

## ESG-Linked Executive Remuneration: Component-Level Panel Data Analysis Of Indian Companies

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### **Abstract:**

*This paper empirically analysed panel data of 281 non-financial Indian companies over 5 years to check if the executive remunerations were aligned with the company's third-party ESG ratings. The regression analysis reported a significantly positive association of KMP remunerations with the scores of ESG and its components indicating ESG-linked KMP remunerations. Contrary to the hypothesis, the executive director's remunerations reported a significant negative association with corporate ESG scores. The study concludes that ESG-linked executive remuneration is gaining traction in India but is not yet widespread and remains an emerging area of corporate governance. The KMP remunerations are better structured and designed to incorporate ESG performance but the executive director's remunerations are not ESG-aligned yet. The results support the stakeholder theory but the overall sustainability scores were low as the companies have recently started voluntary sustainability reporting. The component analysis explains the lack of ESG orientation of executive director's compensations as the governance component had high scores but the environmental component had low scores. The results are consistent with stakeholder theory but do not refute agency theory because the ESG performance of the company was not significantly associated with the CEO remuneration. The study reveals gaps in ESG integration and incomplete compensation contracts in Indian listed companies.*

**Keywords:** ESG, environmental, social, governance, sustainability, disclosures, managerial, executive director, CEO, KMP, remuneration, compensation, incentives, pay, ESG contracting, P4S, pay for sustainability, regression, component-level, panel-data, EViews, Bloomberg

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### **I.Introduction**

Various social and environmental concerns have been acknowledged globally as real risks which need to be seriously managed to slow down the pace of adverse effects. The concept of sustainable development has pressed companies to adopt sustainable strategies to increase their legitimacy (Deegan, 2014). This corporate legitimacy is important for sustainable performance, reputation, and survival (Baron, 2008; Cheng, Ioannou, & Serafeim, 2014). Sustainable development has introduced the concept of sustainable finance to integrate sustainability into the business environment. The ESG framework was developed as the means to the end of sustainable finance. Due to the lack of a standardised definition for ESG integration, ESG reporting is inconsistent and subjective (Silvola & Landau, 2021). Koutoupis, Kyriakogkonas, Pazarskis, and Davidopoulos (2021) define ESG as “a set of standards to evaluate a firm's performance regarding the protection of nature (environment), its relationship with stakeholders, such as employees and suppliers (social), and its governance as reflected in a firm's management, executive remuneration and other variables”. Executive remuneration represents a vital corporate governance indicator (Hill and Yablon, 2002).

The institutional investors now emphasise ESG integration in corporate risk management strategies (MacNeil and Esser, 2022; Balp and Strampelli, 2022) and advocate that the remuneration incentives of companies should be designed to reflect the material non-financial risks (O'Connell and O'Sullivan, 2014). Institutional investors are increasingly pushing resolutions regarding ESG-based remuneration (Capital Monitor, 2022; AllianzGI, 2022; Cevian Capital, 2021; Bradford, 2022). Institutional Shareholder Services (ISS), a prominent global provider of corporate governance solutions explicitly supports ESG-linked remuneration in its benchmark policy recommendations for proxy voting but expects remuneration to be majorly based on financial performance targets (ISS, 2024). ISS supports non-financial ESG targets that are clearly stated, quantifiable, material to the business, and linked to the company's strategy (ISS, 2024). Practitioners do not favour third-party ESG ratings linked with executive remuneration (Capital Monitor, 2022). Maria Nazarova-Doyle, head of pension investments and responsible investment at life and pensions firm Scottish Widows, told Capital Monitor that ESG

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linkage of around.... “20% is about right. Below 15% is probably not enough, and above 20% you start to worry that something else important is not getting done.”

As ESG-linked executive remunerations are favourable for sustainable finance, this paper extends the literature on ESG and executive/managerial remuneration/pay by describing if the executive remunerations of Indian companies are aligned with ESG performance.

