
The moderating role of ESG disclosure scores in determining the impact of firm performance on CEO pay: a dynamic panel approach

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Abstract: This paper aims to empirically examine the moderating role of ESG disclosure while determining performance-based CEO pay. The compensation pay given to the CEOs must be linked to corporate sustainability so as to motivate them to act towards non-economic goals vis-à-vis earning profits. A total of 67 companies listed in the NSE Nifty 100 ESG index spanning six years from 2014 to 2019 have been taken as the panel data sample. As a baseline methodology, the PCSE model is applied and further two-step system GMM model has been considered for robustness check. The findings reveal that ESG disclosure scores show a significant positive effect in moderating the CEO pay-performance relationship. Stand-alone ESG measures indicate that except for social disclosure scores, all the other indicators depict a significant impact in determining the effect of firm performance on CEO pay. This study implies consideration of non-financial performance measures while determining CEO Pay.

Keywords: CEO compensation; ESG disclosure score; firm performance; panel data approach; India.

JEL codes: G3, G34, J33.

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Malabika Deo is a Professor in Commerce from the Pondicherry Central University India, having more than 30 years of teaching and research experience specialising in financial markets, derivatives and corporate governance. She was the first woman President of All-India Commerce Conference and holds numerous national and international publications to her credit and is also a recipient of best research paper awards at several forums.

1 Introduction

The contemporary era of 21st century is witnessing unprecedented possibilities and challenges for businesses to thrive and survive in the long run. With the rapid industrialisation and globalisation, the business entities have mindlessly exploited the limited resources available at their disposal. These effects have a far-reaching negative consequence on the ecosystem and their repercussions have the potential to impact future generations. This forced the stakeholders, all around the globe, to make businesses responsible for their actions and re-think the way they carry out their operations (Clarkson, 1995).

The desire for sustainable and inclusive development has all the more become imperative for the organisations to achieve their motto of growth and development. The concept of sustainability has gained prominence in recent times wherein welfare goals are given importance vis-à-vis economic profits. Environmental, social and governance (ESG) companies or socially responsible companies are those enterprises which give necessary attention towards the surrounding environment and follow 'good governance' practices. They are poised to integrate numerous economic, ethical, social, and environmental dimensions into their governance practices to attain various profit and non-profit motives. The concept of 'ESG' is rapidly evolving over the years, thereby potentially representing itself as a key non-financial performance indicator of companies (Khan, 2019).

While the conventional philosophy of businesses focused primarily on profit maximisation, ESG practices carried out by firms form a new accountability measure that reflects maximising shareholder value in the long-run by stressing on attaining organisational commitment towards non-financial goals. ESG is a conglomeration of three different words – E (environmental), S (social) and G (governance) factors. ESG activities performed by the businesses represent a 'social contract' with the community at large, thereby believed to be resulting in enhanced reputation, brand loyalty, increased investor perception, managing risks, rise in sales/revenue, and reduction in the cost of capital (Camilleri, 2015; Jizi et al., 2014; Salama et al., 2011). Eventually, it also helps in gaining competitive advantage by boosting shareholders confidence (Prasad et al., 2019), leading to improved firm value (Li et al., 2018).

The compensation paid to the top-level executives has always been debate (Tasawar and Nazir, 2019) in a developing country like India. As commonly believed the CEOs or MDs working at the top level take a huge portion of profits, causing a disparity in the pay given to subordinate employees working in the organisation. The wealth disparity prevalent in the country can be mitigated by a more thoughtful CSR, i.e., by linking a company's long-term business goals to societal objectives, thereby targeting inclusive development. One of the latest attempts in this direction is ESG-based compensation

policies (Haque, 2017) that imply linking top-management pay with non-financial performance parameters. Sustainable compensation policies are becoming popular as they tempt the executives to devise strategies focusing on long-term sustainability, especially in ESG firms (Baraibar-Diez et al., 2019). The effort and motivation of the top executives' team/board members who are involved in the strategic planning process shall bring about a substantial impact on the non-financial performance (Nishitani and Kokubu, 2020). As compensation drives outcomes, executives are more likely to accomplish the motto of ESG if they are incentivised for the same through sustainable pay policies (Baraibar-Diez et al., 2019). ESG factors need to be embedded with the financial goals and compensation paid to the CEOs; to bear with the persistent pressure from the stakeholders towards addressing the issue of sustainability.

