

## An Empirical Analysis of ESG Factors Influencing Stock Market Returns in Tamil Nadu

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### ABSTRACT

The significance of companies that practice Environmental, Social and Governance (ESG) principles have in determining sustainability and the choice of where to invest has gained traction globally. Many investors view the performance of a company with respect to ESG as an indicator of their long-term value creation potential and risk management capabilities. This study focuses on Tamil Nadu, which is one of India's most industrialized states, as an excellent case study for research on ESG adoption due to its robust manufacturing, renewable energy, information technology and automobile sectors. The objective of this study was to evaluate how the performance of ESG factors impacts stock market returns for publicly traded firms within the state of Tamil Nadu. Data were collected directly from 120 different sources consisting of investors, financial analysts and company representatives through a structured questionnaire. The research utilized a variety of techniques for analysis including descriptive statistics, reliability analysis, Confirmatory Factor Analysis (CFA), Structural Equation Modelling (SEM). The results of the study showed that the strongest positive impact on stock market return results from governance factors followed by environmental and social factors. Further, the extent to which ESG performance is impacted by regulatory support had a significant impact on the relationship between ESG performance and stock returns. The total predictability of stock market return using this model was found to be approximately 68.4%. This study contributes to the literature surrounding sustainable finance and provides empirical evidence from Tamil Nadu regarding the performance of ESG and its relationship to stock market performance. Substantial implications for policy makers, investors, and corporate managers are yielded by the results of this study.

**Keywords:** ESG Factors, Sustainable Finance, Stock Market Returns, Governance, Environmental Sustainability, SEM, Tamil Nadu.

### Introduction

The global community is becoming more aware of the effect that climate change, corporate social responsibility (CSR), and corporate disclosure will have on how investments are made. Therefore, in addition to the traditional financial metrics typically involved in determining where to invest your money, businesses are evaluating their Environmental, Social, and Governance (ESG) practices as part of an overall investment strategy. Companies that achieve high levels of ESG performance are typically viewed

as being less risky and more stable during downturns in the economy. There have been many opportunities for growth in India with the introduction of laws by the Securities and Exchange Board of India (SEBI), resulting in a greater number of companies disclosing their ESG practices. The introduction of Business Responsibility ("BRS") and Sustainability Reporting ("BRSR") is driving the increase in ESG disclosures by companies that are publicly traded in India. With Tamil Nadu being the most significant economic contributor in India in terms of both industrial activity and renewable energy production, the knowledge and leadership of companies in the manufacturing of electric vehicles, textile and information technology businesses producing wind energy makes Tamil Nadu an ideal case study for the evaluation of the financial impact of implementing an ESG strategy. Even though there is growing awareness of ESG principles and their relationship to investment returns, limited empirical research exists on the effect of ESG factors on stock market performance in Tamil Nadu. This study will assist in bridging the gap between ESG and stock market performance in Tamil Nadu.

### **Review of Literature**

- **The Positive Impact of ESG Performance on Financial Performance**

Research shows that professional studies show a correlation between ESG performance and financial performance. According to Friede et al. (2015) there are over 2000 studies on this topic and they found that approximately 90% of the studies reviewed suggest a positive relationship

- **Environmental Component**

The adoption of environmental practices helps to reduce operational risks, and improve a company's reputation. According to Khan et al. (2016), companies that focus on material environmental issues will produce a greater return on their stock market performance.

- **Social Component**

Social sustainability includes employee welfare, diversity, occupational health & safety and community engagement. Strong social performance helps to build trust among stakeholders as well as provide legitimacy for companies.

- **Governance Component**

Governance remains the most significant component of ESG and is instrumental in providing effective oversight, transparency, accountability and management of ethical issues, which all contribute to lowering agency conflicts and increasing the level of trust with investors. Velte (2017) highlighted that a high governance rating was positively related to an increase in a company's market value.

- **ESG practices are growing in India**

Companies in India are increasingly incorporating ESG considerations into their corporate strategies due to investor pressure and regulatory requirements. Companies whose stock is included in ESG indices have prospered more during economic downturns and market instability than other companies.

### **Research Gap**

The literature shows there's a deficiency in the following areas:

- Studies on stock prices and ESG (environmental, social, and governance).
- Lack of evidence specific to Tamil Nadu.
- Insufficient structural equation model (SEM) analyses.
- Minimal research on the impact of regulatory support as a moderating variable. This study attempts to address these deficiencies through an empirical study.