## **II. Review Of Literature And Hypothesis Development**

Previous literature suggests that managers should be rewarded for the corporate legitimacy that they earn with voluntary performance. Managers should be explicitly incentivised for the increased social risks (Maas, 2015; Frye, Nelling, and Webb, 2006; Berrone and Gomez-Mejia, 2009; Deegan & Islam, 2012; Callan & Thomas, 2014; Al-Shaer & Zaman, 2019) and environmental risks (Stanwick & Stanwick, 2001, 2003; Cordeiro & Sarkis, 2008; Berrone & Gomez-Mejia, 2009). CEOs may seek less risky short-term alternatives due to a lack of compensation for the increased risks of social investments (Berrone and Gomez-Mejia, 2009).

Some studies have explored the ESG-linked incentive plans regarding what criteria should be considered (Baeten, Van Hove, & Loyens, 2023). Dell’Erba & Ferrarini (2024) qualitatively debated different theories of executive remuneration and studied the executive compensation policies of the 300 largest companies by market capitalisation listed in the FTSE EuroFirst300 in 2020. The results indicated that out of 300 companies, 148 considered ESG metrics in executive compensation and 91 companies (61.90% of the sample) tied short-term incentives to ESG performance. Most companies considered ESG metrics as part of their non-financial performance, while only 4 included them in their financial performance. Dell’Erba & Ferrarini (2024) supported a rising trend of ESG-pay in European companies.

Unlike shareholder wealth maximisation theory, stakeholder theory encourages the compensation committees to respond to pressures from stakeholders like environmental activists and social investment funds by explicitly using non-financial sustainability targets in CEO compensation (Maas, 2015; Lu, 2023). Remuneration committees have started introducing ESG metrics to supplement financial ones in executive remuneration (Meloni and Aksu, 2023) to hold executives accountable for the company’s sustainable performance (Maas and Rosendaal, 2016).

Edmans et al. (2017) and Dell’Erba & Ferrarini (2024) highlighted the emergence of different trends of CEO-to-worker compensation ratio from post-World War II to contemporary times. Pay grew explosively from the 1970s to the 1990s and CEOs were paid 376 times more than average workers in 2000. Before the 1970s, CEOs were paid 20 times more than average workers but the pay was stable. After 2000, the rapid increase in executive pay was identified as a corporate governance problem so the median CEO pay ceased to grow for S&P500 CEOs, while it continued to rise for mid-cap and small-cap CEOs. The excessive pay problem was also criticised after the corporate scandals like Enron and WorldCom proved that performance-based pay could perversely incentivise executives to maximise their wealth at the expense of the company, its shareholders, and other stakeholders (Coffee Jr, 2005; Ferrarini & Moloney, 2005).

The case for ESG-linked pay has been debated well in existing literature. Few studies discussed controversies, disputes, scandals, window-dressing, and greenwashing stemming from ESG disclosures and ESG-contracting (Berrone & Gomez-Mejia, 2009; Soana, 2024; Maas, 2018; Walker, 2022; Bebchuk & Tallarita, 2023; Barontini & Hill, 2023). Bebchuk and Tallarita (2022) referred to the negative aspects of ESG-linked pay that ESG metrics can harm the aggregate stakeholder welfare if they relate to stakeholders with contradicting interests and it is difficult for outside observers to assess whether ESG pay provides valuable incentives or merely serves the interests of executives with performance-insensitive pay. Barontini and Hill (2023) refer to the problems of ambiguity of the ESG definitions, relevant metric selection criteria, the risk of corporate greenwashing, and the breadth and vagueness of ESG goals. Soana (2024) discussed that bank ESG contracting improved ESG performance but raised ESG disputes. The sample included the banks of Europe, North America, and the rest of the world and consistent results were reported for component-level analysis.

Most studies favour ESG-linked pay as it offers many benefits. ESG factors are value-enhancing but not effectively accounted for by the stock market (Edmans, 2011). If structured appropriately and implemented effectively (United Nations Principles for Responsible Investment, 2021), ESG-linked pay could reduce the extent of earnings management (Li & Thibodeau, 2019; Khenissi et al., 2022), increase firm value, create sustainability-sensitive accountability, reduce the emphasis on short-term performance targets and promote long-term financial and sustainability objectives in typical remuneration packages (Flammer, Hong, & Minor, 2019; Li & Young, 2016; Edmans, Fang, & Lewellen, 2017; Qin and Yang, 2022; Cohen et al., 2023).

