INDIAN ESG REGULATORY CHANGES AND MARKET RESPONSE: AN EVENT STUDY IN RELATION TO BSE 100 ESG AND BSE SENSEX INDICES

Shibila E[1], Sanand Elayodath[2] & Dr. Jayarajan TK[3]

1.Research Scholar, Department of Commerce, Sree Narayana College, Kannur, Kerala. eakkatilshibila@gmail.com

2. Research Scholar, Department of Commerce, Sree Narayana College, Kannur, Kerala. sanandpkl@gmail.com

3.Associate Professor, Department of Commerce, Payyanur College, Payyanur, Kerala. jayarajtkj@gmail.com

Abstract

Being an emerging financial market like India, the shift to the ESG (Environment, Social, and Governance) scenario resulted in multifaceted changes. In this article, an attempt is made to analyse the impact of ESG-related regulatory events on the stock market, specifically in relation to the BSE 100 ESG and BSE SENSEX indices. Based on the five major events identified, daily closing prices of each index are collected from the official website of BSE and the Event study methodology is used to analyse abnormal returns. Two event windows are constructed, namely a 30-day window and a 10-day window for long-term and medium-term impact, respectively. It is found that as the changes are gradual, it is not possible to measure the effect at a particular point; rather, it is possible over a period of time. It is found that the SEBI Stewardship Code is the most impacted ESG-related regulation, and 1st April 2022 is the most crucial point where BRSR and SEBI's enhanced disclosure norms for related-party transactions came into effect.

Keywords: Regulatory changes, BSE 100 ESG, BSE SENSEX, Event study

1. INTRODUCTION

The elevated emphasis on sustainability and corporate social responsibility has given greater prominence to Environmental, Social and Governance considerations in the investment decision-making. In addition to broader societal issues, ESG aspects might influence the risk and return profiles of investments. Consequently, worldwide regulations have been implemented in order to enhance transparency, accountability and sustainability in financial markets. It is also noted that the Indian market is heavily dependent on world economies,

especially the developed ones. Minor variations in the global financial market cause drastic changes in the Indian market. Various studies are conducted by comparing the Indian market with global markets(Bhatia, 2014; Sharma & Kennedy, 1977). Besides everything, India is in a supreme position to be tangent with global norms, and India is more integrated (Mukherjee, 2007).

Investor behavioural factors, corporate strategies and stock market performances are all being significantly affected by these ESG aspects as well as their related regulations. From 'voluntary' to 'mandatory', various regulations have been initiated for the betterment of corporate activities. All these have significant concerns over the entire financial market in different facets. The impact of financial regulations enforcements in the market sometimes cause reputational losses (Armour et al., 2017) that the authority never imagined. It has another face that the long regulatory procedures meant to keep confidentiality ultimately result a complete distress (De Batz, 2020) among stakeholders. At the same time, those companies already fulfilled the compliance will reap the benefits. As it is concerned with individual corporations, their environmentally related activities might influence them, particularly when negative events happen, their impact is very high (Endrikat, 2016) and there is asymmetry in market reaction. It is not possible to get a market idea from a single index analysis, as it is a more diversified market(Roll, 1992) benchmark indices are also taken into consideration. Indeed, the capital market itself can't sustain for a long time, it has dynamic implications from various macro-economic factors like foreign exchange rate, GDP, inflation, etc. and somewhere in the world these are also impacting negatively (Worlu & Omodero, 2017). There are numerous tests used in empirical finance (Serra, 2002), and the event study itself has various applications in accounting and finance research (Mackinlay, 1997).

For long-term value creation, companies are trying to maintain sustainability because of the realization that the numbers themselves are not enough for long-term growth. These ESG compulsions are affected differently among companies; on the one hand, companies with high ESG performance acquired greater investor confidence, thereby enhancing market value. On the other hand, companies with less ESG performance struggled with compliance, penalties and reputational risk, thereby experiencing volatile market value. In a nutshell, for the entire financial market, it gave a dynamic change, like shifting the traditional investment to green bonds and sustainability-linked investments.