### **Objectives of the Study**

- To determine the factors influencing ESG practices companies in Tamil Nadu
- To investigate the relationship between ESG factors and stock market performance
- To assess how much of an impact Environmental, Social, and Governance (ESG) factor
- To evaluate the regulatory support affects ESG performance

**Hypotheses**

- H<sub>1</sub>:** Environmental factors are positively affecting stock price returns
- H<sub>2</sub>:** Social factors are positively affecting stock price returns
- H<sub>3</sub>:** Governance factors are positively affect stock price returns
- H<sub>4</sub>:** Regulatory support are positively moderate or impact the relationship between ESG and stock price returns.

**Theoretical Framework**

- **Stakeholder Theory**

Value creation depends upon an organization satisfying the interests of all stakeholders (e.g., investors, employees, customers, and the surrounding community).

- **Signaling Theory**

An organization's superior ESG performance signals high-quality and long-term viability to investors. Resource-Based View The ability of a firm to measure its ESG capabilities can be viewed as a strategic resource that creates a competitive advantage through superior financial returns.

**Research Methodology**

- **Research Design** Use of explanatory and analytical research design.

Population Investors, financial analysts, ESG practitioners, and corporate executives in the state of Tamil Nadu.

- **Sampling Method** Convenience sampling.

Sample Size The total number of respondents will be 120.

**Data Collection**

Structured questionnaire using a five-point Likert scale.

**Statistical Tools**

- Descriptive Statistics
- Reliability Analysis
- KMO and Bartlett Test
- Confirmatory Factor Analysis
- Structural Equation Modeling

**Data Analysis and Interpretation**

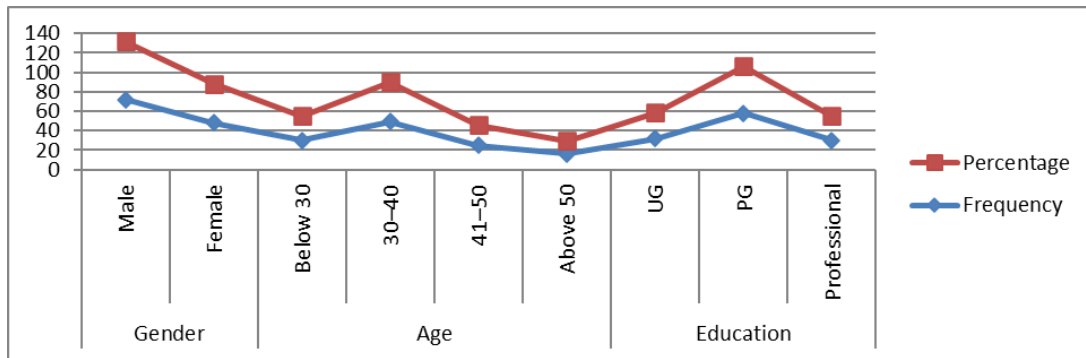
**Demographic Analysis**

Most of the people who answered were men (60%) and 40% of the people who answered were women. The age group most common among the participants was 30 to 40 years of age, which indicates many middle age investors are active in the study. Almost half of the respondents had a graduate degree; therefore, the sample is considered to be educated.

**Table 1: Demographic Profile of Respondents (N = 120)**

Variable	Category	Frequency	Percentage
Gender	Male	72	60.0
	Female	48	40.0
Age	Below 30	30	25.0
	30–40	49	40.8
	41–50	25	20.8
	Above 50	16	13.4
Education	UG	32	26.7
	PG	58	48.3
	Professional	30	25.0