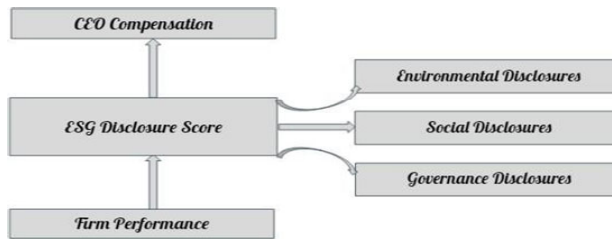
The chief executive officers' (CEO) or managing directors' (MD) being at the helm of affairs of the company are responsible for ensuring ethical, moral, transparent and good governance practices in an organisation. In this regard, their compensations often get aligned to different sustainability goals rather than focusing entirely on accounting and market-based firm performance measures. The logic behind ESG-based compensation policies (Haque, 2017) is to reward CEOs who are socially responsible with higher pay, making them reluctant to engage in environmentally harmful activities (Berrone and Gomez-Mejia, 2009).

The connotation of 'ESG practices' is an emerging concept that goes a step ahead of CSR in identifying and quantifying various sustainability dimensions for the information of stakeholders. While CSR is a qualitative tool to account for social commitments of the company, ESG can be regarded as a quantifiable measure of the same. These measures provide an opportunity for the external parties or interested investors to evaluate their choices in regard to the ethical or sustainability actions taken by the firm. It also aids the stakeholders to take the right decisions by focusing on the risks or opportunities that might arise in future owing to numerous ESG actions.

Although various research works in the past have dealt with ESG-related aspects and its various dimensions, its potential to act as a moderator in determining CEO Compensation has still not been explored. Prior literature has focused on the benefits derived by various stakeholders after implementing socially responsible activities or ESG practices in the firm. But its impact on the remuneration paid to the CEOs while diverting funds to welfare activities needs to be discussed elaborately. Further, the sub-classification of ESG into its individual components and its subsequent effect on the performance-based CEO pay remains uninvestigated. This paper seeks to explore the same especially in case of emerging economies like India and thus provides a novel contribution to the subject.

Given the above discussion, this objective has been studied under two sub-objectives. Firstly, to study the moderating role of ESG disclosure scores in determining the effect of firm performance on CEO compensation in socially responsible companies. Secondly, to study the effect of individual components of ESG score, i.e., environmental disclosure scores, Social disclosure scores and Governance disclosure scores in determining the performance pay relationship.

The thematic scheme of the study is specified in Figure 1 given. *Environmental disclosures, social disclosures and governance disclosures* are taken as key mediating variables along with generic ESG disclosures that determine the effect of firm performance on CEO compensation.

Figure 1 Thematic scheme of the study

By taking a longitudinal dataset of the NSE Nifty 100 ESG index firms, the work explores the moderating role of ESG disclosures in determining the effect of firm performance on CEO pay in socially responsible firms, thereby filling the literature gap in corporate governance. Further, the sub classification of ESG into various components – ESG along with their subcomponent proxies adds a novelty to the work. To the best of researcher’s knowledge, this is a unique contribution to the existing studies especially in the Indian context of post implementation of Companies Act 2013.

2 Background and literature review

The current section deals with the legal framework for ESG legislation and prior works carried out by researchers in the context of ESG disclosure and their subcomponents.

2.1 ESG legislation in India

The enactment of corporate social responsibility (‘CSR’) in the Companies Act 2013 (Tewari et al., 2021) coupled with business responsibility reporting norms formulated by the Securities and Exchange Board of India (‘SEBI’) marked the inception of a full-fledged legislative framework of sustainability law in India. While Section 135, Companies Act, 2013 mandates 2% of the average net profits of preceding three financial years towards CSR, the SEBI brought out a mandate for the top 1,000 listed entities in the form of Business Responsibility and Sustainability Report (BRSR) directed towards ESG disclosure to be applicable from Financial Year 2021–2022.