2. METHODOLOGY

To analyse the impact of regulatory changes on ESG and benchmark indices of India, daily closing prices of the BSE 100 ESG index and BSE SENSEX were collected from the official website of BSE. BSE SENSEX is selected because it has been considered the pulse of the Indian stock market worldwide. The major regulatory changes in relation to Environmental, Social and Governance were collected from various articles published in various journals and newspapers, and they are presented in Table 2.1.

Table 2.1 Major regulatory events in relation to ESG in India

Sl.No.	*Event*	*Introduced date*	*Effective date*
1	National Guidelines on Responsible Business Conduct (NGRBC)		March 13, 2019
2	SEBI Stewardship Code	December 24, 2019	April 1, 2020
3	Business Responsibility and Sustainability Reporting (BRSR)	May 10, 2021	FY 2022-23 onwards
4	Sustainability in Corporate Governance Practices (LODR Amendments)	August 6, 2021	January 1, 2022
5	SEBI's Enhanced Disclosure Norms for Related-Party Transactions	November 9, 2021	April 1, 2022

National Guidelines on Responsible Business Conduct (NGRBC) are a vital set of principles developed by the Ministry of Corporate Affairs (MCA), Government of India, in order to promote sustainable business practices. It is the revised version of the National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business 2011. These guidelines are aligned with nine core principles, ie, Ethical conduct, sustainable & safe goods, employee well-being, stakeholder engagement, human rights, environmental sustainability, public & regulatory policy, inclusive development and customer values. The guidelines are in line with the Sustainable Development Goals of the United Nations, and they

made it mandatory for the top 1000 listed companies to submit a Business Responsibility Report to SEBI. As this was originally introduced in 2011, analysis for that time is not done because the BSE 100 ESG index is available only from 26-10-2017. So, only for this event, analysis is done for the effective date.

SEBI Stewardship Code urges large institutional investors for responsible and actively participate in the companies they are investing in, especially in ESG aspects. This code depends on the notion that the institutional investors' distinctive capacity is capable of promoting sustainable practices in their investee companies. This code applies to mutual funds and AIFs (Alternative Investment Funds). SEBI made it mandatory to submit a periodic compliance report in relation to this stewardship code.

Business Responsibility and Sustainability Reporting (BRSR) is issued by SEBI in line with global business practices by replacing Business Responsibility Reporting. This is truly based on the nine core principles of NGRBC, and it suggests reporting principle-wise performance of the top 1000 listed companies from FY 2022-23. This movement was helpful for increasing investor confidence through high-quality ESG disclosed data.

Listing Obligations and Disclosure Requirement (LODR) regulations were amended in 2021 to underscore sustainability in business practices. These activities enhanced the transparency and accountability of businesses, and they also attracted responsible investment. This is a significant step by SEBI to push the corporates towards a sustainability path.

SEBI's Enhanced Disclosure Norms for Related-party transactions are meant to strengthen the regulations to protect the interests of all stakeholders. Through the widening scope of related parties, the necessity for independent shareholder approval and the imposition of more transparent disclosures, SEBI has made it more hurdles for companies engaging in fraudulent or unethical businesses.

Daily closing prices of both the indices were collected for a 30-day event window, 30 trading days before and 30 trading days after each event day, is create. A 30-day event window is created for analysing an event's long-term effect. For analysing significant long-term effects, longer windows are useful (Fama et al., 1969). It is true that the impacts of regulatory changes might be gradual, so we should take enough time to experience their effects. The event study approach is helpful to identify abnormal returns (Armitage, 1995; Mackinlay, 1997) which are diverged from the expected return that results from the regulatory changes under consideration. In order to calculate the expected returns, a pre-event estimation window of 200 days is designed. This estimation window encompasses from 200 days to 30 days before the event, ie.,

[-231, -31], to prevent estimation bias no crossover with the event window is ensured. Based on this pre-event estimation window, parameters of the market model like slope (β), intercept (α) and standard error are calculated.

