts, laying a solid foundation for the investigation by examining all current material on the topic under consideration. This critical stage not only provides a basic understanding of the issue, but also assists in identifying crucial research gaps - areas where knowledge is insufficient or inconclusive. In our study, we conducted a thorough review of the literature, carefully scrutinizing each relevant research publication.

The content analysis focuses on how ESG factors influence stock returns, liquidity, and volatility. The assessment includes 133 studies published between 2019 and 2024 that were carefully selected from major academic databases such as Elsevier, JSTOR, SSRN and publishers like Taylor & Francis, and Emerald and Google Scholar. Through diligently reviewing this wide range of works on empirical studies in general about ESG related subjects (particularly within finance), it seeks to provide a critical assessment of what has been discussed thus far and to conduct a literature review in order to identify areas for further investigation in relation to ESG considerations.

2.2 Content Analysis

This content analysis offers a systematic categorization and examination of ESG-related research studies. The analysis delves into three key dimensions of these studies: the geographical origin of the research, as indicated by the country of publication; the methodological approaches used in the studies, which include various research techniques; and the period within which the studies were published, which highlights publication dates and potential trends in research activity.

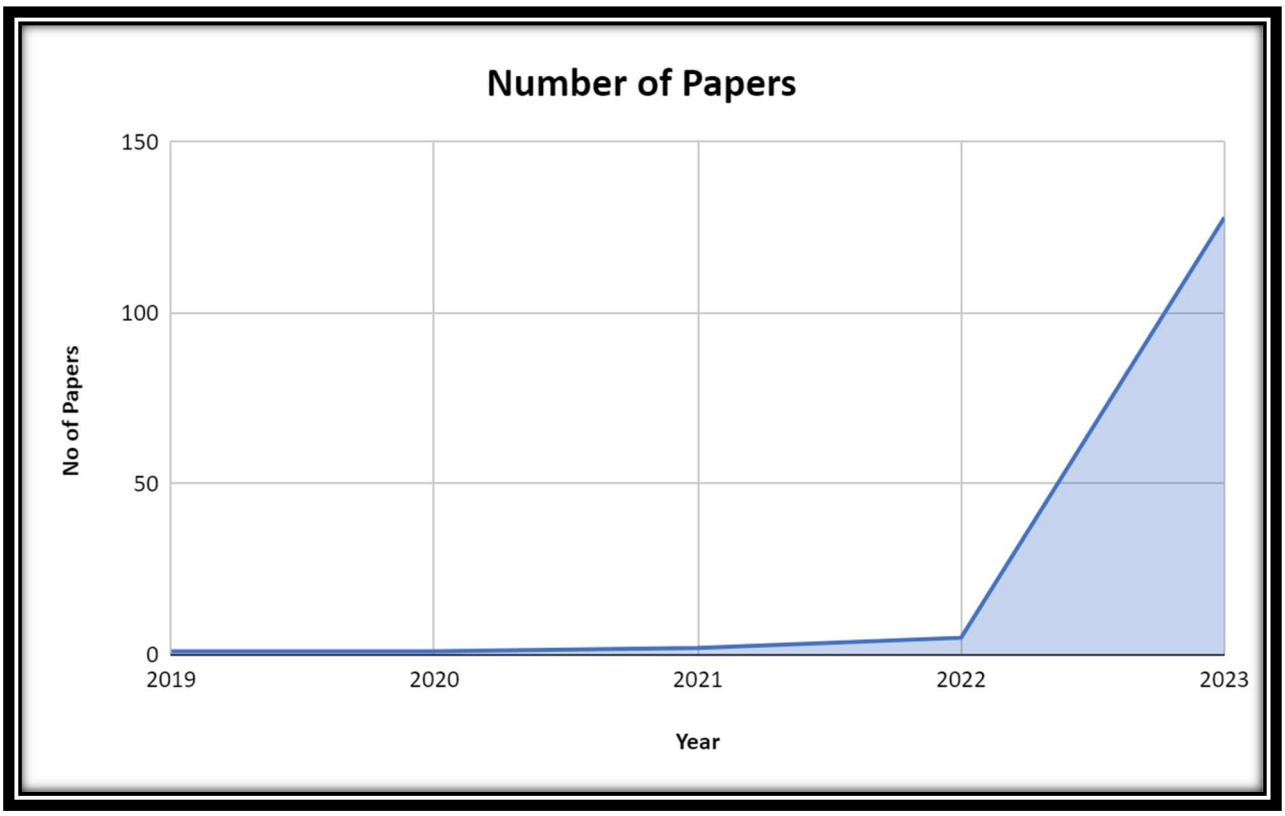
Figure 2.1 Number of Papers by Country



Source: Compiled by Author

Here we can notice that more number of papers have been published in China with 59 papers followed the USA with 16 papers while others consisting of papers from Korea, Japan and other countries with 24 papers. India has 16 number of published.