Sustainable Development Law is an emerging substantive body of legal instruments, treaties, and norms that intersect three primary areas viz. international economic law, environmental law, and social law. The Principles of Sustainable Development advocates the protection of the environment and developmental goals that would benefit future generations, as recognised in *M.C. Mehta v. Union of India* (Taj Trapezium Case, 1996). India is one of the seven developing countries recognised globally to have sustainability indices associated with their stock exchanges (Vives and Wadhwa, 2012) and still has a long way to go in this direction.

2.2 Sustainability/ESG disclosure scores

Sustainability disclosures are metrics that measures the level of commitment towards adhering to transparent sustainable practices and having an accountability in reporting it to the stakeholders (Tamimi and Sebastianelli, 2017). Proper reporting and disclosure of

sustainability practices within the required time frame fosters a sense of trust and confidence in the minds of investors, employees and lenders. The connotation of ESG is getting more standardised and accessible with the passage of time that aids in evaluating corporate risks and opportunities (Bassen and Kovacs, 2020), thereby affecting their profitability to a larger extent (Brogi and Lagasio, 2018).

The ESG disclosure score has been applied worldwide (Alareeni and Hamdan, 2020) to decode different environmental activities, social obligations and corporate governance mechanisms followed by companies (Han et al., 2016) capturing attention of all interested parties (Abughniem and Hamdan, 2019). Many of the works on ESG carried out in Western countries focus on one dimension (Barnett and Salomon, 2012), rather than stressing on all the three aspects of ESG (Alareeni and Hamdan, 2020). However, all the disclosure issues relating to ESG are interconnected to one another, and thereby it becomes imperative to include all of them in order to obtain a clear picture.

Out of three major leading international non-financial service providers (*Thompson Reuters, Bloomberg and MSCI*), Bloomberg is predominantly considered to be an in-house expert in ESG data accumulation and evaluation (Han et al., 2016). It classifies best and worst companies in terms of their ESG performance¹ by assigning scores to them under different heads of responsibility activities. ESG scores released by Bloomberg are an index built by combining outputs of all the three dimensions, i.e., disclosures pertaining to ESG indicators. Therefore, the three dimensions, if not taken separately might eliminate the opposite effects of one another (Brammer et al., 2006).

The segregation of ESG factors into ESG provides an avenue to the policymakers for key decision-making (Bianchi et al., 2010) with respect to governance policies and practices. The components of ESG can be subdivided as under:

2.2.1 Environmental disclosure score

The ambit of Environmental Disclosure Scores encompasses those sustainability practices that stresses on promoting environmental protection (Brogi and Lagasio, 2018) and creating an awareness regarding the development and usage of eco-efficient products/services (Bektur and Arzova, 2022). It entails all the eco-friendly activities that are concerned with reducing emissions, excessive energy-consumption and protection of natural resources. Environmental disclosure scores are curated from different environmental-related issues and disclosures viz. carbon emissions, environmental-oriented policies, waste releases, energy consumption, etc. It also assigns weights to them depending on its association and affect to the business and society.

As environmental problems challenging the globe may influence the firm's performance in future (Al-Tuwajri et al., 2004; Wagner and Schaltegger, 2004), it becomes inevitable for the businesses to establish a system of environmental commitment that follows the desired regulations and discloses the transparent information (Nor et al., 2016). Serious environmental regulations lead to positive performance (Dowell et al., 2000; Saleh et al., 2011), productivity (Majumdar and Marcus, 2001) and profitability (Karagozoglu and Lindell, 2000) by reducing production cost and enhancing customer satisfaction (Porter and Van der Linde, 1995).

2.2.2 *Social disclosure score*

The social disclosure score includes all the practices that foster workforce loyalty, respects human capital, follow business ethics, solves stakeholder concerns and aspires to add value to its products and services (Bektur and Arzova, 2022). It exudes a 'philanthropic' attitude towards the community at large (Brogi and Lagasio, 2018) as the social scores comprises of a wide range of activities from gender equality issues, basic human rights, female employees, workforce diversity to social-centric policies, etc.