Daily returns of both indices, ESG 100 and BSE SENSEX, are calculated by

$$Return = \frac{Price\ today - Price\ yesterday}{Price\ yesterday} \times 100$$

Based on this equation, returns are calculated for both the estimation window and event window. To find the relationship between BSE 100 ESG index returns and BSE SENSEX returns, a market model is developed as,

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \epsilon_{i,t}$$

$R_{i,t}$ = Return of the index i on day t

$R_{m,t}$ = Return of the market index on day t

α_i = Intercept

β_i = Slope coefficient

ϵ = Error term (Abnormal return)

For each day in the event window, abnormal returns are calculated based on the formula,

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t})$$

$AR_{i,t}$= Abnormal return for index i on day t

$R_{i,t}$ = Actual return for index I on day t

$(\alpha_i + \beta_i R_{m,t})$ = Expected return based on market model

Cumulative Abnormal Returns (CAR)are used to evaluate the overall effect of regulatory change in the event window by adding the abnormal returns in the event window, t_1 and t_2 are the start and end of the event window.

$$CAR = \sum_{t=t1}^{t2} AR_{i,t}$$

3. RESULTS & DISCUSSION

Data analysis results show that some events have a significant impact on market performance and some others do not. Based on the understudied events results are summarised below,

Table 3.1 Event 1

		Decision
t statistic for CAR for +30, -30 window	0.1018	Insignificant
t statistic for CAR for +10, -10 window	-0.01376	Insignificant

For the first event, NGRBC on its effective date, the long-term impact for the 30-day event window is found to be insignificant, because its t-statistic for CAR is less than 1.960 (5% level of significance). For the medium-term analysis of a 10-day event window, it is also found to be insignificant with a -0.01376 t statistic of CAR. But it is to be noted that on the 77th pre-event day, a significant impact is found with the t-statistic for CAR of 2.0569. That is the expected outcome of the NGRBC was already absorbed by the market before the event day, as it was known earlier. The same significant impact is found on the 105th pre-event day with a 2.0399 value of the t-statistic for CAR and 125th pre-event day with a 2.2251 value of the t-statistic for CAR. It is also noted that on the 109th post-event day, a significant impact is found with a 2.0403 value of the t-statistic of CAR. After 247 days of the event in every week a significant impact is found, which means the entire market absorbed the whole information about the regulations after a year. This may happen due to the submission of annual reports of every company in the corresponding year, and remind that annual financial reports are the only medium for the investors to analyse the company in deep.

Table 3.2 Event 2

	Introduced date		***Effective date***	
		Decision		**Decision**
t-statistic for CAR for +30, -30 window	0.1956	Insignificant	0.3680	Insignificant
t-statistic for CAR for +10, -10 window	0.3334	Insignificant	0.1112	Insignificant

For the second event, the SEBI Stewardship Code, on its introduction date, the t-statistic for CAR for the long-term effect analysis window of 30 days comes to 0.1956, which is not significant at 5% level of significance. For its medium-term effect analysis of a 10-day window also the t-statistic for CAR is found to be less than 1.960, i.e. 0.3334. But there was a significant impact on the 19th pre-event day with a t-statistic of CAR of 1.9937. And on the 37th pre-event day also a significant impact is also found with a 2.1259 t statistic for CAR. That same significant impact is found on the 81st pre-event day with a 2.5284 t-statistic. When it comes to its post-event days analysis on the 49th day, 57th day and 62nd day significant impact is found with the t-statistic for CAR of 2.1258, 2.2207 and 2.2041, respectively. There is an interesting and significant impact also found after 70 days with twice a week for three consecutive weeks.

For this same event, on its effective day, the t-statistic for CAR for a long-term window of 30 days was found to be 0.3680, which shows an insignificant impact at 5% level of significance. For medium-term analysis, also insignificant impact is also found with the t-statistic for CAR of 0.1112. But for its short-term analysis of a two-day event window, a significant impact is found. While analysing its post-event days, it is found that on the 2nd day before the event significant impact is found with the t-statistic of CAR 2.1215 and its 7^{th,} 12th and 20th pre-event days also significant impact, found with t-statistics of CAR 3.0339, 2.7520 and 2.1606, respectively. While analysing its post-event days on the 3rd and 4th post-event day significant impact is found with the t-statistic for CAR 2.4621 and 2.0695, respectively. On the 9th and 10th post-event days, a significant impact is found with the t-statistic for CAR of 2.3326 and 2.5482, respectively. On 17th, 18th and 23rd post-event days also found significant impact with t-statistic for CAR of 2.1172, 3.0844 and 2.9249, respectively. From this, what insights can we derive is that the SEBI Stewardship Code has significantly influenced the market return, not on its exact effective date, but in the immediate days, both in pre- and post-scenario.