Figure 2.2 Number of Papers by Year



Source: Compiled by Author

As we can see the number of papers published has increased over the years has increased after the year 2022. We can see the rising trend of ESG related papers being published.

2.3.1 Impact of ESG on Stock Returns

The United Nations Environment Programme (UNEP) first presented the idea of Environmental, Social, and Governance (ESG) in 2005. Since then, investors and enterprises have recognized the importance of ESG aspects in evaluating a company's sustainability and long-term performance. Prior to the emergence of ESG and its related ideas, scholars focused primarily on the relationship of Corporate Social Responsibility (CSR) investments and corporate value. Numerous studies show a positive relationship between environmental performance and economic performance. (Bhambu,2015; Dutta et al., 2021; Peloza, 2006). However, the impact of ESG scores on stock prices remains a topic of debate (Engelhardt et al., 2021).

A number of studies imply that firms with higher ESG ratings have greater stock returns and lower volatility, demonstrating a positive relationship between ESG performance and financial performance (Moalla & Dammak, 2023; Yoo et al., 2021; Meher et al., 2020). While a study conducted during the financial crisis resulting from the coronavirus pandemic found that an increase in ESG scores, particularly the environmental (E) component, was associated with higher stock returns and lower volatility (Liu, 2023; Xu et al., 2023; Zhou & Zhou, 2021; Moalla & Dammak, 2023). This indicates that investors favour firms with robust environmental standards and feel they are better able to withstand economic downturns.

In addition to investment decisions (Kulal et al., 2023), ESG has a positive impact on other areas such as employee retention, brand reputation, customer loyalty, and risk management. Companies which prioritize environmental and social responsibility attract and retain top people, which helps in developing a strong brand image, resulting in consumer loyalty and successfully managing operational and reputational risks (Aydoğmuş et al., 2022; ESG preferences, risk and return, 2020). These factors contribute to a positive overall impact on stock prices for companies that prioritize ESG principles. This improved transparency not only fosters trust with investors and stakeholders but

also deepens their comprehension of the company's enduring sustainability, ethical influence on communities, leadership diversity, climate change resilience measures, and risk management tactics. (Wang et al., 2023; Ko, 2019; Li et al., 2018). As a result of these endeavours for openness and responsibility, companies that give importance to ESG disclosures frequently see favourable effects on their stock prices leading to enhanced financial performance in the long run. Some recent studies in the literature show that firms with higher CSR activity are likely to pay higher dividends (Matos et al., 2020; Bilyay-Erdogan et al., 2023; DeAngelo et al., 2004).

In addition to traditional ESG scoring and reporting, a new dimension of analysing ESG impact on stock prices has emerged through news-based sentiment analysis (Ferguson et al., 2015). Several studies have demonstrated the significance of news-based ESG sentiment in affecting stock prices, showing that positive news coverage can lead to increased investor confidence and heightened market interest while negative news sentiment may trigger sell-offs. Integrating news-based ESG sentiment with traditional scoring provides a comprehensive understanding of the relationship between ESG performance and stock prices (Serafeim, 2020; Robinson et al., 2018; Serafeim & Yoon, 2022).

While some studies suggest a positive relationship between ESG scores and stock prices, it is important to consider the contrasting viewpoints. Critics of the ESG framework argue that the incorporation of ESG factors into investment decisions may lead to ineffective allocation of capital (Walter, 2020). They believe that prioritizing ESG considerations might divert attention from the core financial aspects of a company, potentially neglecting sound investment opportunities for the sake of perceived social and environmental responsibilities (Kulal et al., 2023; Cappucci, 2018). Critics argue that subjective ESG scores lack standardization, leading to inconsistency in evaluation and comparison, potentially undermining the reliability of ESG assessments as financial performance indicators. They also argue the ESG framework will raise costs for businesses, potentially affecting profitability and stock prices due to significant investments in infrastructure, technology, and human capital (Giglio et al., 2023; Pedersen et al., 2021). Many companies are engaging in "greenwashing,"

exaggerating their ESG efforts to appear more socially and environmentally responsible, potentially leading to inflated stock prices (Aggarwal & Kadyan, 2011; Hale, 2021).