Social aspects of performance are considered to have a significant positive influence on financial performance of a firm (Sharma et al., 2019). Overlooking this dimension without taking serious measures (Pelosi and Adamson, 2016) would lead to hazardous circumstances like insecurity, conflicts, violence against women, etc. Hence, the firms must engage itself in social activities to meet the expectations of the society at large and create a conducive work-life for the employees (Pelosi and Adamson, 2016).

2.2.3 *Governance disclosure score*

The governance dimension in ESG comprises of the corporate governance issues in relation to the hierarchical structure of the board, dynamics of management and its engagement with the stakeholders (Brogi and Lagasio, 2018). Corporate governance score measures the capacity of the firm's management system and its related issues that affects its structure and functioning (Bektur and Arzova, 2022; Birindelli et al., 2018). These issues include concerns like board independence, CEO duality, board gender diversity, corruption, reporting and disclosure, etc.

Corporate Governance becomes a significant factor in improving the firm's financial performance by reducing the agency cost and acting in the best interest of investors, thereby continuing as a going-concern (Fama and Jensen, 1983). In the past, a meagre lacuna in this direction has led to rise in corporate scandals and disastrous financial crisis (Nollet et al., 2016). Adapting good CG practices reduces information asymmetry by disseminating valuable shareholder information (Ponnu and Ramthandin, 2008; Radhi and Sarea, 2019) that instills a conviction in the minds of investors that their interests are clearly driven towards obtaining long-term growth and value (Tarmuji et al., 2016).

Therefore, all the three dimensions of ESG need to be considered for determining the effect of performance-based pay in socially responsible companies.

3 **Materials and methods**

For the current study, companies listed in the NSE NIFTY 100 ESG Index as of 31st March 2019 were considered as the data sample; as these firms adhere to the ESG norms of their operations. Every company listed in the NSE NIFTY 100 ESG Index is primarily categorised under the NIFTY 100 Index which has a valid ESG score. Initially, data of 90 companies were extracted from the CMIE Prowess Database, from which banking and insurance sectors have been excluded. The resultant sample comprised of a balanced panel of 402 firm-year observations (67 firms for six years).

The total compensation paid to the CEO or managing director has been taken as the dependent variable in the current study, the data for which has been obtained from multiple sources viz. Annual report of companies, CMIE Prowess, and Bloomberg

databases depending on the availability of the same. To standardise the remuneration figures for different firms and obtain an appropriate dependent variable measure (after mitigating skewness or heteroskedasticity problems that may arise during analysis), the log of CEO pay is considered as the explained variable. To maintain uniformity, log values of four explanatory measures, i.e., ESG disclosure score, environmental disclosure score, social disclosure score, and governance disclosure score have been considered. Data related to all the ESG-related components has been extracted from Bloomberg database.

The work also employs both accounting and market-based measures of firm performance – return on assets, return on equity, Tobin’s Q and stock return to investors (in line with Raithatha and Komera, 2016; Rath et al., 2020), data for which have been extracted from the CMIE Prowess database. All the variables used for analysis along with their description are provided in Table 1.

Table 1 Description of variables used

<i>Variables</i>	<i>Description</i>
<i>Dependent variable</i>	
Log(CEOCmp)	Total compensation paid (both fixed and variable pay components) to the Chief Executive Officer or Managing Director in a financial year
<i>Key moderator variables</i>	
ESG	A combined disclosure score of overall ESG transparency of an individual firm as disclosed by the Bloomberg database
Env	A proxy for Environmental disclosure score of an individual firm in a particular year as extracted from the Bloomberg database
Social	A representation for Social disclosure score of an individual firm in a particular year as indicated by the Bloomberg Database
Gov	A proxy indicator representing governance disclosure score of an individual firm as stated in the Bloomberg database
<i>Firm performance indicators</i>	
ROA	(PBDITA – Depreciation or amortisation)/Total assets
ROE	Return on equity or net worth
T-Q	(Total assets + market capitalisation – book value of equity)/Total assets
Return	Annual NSE stock returns (inclusive of dividend and capital appreciation)

Source: Author’s own compilation

The baseline model used in the current study is panel corrected standard errors (PCSE) model, as it produces robust standard errors when disturbances are heteroskedastic, autocorrelated, and contemporaneously correlated across cross-sections (Hoechle, 2007). PCSE model is also better than GLS or FGLS as it is more suitable for large-scale panels with $N > T$ (where ‘N’ representing the number of companies and ‘T’ representing the time-period under consideration). Table 2 summarises all the pre-diagnostics tests employed for checking the validity of the application of PCSE model. In the present case, all the conditions mentioned above necessitate the usage of the PCSE model.