Table 3.3 Event 3

	Introduced date		***Effective date***	
		Decision		**Decision**
t-statistic for CAR for +30, -30 window	-0.0927	Insignificant	-0.0131	Insignificant

t-statistic for CAR for +10, -10 window	0.0679	Insignificant	0.4000	Insignificant

On the third event, BRSR, on its introduction date, the long-term window of 30 days found an insignificant impact with a t-statistic for CAR of -0.0927. Its medium-term impact of the 10-day event window also showed an insignificant impact, with a t-statistic for CAR of 0.0679. While analysing the pre-event days, it is found that within 30 days, there is no significant impact. 64th and 65th pre-event days significant impact is found with the t-statistic for CAR of 2.2859 and 3.7015. While analysing its post-event days, a significant impact is only found on the 193rd day with a t-statistic for CAR of 2.4712. It is clear from the information that nothing has influenced BRSR on its introduction date.

On its effective date, the long-term event window of 30 days found an insignificant impact with a -0.0131 t-statistic for CAR. For its medium-term analysis of a 10-day event window, insignificant impact is found with a 0.4000 t statistic for CAR. While analysing the pre-event days, it is found that on the 21st day, a significant impact is found with a 2.5152 t-statistic for CAR. When coming into the post-event days, a significant impact is found on the 6th and 9th days with t-statistic for CAR of 3.2650 and 1.9611. Gradual changes have indeed been happening with the establishment of BRSR in the market.

Table 3.4 Event 4

	Introduced date		***Effective date***	
		Decision		**Decision**
t statistic for CAR for +30, -30 window	-0.3079	Insignificant	-0.0440	Insignificant
t statistic for CAR for +10, -10 window	-0.3635	Insignificant	0.0323	Insignificant

On the fourth event, sustainability in corporate governance practices (LODR Amendments), on its introduction date, the 30-day event window showed an insignificant impact with -0.3079 t-statistic for CAR in a long-term view. In the medium-term window of 10 days event window also insignificant impact with a t-statistic for CAR of -0.3635. While analysing the pre-event days, it was found that there

wasn't any day within its immediate 30 days with a significant impact. On the 46th pre-event day, a significant impact is found with the t-statistic for CAR of 1.9881. While analysing the post-event days also there wasn't any day with a significant impact in the immediate 30 days. On the 114th day, when the new financial year began, a significant impact was found with the t-statistic for CAR of 1.9753.

When it comes to its effective date, the long-term event window of 30 days had an insignificant impact with a t-statistic for CAR of -0.0440. Its short-term window of 10 days also showed an insignificant impact with a 0.0323 t-statistic for CAR. While analysing its pre-event days, it is found that a significant effect is only found on the 147th day. While looking at the post-event days, it is found that on the 40th day, there is a significant impact with a t-statistic for CAR of 2.1220. There aren't such significant impact days on consecutive periods, and it is understood that this event didn't make such a drastic market change.

Table 3.5 Event 5

	Introduced date		***Effective date***	
		Decision		**Decision**
t statistic for CAR for +30, -30 window	-0.0470	Insignificant	-0.0131	Insignificant
t statistic for CAR for +10, -10 window	-0.0308	Insignificant	0.4000	Insignificant

On event 5, SEBI's enhanced disclosure norms for related party transactions, on its introduction date, the long-term window of 30 days showed an insignificant impact with a t-statistic for CAR of -0.0470. Its medium-term event window also shows an insignificant impact with a t-statistic for CAR of -0.0308. While analysing the pre-event days, it is found that on 109th and 113th days significant impact is found with t-statistics for CAR of 2.2395 and 2.0442. In its post-event days, on the 78th day, there is a significant impact with a t-statistic for CAR of 2.1643.