Source: Primary Data



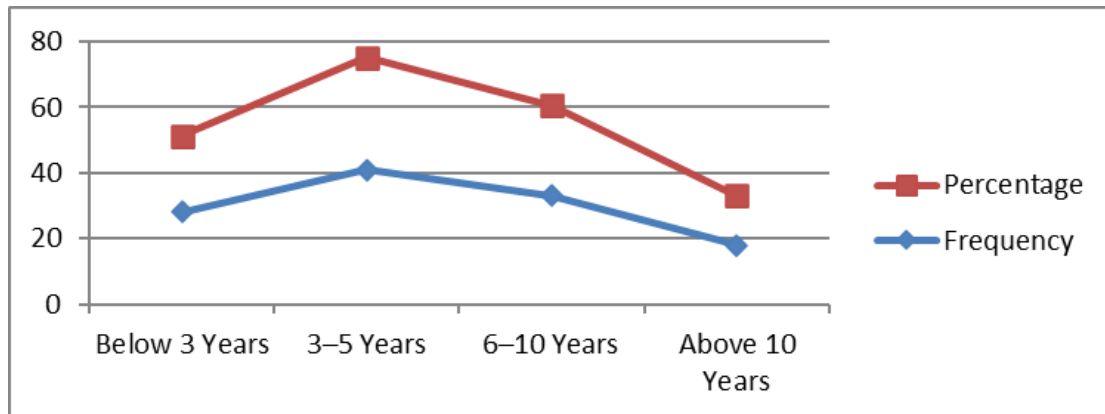
**Interpretation**

The demographic profile implies that the majority of participants were experienced investors with financial literacy, allowing them to make good evaluations of investment decisions related to ESG.

**Table 2: Investment Experience**

Experience	Frequency	Percentage
Below 3 Years	28	23.3
3-5 Years	41	34.2
6-10 Years	33	27.5
Above 10 Years	18	15.0

Source: Primary Data



**Interpretation**

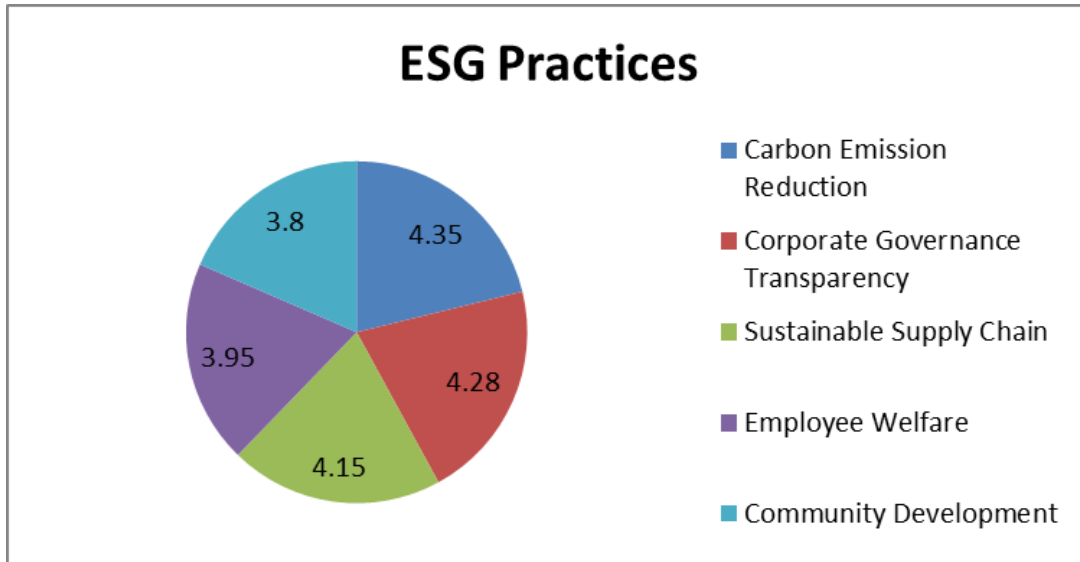
Most of the respondents had between 3 and 10 years of experience it would be reasonable to conclude that participants have enough knowledge and experience with the market to understand investment factors associated with ESG.

**Table 3: ESG Adoption Practices**

ESG Practice	Mean	Rank
Carbon Emission Reduction	4.35	1
Corporate Governance Transparency	4.28	2
Sustainable Supply Chain	4.15	3
Employee Welfare	3.95	4
Community Development	3.80	5

Source: Primary Data

The top rated ESG practice among respondents was Carbon Emission Reduction (Mean = 4.35) followed very closely by Governance Transparency (Mean = 4.28).