2.3.2 Impact of ESG on Liquidity

In recent years, ESG ratings have become increasingly relevant as an indicator of a company's sustainability and ethical policies. According to Friedman and Miles (2002) and Laplume et al. (2008), stakeholder theory implies that companies must address the requirements of its stakeholders if they are to survive or even flourish. Business operations must be acknowledged by both internal and external stakeholders. (Jiao 2010; Naseem et al., 2019; Stakeholder Theory: The State of the Art, 2010). Corporate ESG performance serves as a framework for non-financial assessments that show us the level of commitment businesses have towards sustainable development and social responsibility, therefore boosting their reputation and resilience during tough situations. (ESG and Financial Constraints, 2023; Zumente & Bistrova, 2021; Gillan et al., 2021).

Companies with higher ESG scores tend to have better liquidity positions (Chen et al., 2023). This is because ESG factors can provide valuable insights into a company's financial and investment performance. It can also help us comprehend the potential long-term financial risks and opportunities, as well as the impact of upcoming carbon legislation and cost savings from increased resource utilization. Moreover, investors tend to value companies with good ESG performance resulting in increased market attention and higher stock liquidity (Maiti, 2020; Khan, 2019).

Foreign institutional investors also prioritize companies having strong ESG performance. Hence these companies tend to have an increase in foreign investments which adds an additional advantage to them by enhancing more liquidity from a global perspective thereby making them even more attractive to the markets. Nonetheless, companies with high ESG scores often have better liquidity positions due to growing investor’s interest through improved access to capital as well as enhanced reputation in the market. (Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance, 2019).

ESG ratings have a significant impact on a company's liquidity condition. However, the influence of ESG rankings on the liquidity of companies may be significant, even in calm markets and during financial crises. (Yoo et al., 2021). Firms with high ESG scores might equally enjoy a lower cost of capital and cheaper debt which emphasizes further why more attention needs to be directed towards ESG when looking at financial outcomes and the conduct of investors (ESG and the cost of capital, 2020).

Companies having a lower environmental, social, and governance (ESG) ratings could experience problems in raising funds or enticing shareholders (Li et al., 2023). The reason is that such companies are likely to encounter difficulties in raising funds because of limited access to capital due to poor ESG scores (Suttipun, 2023). Thus, not having good ESG performance may discourage potential investors from investing in such companies; that is, poorly rated ESGs may eventually result in low liquidity levels, making it harder for companies to satisfy their responsibilities.

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2.3.3 Impact of ESG on Volatility

In recent years, there has been a growing interest in the impact of environmental, social, and governance activities on companies performance, particularly in relation to volatility. ESG has not been as widely recognized in India as it has internationally. To promote the idea of ESG, the Ministry of Corporate Affairs introduced the "National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business" in 2011. (National Foundation for Corporate Social Responsibility, 2023; Singh et al., 2018).

Enhanced ESG performance positively impacts a company's information environment, thereby reducing stock price volatility and mitigating information asymmetry theory, arising from enduring market frictions (Ang & Chen, 2002). Corporate ESG performance serves as a channel for information transfer, attracting analysts to examine and decipher the vast data it contains. This helps to reduce information asymmetry, which lowers stock price volatility. Furthermore, ESG performance is thought to influence investor sentiment and corporate reputation, which can affect stock price volatility (Yoo et al., 2021). Several say that ESG ratings will elevate idiosyncratic stock volatility, whereas others posit that the duration of price adjustment directly correlates with the influence of ESG on stock prices (Grewal et al., 2020). Some papers highlight that high ESG ratings will result in lower stock returns for companies (Li et al., 2023; Pratiwi et al., 2021). Feng et al. (2022) believes that a better ESG rating can lower stock price crash risk. (Hu et al., 2023; Li et al., 2023) investigate the impact of ESG performance on stock price synchronicity.

Other researchers have proposed that companies integrating ESG factors exhibit lower volatility in their stock performance compared to their industry counterparts. They argue that each industry responds differently to ESG factors and that ESG-oriented companies yield higher returns (Friede et al., 2015). Some researchers have proposed that the presence of institutional investors reduces market information asymmetry due to their inclination to potentially exploit ESG-related

private information obtained through their positions (Liu et al., 2023; Wong, 2016). Further research is needed to fully understand the dynamics between ESG performance and stock price volatility, taking into account different industries, regions, and market conditions. Some characteristics distinguish emerging stock markets like India, such as systemic vulnerability, high volatility, nascent trading mechanisms, regulatory issues, illiquidity, limited transparency, difficulty accessing available information, low trading volumes, diversification opportunities, diverse risk profiles, and unpredictable circumstances. Nonetheless, some researchers believe that modern investors can potentially earn higher returns by capitalising on market over and underreactions while assuming no additional risk (Aziz & Ansari, 2017; Sharma et al., 2022; Dixit & Agrawal, 2019; Meher et al., 2020).