Table 2 Tests conducted to validate the application of the PCSE model

<i>Name of the test</i>	<i>Purpose</i>	<i>Values obtained</i>	<i>Conclusion drawn</i>
Hausman test	For determining whether a fixed or random effect model is appropriate	chi2 = 7.56 p-value = 0.1090	As p-value is insignificant and null hypothesis gets accepted, it can be concluded that errors are not correlated with regressors and the random-effects model is more suitable.
Testing for time-fixed effects	To know whether to use time dummies while running a fixed effects model	F(5, 326) = 9.07 Prob. > F = 0.000	Time fixed effects are needed in this case as the p-value is significant implying that joint coefficients for all years are zero.
Breuch and Pagan Lagrangian multiplier test for random effects	To decide between random-effects regression and simple OLS regression	chi2(01) = 619.21 Prob. > chibar2 = 0.000	As the null hypothesis gets rejected, we conclude that random effects model is better fit owing to the presence of significant differences across cross-sectional units.
Modified Wald-test for groupwise heteroskedasticity in fixed-effect regression model	To test homoskedasticity (or if error variance is constant or not) in FEM.	chi2(67) = 1.2 Prob. > ch12 = 0.000	With the rejection of null, it can be concluded that model specification has heteroskedasticity.
Pesaran's test of cross-sectional dependence or contemporaneous correlation.	To determine if residuals are correlated across cross-sectional entities.	CD-test = 21.072 Pr = 0.0000	As the probability value is less than 0.05, it can be implied that there exists cross-sectional dependence amongst firms.
Wooldridge test for autocorrelation in panel data	To test if panels have the problem of serial correlation.	F = 23.179 Prob. > F = 0.000	Rejection of null hypothesis indicating that there is a presence of first-order serial correlation, i.e., AR(1) in the longitudinal data.
Likelihood ratio test	It tests for panel-level heteroskedasticity in which one model is nested with the another.	LRchi2(66) = 445.06 Prob. > ch12 = 0.000	The results of the p-value reject the null stating the presence of heteroskedasticity.

Note: Null assumption was homo is nested in hetero.

Source: Author's own calculation and compilation

A total of four different model specifications were run to validate our findings. Model 1 takes logarithm of CEO Compensation as the dependent variable and the accounting as

well as market-based measures of firm performance as independent variables as moderated by the log of ESG disclosure score. Model 2, model 3 and model 4 take environmental disclosure scores, social disclosure scores and governance disclosure scores respectively in place of ESG scores taken in model 1. The equation and representation of all the models are given below.

$$\begin{aligned} \text{Ln}(\text{CEO Comp})_{it} = & \alpha_0 + \beta_1 T\text{-}Q_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{ROE}_{it} \\ & + \beta_4 \text{Returns}_{it} + \beta_5 \text{Ln}(\text{ESG})_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Ln}(\text{CEO Comp})_{it} = & \alpha_0 + \beta_1 T\text{-}Q_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{ROE}_{it} \\ & + \beta_4 \text{Returns}_{it} + \beta_5 \text{Ln}(\text{Env})_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Ln}(\text{CEO Comp})_{it} = & \alpha_0 + \beta_1 T\text{-}Q_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{ROE}_{it} \\ & + \beta_4 \text{Returns}_{it} + \beta_5 \text{Ln}(\text{Social})_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

$$\begin{aligned} \text{Ln}(\text{CEO Comp})_{it} = & \alpha_0 + \beta_1 T\text{-}Q_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{ROE}_{it} \\ & + \beta_4 \text{Returns}_{it} + \beta_5 \text{Ln}(\text{Gov})_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

4 Results, analysis and discussion

4.1 Univariate tests

Initially for testing the stationarity of variables, the unit-root test method of Levin, Lin and Chu statistics was applied wherein all the variables were found to be stationary at level.