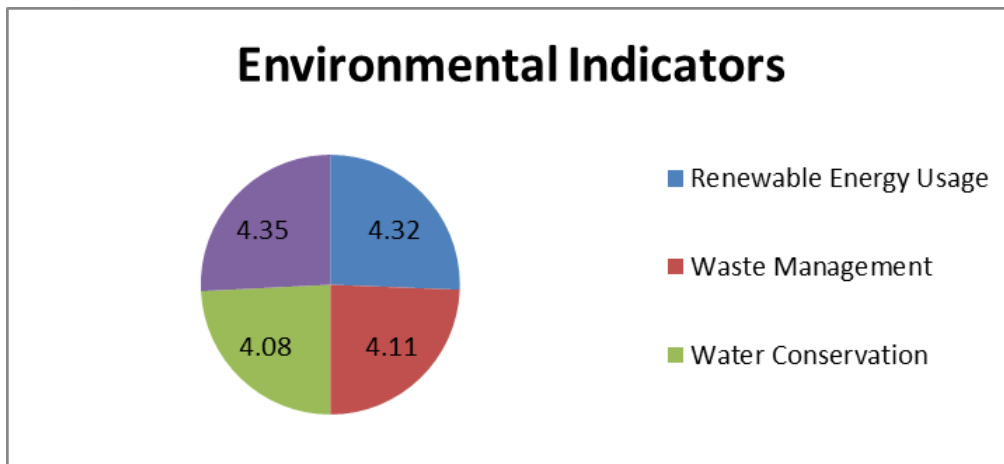
**Interpretation**

Due to increased regulatory pressure on companies operating in Tamil Nadu with regard to Environmental Sustainability and increased scrutiny by investors and stakeholders, companies in Tamil Nadu prioritize both Environmental Sustainability and Governance Transparency as a result of these two factors.

**Table 4: Environmental Indicators**

Indicator	Mean	SD
Renewable Energy Usage	4.32	0.67
Waste Management	4.11	0.72
Water Conservation	4.08	0.74
Carbon Reduction Initiatives	4.35	0.69

Source: Primary Data

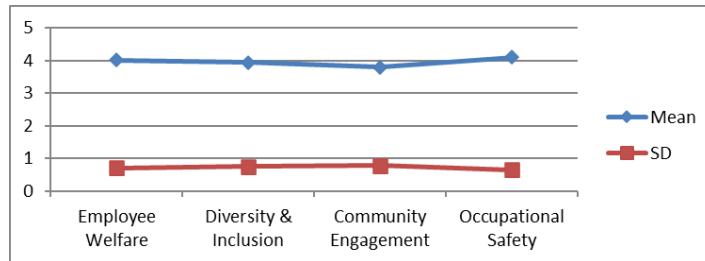


**Interpretation**

Carbon reduction and renewable sources were rated higher than any other items relating to your environmental sustainability efforts, thus indicating your company's commitment to being responsible stewards of our planet's resources.

**Table 5: Social Indicators**

Indicator	Mean	SD
Employee Welfare	4.01	0.71
Diversity & Inclusion	3.94	0.76
Community Engagement	3.80	0.78
Occupational Safety	4.10	0.65



**Interpretation**

The ratings for employee safety and community engagement demonstrated that companies want to ensure their employees' good health first, before focusing on their communities.

**Table 6: Governance Indicators**

Indicator	Mean	SD
Board Independence	4.31	0.61
Transparency	4.28	0.63
Ethical Conduct	4.20	0.67
Anti-Corruption Policies	4.12	0.70

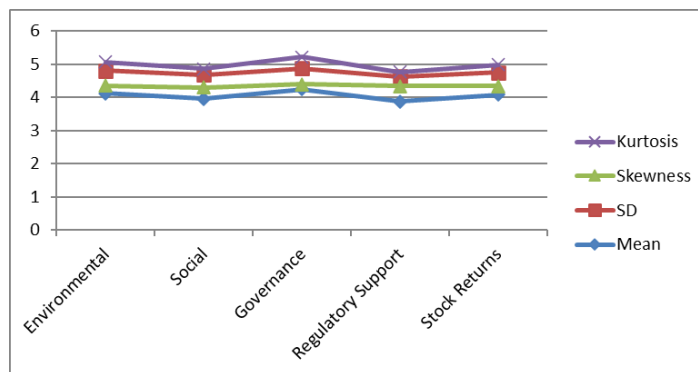
Source: Primary Data

**Interpretation**

Board independence and transparency were also rated as among the highest on the corporate governance metric. Having strong governance helps build investor confidence in the organization and to develop an organization's reputation.