2.4 Aims and Objectives

This study is conducted to fulfil the following aims and objectives

1. To study the relationship between ESG performance and stock returns of BSE Sensex 30 companies
2. To study the influence of ESG scores on the liquidity of companies securities of BSE Sensex 30 companies
3. To study the impact of ESG scores on volatility of companies securities of BSE Sensex 30 companies

2.5 Hypotheses/ Research Question

We try to ask the following questions

RQ.1 Does ESG scores have positive/negative effect on the stock prices?

RQ.2 Does ESG scores have a positive/negative effect on companies liquidity?

RQ.3 Does ESG score have a positive/negative influence the volatility on companies stock prices?

Based on the above questions we formulate the following hypothesis (Null)

H1:- There is no significant impact of ESG performance on the stock returns of BSE Sensex 30 companies.

H2:- There is no significant impact of ESG performance on the liquidity of BSE Sensex 30 companies.

H3:- There is no significant impact of ESG performance on the volatility of BSE Sensex 30 companies share prices.

2.6 Scope

The period of study is chosen is from 2015-2021. Future studies can extend the time period. This study uses BSE Sensex 30 companies data along with ESG scores. Further studies can explore how each pillar affects the three variables. Further studies can also explore other areas such as news disclosures and how ESG values affects green bonds.

CHAPTER 3: METHODOLOGY

3.1 Sources of Data

The Present study is based on secondary data collected from BSE website, Bloomberg database, Money control website and companies annual balance sheets were used.

3.2 Models

The regression model we use for Annual Returns

RETi,t = α1+β1 ESG+y1Controli,t+Ui,t (Controls= Firm size, Leverage, Growth Rate)

For returns (RET) we take the daily closing stock prices of each company were collected from the BSE website, and on an excel sheet daily returns for each year were calculated, after which average returns for each year was calculated.

The regression model we use for Annual Trading Volume

Trading Voli,t = α1+β1 ESG+y1Controli,t+Ui, (Controls= Firm size, Leverage, Growth Rate)

For trading volume (Trading Vol) we take the daily trading data for the 30 BSE Sensex companies was acquired from the BSE website and then estimate the average annual turnover for each year from 2015 to 2021 by dividing the total yearly trading volume by the number of trading days.

The regression model we use for Annual Volatility

Volitalityi,t = α1+β1 ESG+y1Controli,t+Ui,t (Controls= Firm size, Leverage, Growth Rate)

In order to calculate the average volatility, we take the daily closing stock prices for the period 2015 to 2021, that has been collected above. On Excel, we compute the standard deviation of the daily returns for the year and multiply it by the square root of the total trading days.

We adopt the following model from (Hasan et al., 2021; Bodhanwala and Bodhanwala, 2018; Alsayegh et al., 2020; Maji, S. G., & Lohia, P. (2022); Ruan and Liu, 2021, among others). Firm size is calculated as the natural log of total assets. Leverage is computed as the ratio of secured loans by shareholder funds. The net sales growth figure is measured by $[(\text{net sales}_t - \text{net sales}_{t-1})/ \text{net sales}_{t-1}] \times 100$

We compile the ESG scores for the BSE Sensex 30 firms from the Bloomberg database for the years 2015–2021. We exclude one company Mahindra and Mahindra due to non-availability of ESG scores.

3.3 Software

We use Excel to calculate stock returns, yearly liquidity, annual volatility, leverage ratios, and sales growth rates. We use E-views to run descriptive statistics, unit root tests, multicollinearity matrix, and regression model analysis.

3.4 Tools and Techniques

Initially, we conduct descriptive statistics to comprehend the average, middle value, most frequent value, and variability of the data. We transform the data into logarithmic form for all variables except for the ESG score in order to ensure consistency. After that, we conduct the unit root test using three tests: the Levin, Lin and Chu test, the ADF-Fisher Chi-square Test, and the PP-Fisher Chi-square test. We employ the Panel Least Square Method for regression analysis and conduct the Breush-Pagan test to validate the findings. If the null hypothesis of the Breush-Pagan test is rejected, we proceed with the Random-Fixed Effect model. Next, we conduct the Hausman test to confirm the results of the Random-Fixed Effect analysis.