Table 3 presents the summary statistics of the variables. The average CEO or MD compensation reported to be 7.755 million with a standard deviation of 0.636 million. The corporate governance disclosure scores (52.27) show a quite higher average when compared to social and environmental scores (in line with Tamimi and Sebastianelli, 2017). Although the mean of governance disclosure score is higher than that of ESG scores, environmental scores and social scores, its deviation (7.716) remains the lowest with a narrower range (19.767 to 69.642) in comparison to other scores. The deviation of environmental disclosure score (17.551) is the highest implying only a few companies comply or disclosure such measures. The average value of accounting measures of firm performance of return on assets (16.1%) and return on equity (20.79%) are higher than the market-based measures of Tobin's Q (5.38%) and stock returns (6.2%). The standard deviation of return on equity (23.695) is also larger than that of other firm performance measures. The variance inflation factor (VIF) is also less than 10 for all the variables denoting the absence of multicollinearity in the model.

The Karl Pearson's coefficient of correlation matrix is presented in Table 4. While ESG disclosure (0.148), Environmental disclosure score (0.171) and governance disclosure score (0.277) are positive and significantly related to the CEO compensation, the relation of Social disclosure score (-0.094) measure is negative and non-significant to the CEO pay. Among the firm performance measures, only Tobin's Q (0.135) shows a significant positive association with the CEO pay measure. Other indicators like ROA (0.012), ROE (0.015) and Return to investors (0.027) show no relationship with the remuneration figure.

Table 3 Descriptive statistics

<i>Variables</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Min</i>	<i>Max</i>	<i>VIF</i>
CEOComp	402	7.755	0.636	5.420	9.219	-
ESG	402	34.895	13.767	9.090	61.160	1.06
Env	402	25.572	17.551	2.325	63.57	1.05
Social	402	41.029	14.092	7.020	71.930	1.06
Gov	402	52.277	7.716	19.767	69.642	1.02
ROA	402	0.161	0.113	-0.174	0.792	1.87
ROE	402	20.793	23.695	-33.510	315.090	1.74
T-Q	402	5.385	5.983	0.740	37.117	1.39
Return	402	0.062	1.897	-9.950	6.720	1.00

Note: This table presents the descriptive statistics of the selected sample for the sample period 2014–2019.

Source: Author's own calculation

Table 4 Correlation matrix

	<i>CEOCom</i>	<i>ESG</i>	<i>Env</i>	<i>Social</i>	<i>Gov</i>	<i>T-Q</i>	<i>ROA</i>	<i>ROE</i>	<i>Return</i>
CEOCom	1								
ESG	0.148*	1							
Env	0.171*	0.944*	1						
Social	-0.094	0.799*	0.688*	1					
Gov	0.277*	0.752*	0.671*	0.526*	1				
T-Q	0.135*	-0.225*	-0.198*	-0.231*	-0.118*	1			
ROA	0.012	-0.145*	-0.141*	-0.127*	-0.093	0.494*	1		
ROE	0.015	-0.125*	-0.141*	-0.085	-0.074	0.431*	0.638*	1	
Return	0.027	0.024	0.031	-0.015	0.076	-0.004	0.003	-0.034	1

Note: *significant at 1% level.

Source: Author's own calculation

Table 4 presents the pair-wise correlation matrix for the different variables considered under study for the period 2014–2019.

4.2 Multivariate test and key findings

After examining the univariate statistics, this section proceeds for the multivariate tests using the Prais-Winsten regression model. Table 5 presents results of the analysis carried out for the four models where model 1 takes ESG disclosure score as the key explanatory variable; model 2, model 3 and model 4 have environmental disclosure score, social disclosure score and governance disclosure score respectively as their independent variable of interest.