Hong, Li, & Minor (2016) analysed the executive compensation contracts of American firms and identified corporate governance as a determinant of executive compensation for CSR. The study reported that CSR activities enhance shareholder value and refute that CSR is an agency cost. They also report that firms with more shareholder-friendly corporate governance link executives' compensation to social performance outcomes and explicit CSR incentives improve the social performance of the companies.

In a qualitative study of UK FTSE 350 companies, Lu (2023) debates that due to the unmeasurable effects of most ESG factors on shareholder value and their subjective nature, ESG-based remuneration may be adopted as a tactic for impression management or managerial rent extraction. Thus, ESG-based remuneration is vulnerable to exploitation for symbolic and self-serving purposes and can depart in practice from its expected role of promoting corporate sustainability. The study analysed and proposed strict rules in the executive remuneration framework to avoid the risk of exploitation of ESG-based remuneration.

Conigliaro & Grégoire (2023) studied the association of ESG indicator scores and CEO remuneration. The results indicated that ESG-oriented non-financial performance targets of culture, strategy, and company were considered in the compensation frameworks. ESG management and carbon (CO<sub>2</sub>) emission scores had a strong positive correlation with CEO compensation. ESG innovation scores had a moderately negative correlation and resource use had a moderate positive correlation with CEO remuneration policies among the world's top 48 oil and gas companies.

Al-Shaer and Zaman (2019) used logistic regression on a sample of UK FTSE350 companies for 2011-2015. They reported that board-level sustainability committees and voluntary independent external sustainability reporting assurance by a Big4 firm had a significant positive association with the inclusion of sustainability terms in compensation contracts. Higher compensation had a significant association with the assurance of a Big4 firm and the industry's sensitivity to sustainability. The study included various control variables for governance and firm characteristics.

Most studies have not used a comprehensive ESG framework and focussed on only one component of the ESG framework. Empirical evidence of social responsibility as a determinant of CEO pay (e.g. Riahi-Belkaoui, 1992; Cordeiro & Sarkis, 2008; Cai, Jo, & Pan, 2011; Francoeur et al., 2017) is mixed. Maas and Rosendaal (2016) found that companies use sustainability targets focused on social issues in their remuneration plans. Berrone and Gomez-Mejia (2009b) argue that the mixed findings in terms of the association between CEO compensation and social performance could be related to social performance measurement. Some studies examined the association of executive compensation with CSR, which is similar but not the same as the ESG framework and the evidence is conflicting. Deckop et al. (2006), Berrone and Gomez-Mejia (2009a), and Mahoney and Thorne (2005) found evidence of a positive relationship, McGuire et al. (2003) found no significant relationship and Berrone and Gomez-Mejia (2008) argued lack of studies to reach any clear conclusions.

Some studies have studied the association between corporate environmental performance and executive remuneration and the results are inconclusive. Cordeiro and Sarkis (2008) found partial evidence of a linkage and suggest that it is likely that US companies utilise the linkage between top executive compensation and environmental performance as a management communication strategy to maintain their standing with stakeholders. Berrone and Gomez-Mejia (2009a) found that pollution reduction programs that have the potential to improve future firm performance are rewarded in CEO compensation. Francoeur et al. (2017) found that environment-friendly firms pay their CEOs less total compensation and rely less on incentive-based compensation than their counterparts. The relationship was stronger in institutional contexts where national environmental regulations were weaker.

Prior literature has studied the association between corporate governance and CEO compensation (Gomez-Mejia & Wiseman, 1997; Murphy, 1999; Denis, 2001; Daily, Dalton, & Cannella Jr, 2003; Hermalin, 2005; Cordeiro & Sarkis 2008; Cai et al. 2011). The evidence suggests that CEO compensation and increased corporate governance monitoring are positively associated.

The existing literature suggested a rising trend of ESG-linked executive pay in many parts of the world. There is limited research on the relationship between ESG performance and executive compensation in India. Most of the literature on CEO compensation and sustainability has been done in the US context (e.g. Cai et al. 2011; Callan & Thomas, 2011, 2014), UK (e.g. Al-Shaer & Zaman, 2019; Li, W., & Young, S., 2016; Lu, 2023), Canada (e.g. Mahoney & Thorn, 2005, 2006), the Netherlands (e.g. Kolk & Perego, 2014) or in international settings (e.g. Francoeur et al., 2017; Maas & Rosendaal, 2016). This research contributes by using the executive directors' remuneration and KMPs' remunerations to measure executive remuneration whereas only CEO remuneration was used in most existing research. This research is novel as it also conducts the panel regressions for three components of ESG scores, viz. environmental, social and governance scores as most of the existing research had studied these components separately.