CHAPTER 4: ANALYSIS AND CONCLUSIONS

4.1.1 Descriptive Statistics (Normal Data)

Table 4.1: Descriptive Statistics (Normal Data)

	ANNUAL RETURNS AVG	ANNUALIZED VOLITALITY	TRADING VOLUME AVG	ESG	FIRM SIZE	LEVERAGE	SALES GROWTH
Mean	107.0083	137.2263	475952.5	2.693103	305424.7	2.809464	110.5378
Median	100.0600	129.6200	245171.5	2.580000	75877.00	1.184108	108.7800
Maximum	300.4900	332.4400	5110190.	5.570000	4534430.	19.37658	189.0000
Minimum	99.02000	113.0900	4163.153	0.900000	2640.010	0.016314	42.00000
Std. Dev.	36.58394	31.00455	673960.1	0.946656	650008.5	3.692329	18.09396
Skewness	5.099207	4.551303	3.686635	0.385347	4.138303	1.891489	0.912165
Kurtosis	27.01338	26.34569	21.29703	2.565798	22.17450	6.339379	8.098130
Jarque-Bera	5757.164	5310.806	3291.531	6.618661	3689.218	215.3692	247.9908
Probability	0.000000	0.000000	0.000000	0.036541	0.000000	0.000000	0.000000
Sum	21722.68	27856.93	96618360	546.7000	62001223	570.3212	22439.17
Sum Sq. Dev.	270353.7	194179.0	9.18E+13	181.0239	8.53E+13	2753.926	66133.05
Observations	203	203	203	203	203	203	203

Source: Eviews

The following table shows that there are a total of 203 observations. We observe that all of the variable medians are lower than their mean, indicating that the data distribution is skewed to the right. Except for ESG scores, the variables' standard deviations are substantial. There is a need to reduce variances and bring them closer to the midpoint. Using log values will assist to fix this problem.

4.1.2 Descriptive Statistics (Logged Value Data)

Table 4.2: Descriptive Statistics (Logged Value)

	LANNUAL RETURNS	LANNUAL VOLITALITY	LTRADING VOL	ESG	LFIRM SIZE	LLEVERAGE	LSALES GROWTH
Mean	4.644127	4.905230	12.29799	2.693103	11.40462	0.170507	4.691988
Median	4.605770	4.864607	12.40971	2.580000	11.23687	0.168989	4.689327
Maximum	5.705414	5.806459	15.44675	5.570000	15.32721	2.964065	5.241747
Minimum	4.595322	4.728184	8.334028	0.900000	7.878538	-4.115737	3.737670
Std. Dev.	0.200925	0.164058	1.413082	0.946656	1.582600	1.453470	0.166565
Skewness	5.092699	3.460352	-0.667359	0.385347	0.092008	-0.418176	-0.824763
Kurtosis	26.96759	17.30502	3.523504	2.565798	2.830530	3.436206	9.814724
Jarque-Bera	5736.336	2135.980	17.38633	6.618661	0.529337	7.525884	415.8235
Probability	0.000000	0.000000	0.000168	0.036541	0.767460	0.023215	0.000000
Sum	942.7577	995.7618	2496.492	546.7000	2315.138	34.61301	952.4736
Sum Sq. Dev.	8.154925	5.436816	403.3540	181.0239	505.9336	426.7402	5.604290
Observations	203	203	203	203	203	203	203

Source: Eviews

There is a total of 203 observations. While except ESG scores all the other variables log values have been taken to maintain uniformity. From the above table we can notice that using of log values has stabilized the std deviation. While annual returns, annual volatility, ESG scores, firm size are positively skewed and annual trading volume, leverage and sales growth are negatively skewed. Annual returns, annual volatility, trading volume, leverage and sales growth has a leptokurtic curve while ESG scores and firm size have a platykurtic curve. The null hypothesis for normality is the return series is normally distributed. It is rejected since probability values for the Jarque Bera statistics for the all the variables is less than 5% except for firm value. Hence, we can say that the log values except for firm value is not normally distributed.