In the *first* model, the role of ESG disclosure score in determining the effect of firm performance on CEO pay has been tested. The ESG disclosure score (0.273) shows a significant positive relationship in the current specification. Out of the four firm performance measures, only Tobin's Q (0.011) is positive and significant while the other

three measures viz. ROA (0.260), ROE (-0.001) and return (-0.008) are insignificant. The *second* model considers environmental disclosure scores as a key indicator in determining performance-based CEO pay. The results show that the environmental disclosure score (0.085) is significant in determining the effect of firm performance on CEO pay. Like the previous models, only Tobin's Q (0.008) gives a positive and significant coefficient although the value is quite small. The other three measures of ROA (0.345), ROE (-0.001) and return (-0.009) give an insignificant relationship with the CEO pay. In the *third* model, unlike other ESG scores, the social disclosure score (0.078) does not show any significant association in determining the performance on pay. But the effect of firm performance measures remains the same as in the case of previous models. Except Tobin's Q (0.007), no other firm performance measures like ROA (0.231), ROE (-0.001) and return (-0.009) are significantly affecting the pay performance relationship. In the *fourth* and the last model, the governance disclosure score (0.747) shows a highly positive significance in the pay-performance relationship. Only Tobin's Q (0.008) remains significant, while other firm performance measures of ROA (0.138), ROE (-0.001) and return (-0.010) were not.

The regression results obtained in all the models indicate that except social disclosure scores, all the other ESG indicators depict a significant impact on firm performance-CEO compensation relationship.

While ESG scores, environmental scores and governance scores have a significant positive effect, social scores depict an insignificant relationship with the compensation paid to the CEOs. The results imply that the presence of ESG disclosures is capable of moderating and enhancing the effect of pay-performance relationship. The findings are also consistent to Tamimi and Sebastianelli (2017) who assert that firms that link compensation to ESG receive better sustainability scores. Amongst them, the corporate governance disclosure has a high impact as compared to environmental/social disclosures, possibly because, India has stringent regulations pertaining to 'governance' while other sustainability laws are still at a nascent stage. Firms with higher value relevance scores are most probably perceived by the investors as less risky (Bauer et al., 2007) resulting in a less discount rate and high valuations (Waddock and Graves, 1997; Bauer et al., 2007; Flammer, 2013). Considering the firm performance measures, only Tobin's Q shows a low positive significance in all the models and other indicators do not show any association with the pay. Although the market perceives sustainability scores to obtain long-term growth (Sharfman and Fernando, 2008), it would involve a lot of financial costs in undertaking these responsible practices thereby leading to reduced operational performance.

The overall findings posit that tying up CEO compensation to the ESG scores may incentivise them to be accountable towards performing various sustainability activities (consistent with Eccles et al., 2014). In their argument, Eccles et al. (2014) stated that socially responsible firms are likely assign the ESG responsibility to the top management or board committee for diligently adhering to sustainability goals by linking it to their compensation. As a diagnostics measure, it is found that R square² is about 97% which indicates high explainability of variables and Wald-chi square test is more than 100 (with significant p-value) in all specifications implying explanatory variables used in the model are worthy and have importance in the model.

4.3 Post-diagnostic analysis and robustness test

To validate the results of PCSE model obtained above, further analysis was conducted and the results of two-step system GMM are reported in Table 6. All the four models take the same variables as specified above in the previous model i.e. Table 5. The findings were observed consistent to the result of previous models in the line that except social scores (model 3 – 0.026); all the other measures of ESG disclosure scores show a significant positive association in the pay-performance effect. Among all the variables, the governance disclosure scores (model 4 – 0.454) were found to be the most effective. In addition, past pay (model 1 – 0.683, model 2 – 0.698, model 3 – 0.750 and model 4 – 0.681) was observed impacting the current remuneration drawn by the CEOs.

Table 5 Results of Prais-Winsten regression model with PCSE

<i>Dependent variable:</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<i>Log(CEOCmp)</i>				
Ln(ESG)	0.273*** (0.079)			
Ln(Env)		0.085** (0.043)		
Ln(Social)			0.078 (0.079)	
Ln(Gov)				0.747*** (0.189)
T-Q	0.011*** (0.003)	0.008** (0.003)	0.007** (0.003)	0.008*** (0.003)
ROA	0.260 (0.383)	0.345 (0.392)	0.231 (0.391)	0.138 (0.321)
ROE	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Return	-0.008 (0.007)	-0.009 (0.007)	-0.009 (0.007)	-0.010 (0.007)
Constant	6.770*** (0.295)	7.472*** (0.145)	7.475*** (0.296)	4.799*** (0.877)
R square	0.9774	0.9781	0.9713	0.9786
Wald Test (p-value)	27.92 (0.000)	23.39 (0.000)	14.91 (0.010)	21.34 (0.000)
No. of firm-year observations	402	402	402	402

Note: ***significance at 1%, **significance at 5%, *significance at 10%.