Based on the existing literature, the study hypothesised that the executive remunerations in Indian non-financial companies reflect the ESG performance of the company. The hypotheses for the alignment of ESG scores and proxies for executive remuneration are given below.

H<sub>1</sub>: ESG scores have a significant positive association with KMP remuneration.

H<sub>2</sub>: ESG scores have a significant positive association with executive director's remuneration.

H<sub>3</sub>: ESG scores have a significant positive association with CEO remuneration.

As the ESG score for each company has three components viz. environmental, social and governance indicators, the following sub-hypotheses were tested in the study:

- H<sub>1a</sub>: Environmental scores have a significant positive association with KMP remuneration.
- H<sub>1b</sub>: Social scores have a significant positive association with KMP remuneration.
- H<sub>1c</sub>: Governance scores have a significant positive association with KMP remuneration.
- H<sub>2a</sub>: Environmental scores have a significant positive association with the executive director’s remuneration.
- H<sub>2b</sub>: Social scores have a significant positive association with the executive director’s remuneration.
- H<sub>2c</sub>: Governance scores have a significant positive association with the executive director’s remuneration

**Research Design**

This study was based on annual secondary quantitative data over the study period of 5 years. The executive remuneration and financial variables data was procured from the CMIE ProwessIQ database. The remuneration included the salary paid, contribution to provident fund, value of perquisites, performance linked incentive to whole-time directors and the commission paid to them. It did not include the sitting fees. Annual ESG, environmental, social, and governance disclosure scores were procured from the Bloomberg database. Bloomberg measures overall ESG, environmental, social, and governance disclosure scores on a scale of 1 to 10, 10 being the best. The study controls for financial leverage measured by debt-to-equity (D/E) ratio. The level of debt may motivate firms to use ESG-linked remuneration to reduce agency problems (Francoeur, Melis, Gaia, and Aresu, 2017).

The scope of this research was limited to the Indian capital market. The sample for this study comprised the non-financial constituents of the S&P BSE 500 index as of 20 September 2022. S&P BSE500 index consists of companies across various industries, nature, scale, structure, conduct and performance and represents the population of India’s top listed companies. The sample represented 48 industries. The sample size was reduced to 281 companies after excluding 27 banking companies, 59 financial institutions, 51 companies with missing data, and 82 companies not listed throughout the sample period of 5 years from 2017 to 2022. Table 1 exhibits the sample selection criteria. These exclusions made the sample units relatively homogeneous for analysis.

**Table 1: Sample selection criteria**

S&P BSE500 index	500
Less: Banking companies	-27
Less: Financial companies	-59
Less: Companies with missing data	-51
Less: Companies that were not constituents of S&P BSE 500 throughout the sample period	-82
Usable Sample	281
Number of year observations for 5 years (281*5)	1405

Source: Author’s compilation

Eviews 10 software was used to analyse the panel data of 1405 observations. The sample for component-level analysis was smaller due to more missing environmental, social, or governance scores. 531, 540 and 434 observations of environmental, social, and governance disclosure scores were available for analysis from a sample of 540 observations (108 companies). The sample for CEO remuneration analysis was only 120-year observations due to the missing data.

The study period ranged from 1st April 2017 to 31st March 2022 as the legal environment for sustainability reporting has been relatively stable from 2017-2022. Since 2012, the legal environment in India has catalysed corporate reporting on sustainability aspects. Companies (Corporate Social Responsibility Policy) Rules, 2014 (CSR Rules) sensitised major companies to contribute to the society they exist in as corporate citizens. The top 500 Indian companies by market capitalisation have been encouraged to publish the Business Responsibility Report (BRR) from 2015. BRR will be replaced by the Business Responsibility and Sustainability Report (BRSR) from the financial year 2022-23.