4.2 Unit Root Test

Table 4.2: Unit Root Test

	LANNUAL RETURNS	LANNUAL VOLITALITY	LTRADING VOL	ESG	LFIRM SIZE	LLEVERAGE	LSALES GROWTH
Levin, Lin & Chu Test Statistic (At level)	-70.5646	-2.12925	-2.80830	-8.51525	-4.34368	-9.26921	-9.41733
P Value (At level)	0.0000	0.0166	0.0025	0.0000	0.0000	0.0000	0.0000
Levin, Lin & Chu Test Statistic (At 1st Difference)	--	--	--	-7.95257	-2.85884	-13.4657	--
P Value (At 1st Difference)	--	--	--	0.0000	0.0000	0.0000	--
ADF - Fisher Chi-square Test Statistic (At level)	99.1745	80.6674	115.124	42.0767	48.5288	71.7633	115.930
P Value (At level)	0.0006	0.0262	0.0000	0.9426	0.8077	0.1057	0.0000
ADF - Fisher Chi-square Test Statistic (At 1st Difference)	--	--	--	94.9333	84.4436	163.539	--
P Value (At 1st Difference)	--	--	--	0.0016	0.0133	0.0000	--
PP - Fisher Chi-square Test Statistic (At level)	180.073	159.378	136.392	59.6576	116.043	72.5699	127.362
P Value (At level)	0.0000	0.0000	0.0000	0.4152	0.0000	0.0944	0.0000
PP - Fisher Chi-square Test Statistic (At 1st Difference)	--	--	--	169.060	119.709	219.084	--
P Value (At 1st Difference)	--	--	--	0.0000	0.0000	0.0000	--

Source: Eviews

The Log values are used for the variables (annual returns, annual volatility, annual trading volume, ESG scores, firm size, leverage, sales growth) are check for stationary using Levin, Lin & Chu Test, Augmented Dickey Fuller test and PP - Fisher Chi-square test. We ran these tests on log values using the Eviews software. First we will run it at level. If the data does not become stationary at level we proceed forward to 1st difference and 2nd difference.

In the above table we used three test to confirm stationary of the variables, that are Levin, Lin and Chu test, ADF-Fisher Chi-square Test and PP-Fisher Chi-square test. We can observe that annual returns, annual volatility, trading volume and sales growth have values below 0.05 indicating that the values are stationary at level. However variable ESG the Levin, Lin and Chu test show the data to be stationary at level while the other two tests ADF-Fisher Chi-square Test and PP-Fisher Chi-square test show values greater that 0.05 which accepts null hypothesis that the data has unit root. When we test again at first level we see that the values are below 0.05 accepting the null hypothesis at first level. When we conduct the unit root test for the variable firm size, the tests Levin, Lin and Chu test and PP-Fisher Chi-square test values are less than 0.05 which accepts the null hypothesis of unit root. However, the ADF-Fisher Chi-square Test value is above 0.05, when the test is redone at first difference the value comes below 0.05. The Levin, Lin and Chu test for the variable leverage with the values accepting the null hypothesis while the ADF-Fisher Chi-square Test and PP-Fisher Chi-square test accept the null hypothesis at first level.

4.3 Multicollinearity

4.3.1 For Returns Model

Table 4.3: Multicollinearity for Returns Model

	LANNUAL RETURNS	ESG	LFIRM SIZE	LLEVERAGE	LSALES GROWTH
LANNUAL RETURNS	1.000000	0.163040	0.100214	0.249911	0.104566
ESG	0.163040	1.000000	0.210584	-0.036370	-0.103878
LFIRM SIZE	0.100214	0.210584	1.000000	0.704370	0.007127
LLEVERAGE	0.249911	-0.036370	0.704370	1.000000	0.099556
LSALES GROWTH	0.104566	-0.103878	0.007127	0.099556	1.000000

Source: Eviews

From the above returns model, we can see that between the variable's annual returns and ESG have less multicollinearity having a value of (0.163040). Annual returns and firm size also less multicollinearity between each other having a value of (0.100214). Annual returns and Leverage too have less multicollinearity between each other with a value of (0.249911). Annual returns and growth sales have a value of (0.104566) indicating a low multicollinearity. ESG and firm size has a value of 0.210584 indicating a low multicollinearity. While ESG and leverage values indicate the variables have low multicollinearity with values of (-0.36370). ESG and sales growth have a low multicollinearity value. Firm size and leverage values indicate that there is a possibility of multi-correlation but it's value is not very high. On the other hand, Firm size and sales growth have a less multi-correlation. Leverage and sales growth also have a low multicollinearity value.