While coming into its effective date, the long-term window of 30 days showed an insignificant impact with a t-statistic for CAR of -0.0131. Its medium-term window of 10 days also showed an insignificant impact with a t-statistic for CAR of 0.4000. While analysing its pre-event days, it is found that on the 21st day, there is a significant impact with a t-statistic for CAR of 2.5152. While analysing its post-event days, it is found that

on the 6th and 9th days, there is a significant impact with the t-statistic for CAR of 3.2650 and 1.9614.

4. CONCLUSION

The impact of ESG-related regulations on the Indian capital market is dynamic. It is not possible to assess its impact for a particular point in time; rather, it can be done for a particular period. As we know, all changes are gradual, and when it comes to the strategic concerns, of course, their impact will be deeper than our thoughts. For a sustainable, accountable and responsible financial market, guidelines and regulations are vital. These are not only meant to protect investors but also all the stakeholders in the market. From an overall analysis of the Indian capital market, it is visible that sustainability-oriented investments have been maintaining their competitive advantage, thereby the entire market is benefiting from it. In this article, five major ESG-related regulations are analysed in the market response perspective with the event methodology technique. It is found that no events are found significant at the concerned event's introduced date and effective date. Rather, most of them impact the market either in the pre-event period or in the post-event period. On 1st April 2020, when the SEBI Stewardship Code came into effect market showed visible significant impact in its pre- and post-consecutive days. Compared to all the events understudied, this one seems to have highly impacted the market. FY 2022-23 onwards, that is, exactly from 1st April 2022, when Business Responsibility and Sustainability Reporting (BRSR) came into effect, the post-event days showed a slight and significant impact. The same impact also happened at the time of the effective date of SEBI's enhanced disclosure norms for related-party transactions, exactly on the same 1st April 2022. So that may be a combined impact and should be explored in detail for further insights.

REFERENCES

Serra, A. (2002). *Event study tests: A brief survey*. Revista Electrónica de Gestão Organizacional, 2.

Armitage, S. (1995). Event Study Methods And Evidence On Their Performance. *Journal of Economic Surveys*, *9*(1), 25–52. https://doi.org/10.1111/j.1467-6419.1995.tb00109.x

Armour, J., Mayer, C., & Polo, A. (2017). Regulatory Sanctions and Reputational Damage in Financial Markets. *Journal of Financial and Quantitative Analysis*, *52*(4), 1429–1448. https://doi.org/10.1017/S0022109017000461

Bhatia, A. (2014). *Analysis Of Stock Market Volatility: A Comparative Study Of India And China*.

De Batz, L. (2020). Financial impact of regulatory sanctions on listed companies. *European Journal of Law and Economics*, *49*(2), 301–337. https://doi.org/10.1007/s10657-019-09638-1

Endrikat, J. (2016). Market Reactions to Corporate Environmental Performance Related Events: A Meta-analytic Consolidation of the Empirical Evidence. *Journal of Business Ethics*, *138*(3), 535–548. https://doi.org/10.1007/s10551-015-2598-0

Mackinlay, A. C. (1997). *Event Studies in Economics and Finance*.

Mukherjee, D. (2007). *Comparative Analysis of Indian Stock Market with International Markets*. *1*(1).

Roll, R. (1992). Industrial Structure and the Comparative Behavior of International Stock Market Indices. *The Journal of Finance*, *47*(1), 3–41. https://doi.org/10.1111/j.1540-6261.1992.tb03977.x

Sharma, J. L., & Kennedy, R. E. (1977). A Comparative Analysis of Stock Price Behavior on the Bombay, London, and New York Stock Exchanges. *The Journal of Financial and Quantitative Analysis*, *12*(3), 391. https://doi.org/10.2307/2330542

Worlu, C. N., & Omodero, C. O. (2017). A Comparative Analysis of Macroeconomic Variables and Stock Market Performances in Africa (2000-2015). *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *7*(4), Pages 95-102. https://doi.org/10.6007/IJARAFMS/v7-i4/3436