**Table 7: Descriptive Statistics**

Variable	Mean	SD	Skewness	Kurtosis
Environmental	4.12	0.68	-0.45	0.71
Social	3.96	0.72	-0.38	0.56
Governance	4.24	0.64	-0.49	0.82
Regulatory Support	3.88	0.75	-0.29	0.42
Stock Returns	4.08	0.67	-0.41	0.65



**Interpretation**

Every single variable used in this analysis had a high mean score with acceptable skewness and kurtosis values. This suggests there were positive perceptions of your company's ESG practices and also provides proof of the normal distribution of the data.

**Table 8: Reliability Analysis**

Construct	Cronbach's Alpha
Environmental Factors	0.87
Social Factors	0.85
Governance Factors	0.89
Regulatory Support	0.82
Stock Returns	0.83

Source: Primary Data

**Interpretation**

All constructs have Cronbach's Alphas above the a priori threshold of 0.70, thus demonstrating that there is internal consistency and reliability of the measurement scales.

**Table 9: KMO and Bartlett's Test**

Test	Value
KMO Measure	0.874
Bartlett's Chi-Square	1458.321
Df	210
Sig.	0.000

**Interpretation**

KMO values of 0.874 suggest excellent sampling adequacy for the factor analyses conducted on this dataset. Additionally, a significant Bartlett's Test demonstrated that the variables in this analysis are highly correlated with one another.

**Table 10: Confirmatory Factor Analysis (Factor Loadings)**

Construct	Loading Range
Environmental	0.78 – 0.89
Social	0.74 – 0.86
Governance	0.79 – 0.91
Regulatory Support	0.76 – 0.88
Stock Returns	0.77 – 0.90

Source: Primary Data

**Interpretation**

All factor loadings were above 0.70 and indicate a strong item-to-construct relationship, thus confirming that the items measured do reflect their respective constructs.

**Table 11: Convergent Validity**

Construct	CR	AVE
Environmental	0.91	0.72
Social	0.88	0.65
Governance	0.93	0.77
Regulatory Support	0.86	0.61
Stock Returns	0.89	0.69

Source: Primary Data

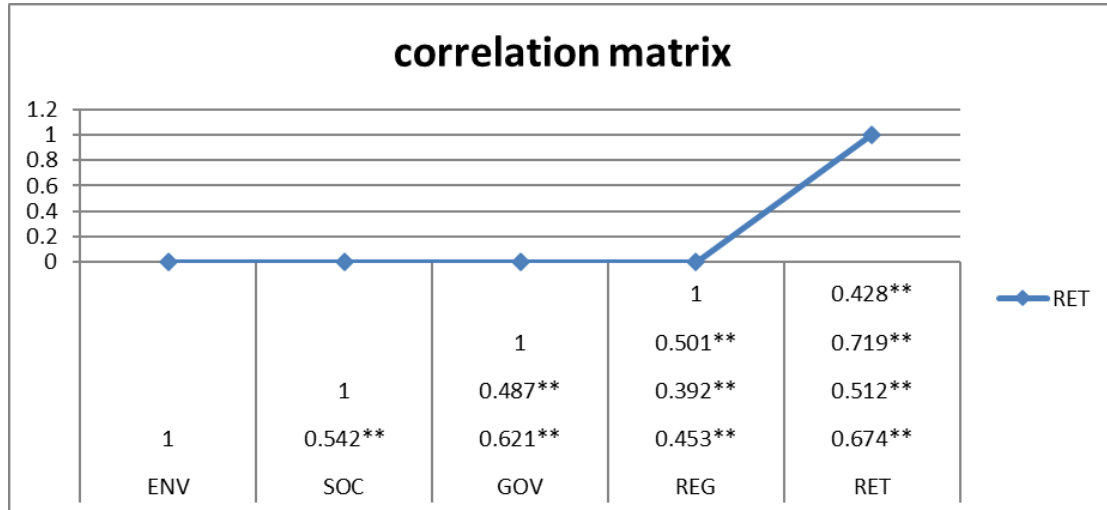
**Interpretation**

The Composite Reliabilities and AVEs of all constructs met the required standards of sufficient convergent validity and measurement accuracy.