4.3.2 For Liquidity Model

Table 4.4: Multicollinearity for Liquidity Model

	LTRADING VOL	ESG	LFIRM SIZE	LLEVERAGE	LSALES GROWTH
LTRADING VOL	1.000000	0.151686	0.642474	0.324977	-0.163691
ESG	0.151686	1.000000	0.210584	-0.036370	-0.103878
LFIRM SIZE	0.642474	0.210584	1.000000	0.704370	0.007127
LLEVERAGE	0.324977	-0.036370	0.704370	1.000000	0.099556
LSALES GROWTH	-0.163691	-0.103878	0.007127	0.099556	1.000000

Source: Eviews

From the above liquidity model, we can see that the values of trading volume and ESG scores indicate a lower multicollinearity between the two variables. While Trading volume and firm size have slightly higher multicollinearity. Trading volume and leverage have a low multicollinearity. Trading volume and sales growth have low multicollinearity. ESG and firm size have low multicollinearity. ESG and leverage have a high multicollinearity. While ESG and sales growth have a low multicollinearity. Firm size and leverage values indicate that there is a possibility of multi-correlation but it's value is not very high. Firm size and sales growth have a low multicollinearity. Also leverage and sales growth have a low multicollinearity.

4.3.3 For Volatility Model

Table 4.5: Multicollinearity for Volatility Model

	LANNUAL VOLITALITY	ESG	LFIRM SIZE	LLEVERAGE	LSALES GROWTH
LANNUAL VOLITALITY	1.000000	-0.071272	0.141192	0.131872	0.071496
ESG	-0.071272	1.000000	0.210584	-0.036370	-0.103878
LFIRM SIZE	0.141192	0.210584	1.000000	0.704370	0.007127
LLEVERAGE	0.131872	-0.036370	0.704370	1.000000	0.099556
LSALES GROWTH	0.071496	-0.103878	0.007127	0.099556	1.000000

Source: Eviews

From the above table we can notice that multicollinearity between annual volatility and ESG is low. Whereas the multicollinearity between annual volatility and firm size is also low. The multicollinearity between annual volatility and leverage is also low. Annual volatility and sales growth multicollinearity is also low. ESG and firm sales multicollinearity is low. Firm size and leverage values indicate that there is a possibility of multi-correlation but it's value is not very high. Firm size and sales growth has a low multicollinearity. Leverage and sales growth multicollinearity is low having values of (0.099556).

4.4 Regression Analysis

4.4.1 For Returns Model

Table 4.6: Regression Analysis for Returns Model

Panel Least Square Method					
Variable	**C**	**ESG**	**LFirm Size**	**LLeverage**	**LSales Growth**
Coefficient	4.358897	0.051141	-0.032034	0.059105	0.107152
t-Statistic	10.54337	3.415715	-2.543468	4.387355	1.324381
Prob.	0.0000	0.0008	0.0117	0.0000	0.1869
R-Square		0.130138	**Adjusted R-square**		0.112565
Breush-Pagan Test					
Cross-Section	573.9597 (0.0000)	**Time**	3.074180 (0.0795)	**Both**	577.0339 (0.0000)
Random Fixed Effects (Cross-section effects)					
Variable	**C**	**ESG**	**LFirm Size**	**LLeverage**	**LSales Growth**
Coefficient	4.687495	0.003945	-0.004195	0.001653	-0.001370
t-Statistic	101.5378	3.092561	-1.954778	0.760527	-0.422086
Prob.	0.0000	0.0023	0.0520	0.0478	0.0345
R-Square		0.054368	**Adjusted R-square**		0.035264
Hausman Test			0.2139		

Source: Eviews

After completing the regression analysis, we discovered an R-Square value of (0.1301) and an Adjusted R-Square value of (0.1126). It is important to check the accuracy of the test by conducting the Breush-Pagan test with a significance level of p(0.0000). This leads to rejecting the null hypothesis and running the Random Fixed effects test. The Random Fixed Effects study demonstrates that for every 1 unit rise in ESG score, yearly returns increase by (0.0050), while all other factors remain constant. Nonetheless, control factors including business size, leverage, and sales growth have significant p-values. Notably, the coefficient for firm size is negative (-0.0320), while leverage (0.0591) and sales growth (0.1072) have positive coefficients. This model has an R-Square value of (0.0544) and an Adjusted R-Square value of (0.0356). We ran the Hausman test to accept the validity

of the model, as it has a higher p-value we accept null hypothesis and accept the model. It can be inferred that ESG scores influence stock returns.