Source: Author's own calculation

The results also confirm other diagnostic parameters like F-test (p-value), Hansen test and AR2 statistics indicating a valid model with no over-identification or serial autocorrelation.

Table 6 Two-step system GMM model

<i>Dependent variable:</i> <i>Log (CEOCComp)</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
COMP _{it-1}	0.683*** (0.091)	0.698*** (0.088)	0.750*** (0.089)	0.681*** (0.090)
Ln(ESG)	0.139** (0.062)			
Ln(Env)		0.056** (0.025)		
Ln(Social)			0.026 (0.043)	
Ln(Gov)				0.454** (0.189)
T-Q	0.006 (0.005)	0.007 (0.005)	0.004 (0.005)	0.007 (0.005)
ROA	0.254 (0.336)	0.272 (0.324)	0.290 (0.295)	0.228 (0.332)
ROE	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Return	-0.018* (0.009)	-0.018* (0.009)	-0.019* (0.009)	-0.023** (0.009)
Constant	1.971*** (0.635)	2.167*** (0.654)	1.847** (0.700)	0.677 (0.713)
Hansen test (p-value)	15.00 (0.036)	15.28 (0.033)	18.28 (0.011)	15.41 (0.031)
F-statistics (p-value)	29.03 (0.000)	31.77 (0.000)	19.70 (0.000)	28.64 (0.000)
AR(2)	0.456	0.473	0.385	0.483
No. of observations	335	335	335	335

Note: *** significance at 1%, ** significance at 5%, * significance at 10%.

Source: Author's own calculation

5 Conclusions

This study tries to find out the role of ESG disclosure scores and its sub-components in determining the effect of firm performance on CEO Compensation. The diffusion of ESG into four components, i.e., the comprehensive ESG score, environmental disclosure score, social disclosure score and governance disclosure score was done to ensure that the findings are not dominated by one single indicator. The results ensured that highest weightage is given to governance scores, followed by the overall ESG score and Environmental scores while determining the pay-performance relationship. The Social

disclosure scores show no significant impact in the baseline as well as robust model under study. Amongst the four firm performance measures, only Tobin's Q is significant with a low coefficient value in all the models.

In relation to the theoretical and practical implications, this study contributes in several ways. Firstly, it shows the relevance of non-financial disclosures in determining the pay given to the CEOs. Implementation and disclosure of proper sustainability practices ensures confidence in the minds of stakeholders, leading to numerous benefits in the long run. Moreover, it is also evident that in the presence of sustainability performance scores, the role of firm performance takes a backseat. This shows the relevance of ESG indicators in driving the compensation paid to the CEOs in India. Secondly, the dominance of Governance indicators and the absence of the effect of social scores imply that not all the ESG components have a similar effect in determining the CEO pay. It is the CEO and board attributes that play a dominating role as compared to environmental and social factors. Further works in this domain can consider various environmental, social or governance components in-depth to explore the reasons behind ESG moderation in the pay-performance relationship.

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Notes

- 1 Bloomberg lists ESG activities under three different heads and assigns scores to them ranging from 0.1 to 100. The least ESG disclosing companies are assigned 0.1 which gradually increases to 100 for firms reporting on all data points under a specific head. Bloomberg also releases the composite ESG disclosure score which is the weighted average of effectiveness of firms to report ESG engagements under all the three heads (Arayssi et al., 2019). The weights are assigned to the particular data point based on the type and intensity of the social impact that it can create to the community.
- 2 The relatively high R² values obtained in the Prais-Winsten regression models is owing to the inclusion of both period-specific and company-specific intercepts (Jorgenson, 2009).