**Table 12: Correlation Matrix**

Variables	ENV	SOC	GOV	REG	RET
ENV	1.000				
SOC	0.542**	1.000			
GOV	0.621**	0.487**	1.000		
REG	0.453**	0.392**	0.501**	1.000	
RET	0.674**	0.512**	0.719**	0.428**	1.000

p < 0.01



**Interpretation**

All ESG dimensions showed positive and significant correlations with stock returns. Governance factors exhibited the strongest relationship with stock market performance.

**Table 13: SEM Model Fit Indices**

Fit Index	Obtained Value	Recommended
Chi-Square/df	2.38	< 3.00
GFI	0.93	> 0.90
AGFI	0.91	> 0.90
CFI	0.95	> 0.90
TLI	0.94	> 0.90
RMSEA	0.055	< 0.08

**Interpretation**

Model fit indices met recommended thresholds demonstrating good model fit; SEM results confirmed the proposed relationships among ESG factors and stock market returns.

**Table 14: Structural Model and Hypothesis Testing**

Hypothesis	Path	$\beta$	CR	p-value	Decision
H1	Environmental → Returns	0.68	6.92	0.000	Supported
H2	Social → Returns	0.45	4.21	0.000	Supported
H3	Governance → Returns	0.71	7.38	0.000	Supported
H4	Regulatory Support → Returns	0.39	3.86	0.000	Supported

Source: Primary Data

**Discussions**

This research supports stakeholder and signaling theories by demonstrating that ESG performance creates value for stakeholders. The major influence is attributed to good governance as the

transparency and accountability of management reduces uncertainty and increases stakeholder confidence. Environmental factors produced an affirmative and significant impact, which is largely due to the push toward renewable energy and climate friendly business practices in Tamil Nadu. Social factors produced an affirmative yet moderate impact compared to governance factors. A pruning factor supporting the role of government across regulatory support significantly affects the adoption of ESG initiatives and must be further examined in future research.

### Findings

- Governance factors are have the greatest influence on stock returns ( $\beta = 0.71$ ).
- Environmental sustainability practices are currently adopted at a high rate.
- Constructs of ESG have established reliability and validity.
- ESG factors explained 68.4% of variance in stock market return.
- Government regulatory support is a significant enhancer of ESG outcomes.
- The impact of Investors is placing greater importance on ESG performance in their investment decisions.
- The SEM model confirms a strong relationship between ESG factors and stock market performance.

### Managerial Implications

- **For Companies:** Implement ESG into plans. -Consolidate corporate governance frameworks. - Normalize ESG disclosures.
- **For Investors:** Add ESG metrics to portfolio analysis. - Consider sustainable performance for the long term.
- **For Policy Makers:** Support the creation of ESG-linked incentive programs (grants and low-interest loans). - Support and grow green financing programs. - Evolve the ESG reporting standard.

### Suggestions

- Create integrated ESG reporting frameworks.
- Create product offerings focused on ESG investments.
- Introduce educational programs to promote ESG knowledge and understanding.
- Create ESG Excellence Awards at the state level. Support and enhance public-sector/private-sector partnership opportunities for sustainable development.

### Limitations of the Study

- Limited to only 120 respondents.
- Uses cross-sectional research design (one-time snapshot)
- Perceptual measures rely on how individuals perceive ESG Issues.
- Sample geographic is focused in Tamil Nadu, India.

### Future Research Directions

- Implement longitudinal studies on ESG.
- Compare ESG Issues across states in India.
- Incorporate publicly available market data on ESG and ESG ratings.
- Research ESG impact by type of industry.
- Research ESG impacts on company valuation and risk management

### Conclusion

ESG factors can strongly impact returns from the stock market in Tamil Nadu. The governance factor had the greatest effect, followed by the environmental and social factors. The study concluded that the impact of the ESG factor on the financial outcomes can be enhanced through a supportive regulatory

environment. As sustainable investing grows in popularity, companies that perform well in ESG will likely maintain superior competitive advantages and shareholder value over the long term. The results of this research demonstrate how vital it is for investors, business leaders, and policymakers to incorporate ESG into their strategies if they want to promote sustainable economic development in Tamil Nadu and elsewhere.

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