4.4.2 For Liquidity Model

Table 4.7: Regression Analysis for Liquidity Model

Panel Least Square Method					
Variable	**C**	**ESG**	**LFirm Size**	**LLeverage**	**LSales Growth**
Coefficient	10.11811	-0.068920	0.735430	-0.235177	-1.274877
t-Statistic	4.450445	-0.837056	10.61842	-3.174527	-2.865372
Prob.	0.0000	0.4036	0.0000	0.0017	0.0046
R-Square		0.468159	**Adjusted R-square**		0.457415
Breush-Pagan Test					
Cross-Section	317.0709 (0.0000)	**Time**	1.419573 (0.2335)	**Both**	318.4905 (0.0000)
Random Fixed Effects (Cross-section effects)					
Variable	**C**	**ESG**	**LFirm Size**	**LLeverage**	**LSales Growth**
Coefficient	7.423419	0.189636	0.618332	-0.093117	-0.569504
t-Statistic	4.680914	2.362331	6.185142	-0.889855	-2.423268
Prob.	0.0000	0.0191	0.0000	0.0346	0.0163
R-Square		0.280113	**Adjusted R-square**		0.265570
Hausman Test			0.1404		

Source: Eviews

Following the Panel Least Squares test, we discovered an R-Square value of (0.4682) and an Adjusted R-Square value of (0.4574). We must evaluate the test's legitimacy by running the Breush-Pagan test at a significance level of p(0.0000), which leads us to reject the null hypothesis and proceed to the Random Fixed effects test. The Random Fixed effects test results reveal that for every one unit rise in ESG score, the yearly trading volume increases by (0.1896), assuming all other variables remain constant. All the control variables values are significant. For every one unit rise in Firm Size, annual trading volume changes by (0.6183), while sales growth value changes by (-0.5695). The model's R-

squared is (0.2801) with an adjusted R-squared of (0.2656). The Hausman test was used to check the model's validity, and because the p-value is greater, we accept both the null hypothesis and the model. We can say that ESG scores influences annual trading volume.

4.4.3 For Volatility Model

Table 4.8: Regression Analysis for Volatility Model

Panel Least Square Method					
Variable	**C**	**ESG**	**LFirm Size**	**LLeverage**	**LSales Growth**
Coefficient	4.503294	-0.016584	0.015349	0.002061	0.057800
t-Statistic	12.66139	-1.287481	1.416601	0.177794	0.830399
Prob.	0.0000	0.0494	0.0528	0.0519	0.0473
R-Square		0.034329	**Adjusted R-square**		0.014821
Breush-Pagan Test					
Cross-Section	0.069589 (0.7919)	**Time**	3.700207 (0.0544)	**Both**	3.769796 (0.0522)

Source: Eviews

After running the Panel Least Square test for which we obtain a R-Square value of (0.3403) and Adjusted R-Square of (0.1408). We need to test the validity of the test, to which we run the Breush-Pagan test with an overall probability value of (0.0522), we therefore accept the null hypothesis for the test and accept the Panel least square test. The model gives us the following output for every one unit change in ESG score there is an increase of (-0.0166) in the annual volatility keeping all the other factors constant. Significant p-values are related with the control variables of firm size, leverage, and sales growth. Interestingly, the company size variable has a positive coefficient of (0.0153), whereas leverage has a coefficient of (0.0021) and sales growth has a coefficient of (0.0578). The model's R-Square value is (0.0343), whereas its adjusted R-Square value is (0.0248). This indicates that ESG scores has a positive impact on volatility.

4.5 Conclusion

The following section contains our conclusion, which is based on our findings and analysis. Through multiple regression models, we try to examine the association between ESG returns, liquidity and volatility. In all of the models of the returns, liquidity, and volatility models, we observed significant correlations between the independent and dependent variables, with the help of control variables. Our findings reveal that ESG ratings have a significant impact on several areas of financial markets. We particularly emphasize that ESG scores are responsible for variations in stock returns, trading volume, and volatility dynamics in this market.

This indicates that companies are effective in using stock returns, liquidity, and volatility to reap the benefits of ESG. This is possible because India is gradually implementing new rules and legislation to align with global expectations. Nonetheless, this suggests that stakeholders think there is no discrepancy between ESG goals and the company's sustainable practice, and that there is legitimacy. As a result, there is a positive relationship between stakeholders and businesses. Participating in ESG initiatives yields immediate financial advantages, such as enhanced energy efficiency, less waste, and lower operational costs. However, more time is required to grasp the link better.

4.6 Limitations of this Study

Despite careful attention to detail, the research had drawbacks, including:

1) The sample for the study consists of BSE Sensex 30 Companies. Thus, the findings cannot be generalized for companies below the BSE Sensex index companies.
2) The current research time period is a six-year period. This could not be extended owing to numerous factors including absence of time, data, and resources.
3) ESG measurement is based on the ESG rating on Bloomberg terminal. The information disclosed by the companies may be biased as per their requirement. It may result in biased data.

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