**III. Analysis And Results**

**Descriptive statistics**

Table 2 shows the descriptive statistics of the variables under study. The remunerations were denominated in millions of Indian rupees. All variables had a higher mean than median confirming positive skewness. Remunerations were leptokurtic with higher kurtosis levels than sustainability disclosure scores and had a high standard deviation. The debt-equity ratio (control variable) had high kurtosis and positive skewness, indicating most observations were concentrated towards lower levels.

Jarque-Bera statistic was used to check the distribution of the variables. Jarque Bera statistic was significant for all variables at a 1% level suggesting that the distribution of all variables was not normal. All variable series were found to be stationary at level based on the Augmented Dickey-Fuller unit root test. The

distribution of the major variables has been graphically presented in Figure 1. The means of the series under study are graphically presented in Figure 2.

**Table 2: Descriptive statistics of variables under study**

	KMP	Ex. Dir.	CEO	ESG	Env.	Gov.	Soc.	D/E
	Remuneration in Rs. Million			Disclosure scores 1-10				times
Mean	22.481	163.552	83.135	3.819	2.076	4.487	2.407	0.405
Median	16.400	87.750	57.069	3.684	1.730	4.450	1.980	0.150
Max.	308.800	2430.000	469.000	7.761	6.970	6.580	9.380	15.800
Min.	0.100	0.100	1.900	0.909	0.000	2.090	0.000	0.000
SD	24.308	234.211	80.943	1.268	1.832	0.660	1.569	0.810
Skewness	4.735	4.363	1.935	0.228	0.873	0.009	1.243	8.380
Kurtosis	43.383	29.487	7.582	0.585	2.824	3.773	5.186	123.770
N	1048	1322	133	1405	531	434	531	1303

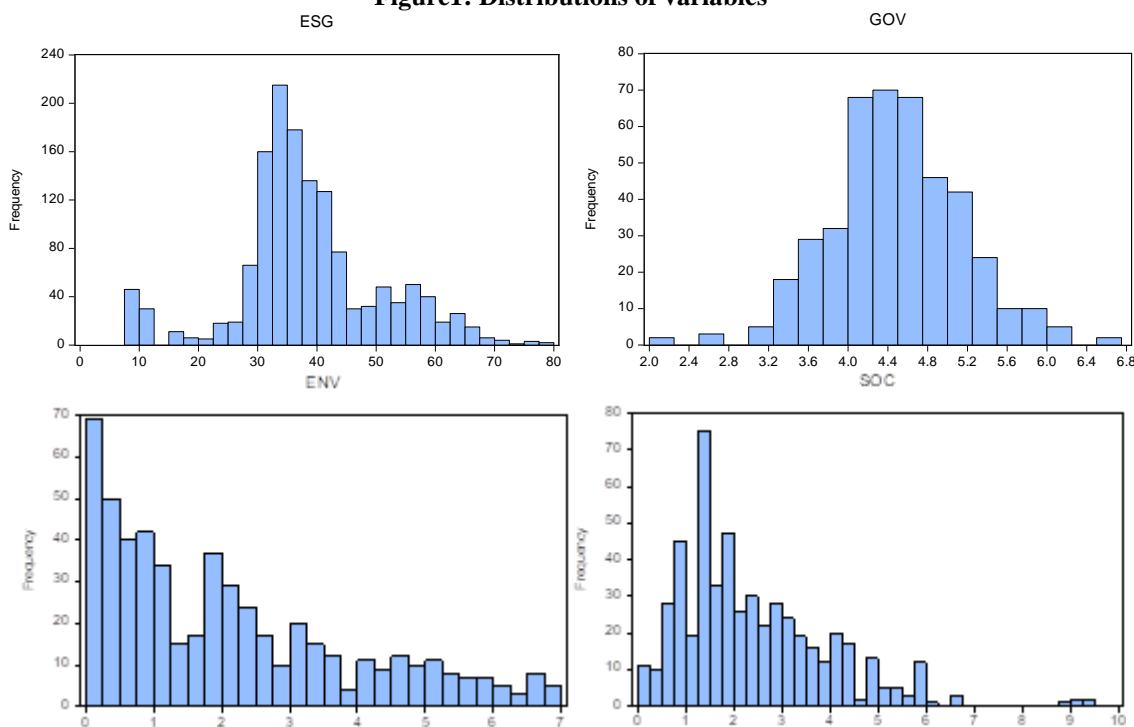
Source: Author’s compilation

**Correlation analysis**

Table 3 shows the correlation coefficients of the variables marked whether they were significant. Multicollinearity was assessed through correlation analysis and vif factors. No significant correlation was found between the control variable debt to equity ratio and predictor variables: ESG disclosure score, social score, and governance score. Environmental disclosure score and debt-equity ratio were significantly correlated but the vif factors were lower than 5. Previous studies reported a significant association of managerial remuneration with absolute sales, the natural logarithm of sales, return on total assets, age, and the natural logarithm of age. These variables were significantly correlated with the main predictor variables. Thus, only the debt-equity ratio has been included as a control variable for leverage.

Executive director’s remuneration, key managerial personnel’s remuneration and CEO remuneration were significantly correlated with each other as they measure the same variable (executive remuneration). Executive director’s remuneration, key managerial personnel’s remuneration and CEO remuneration were significantly correlated with ESG disclosure score and suggested a significant association between managerial remuneration and ESG disclosure scores of sample companies. At the component level, only KMP remuneration was significantly correlated with governance and environmental disclosures.

**Figure1: Distributions of variables**



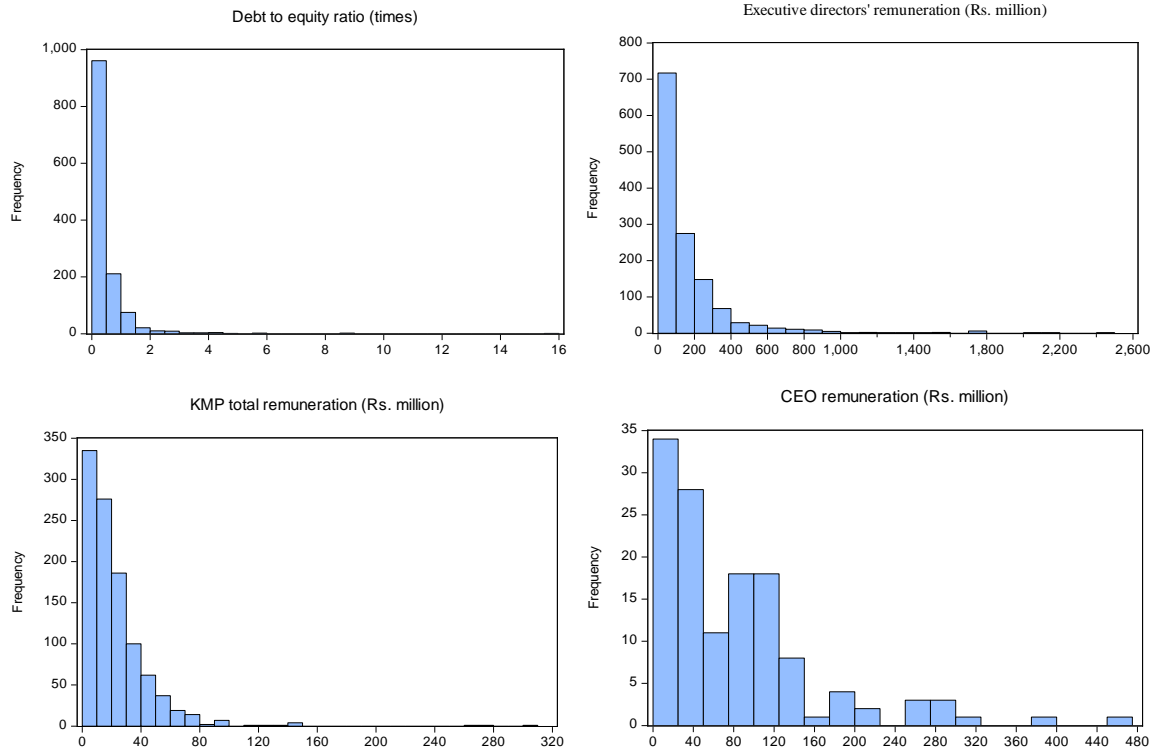
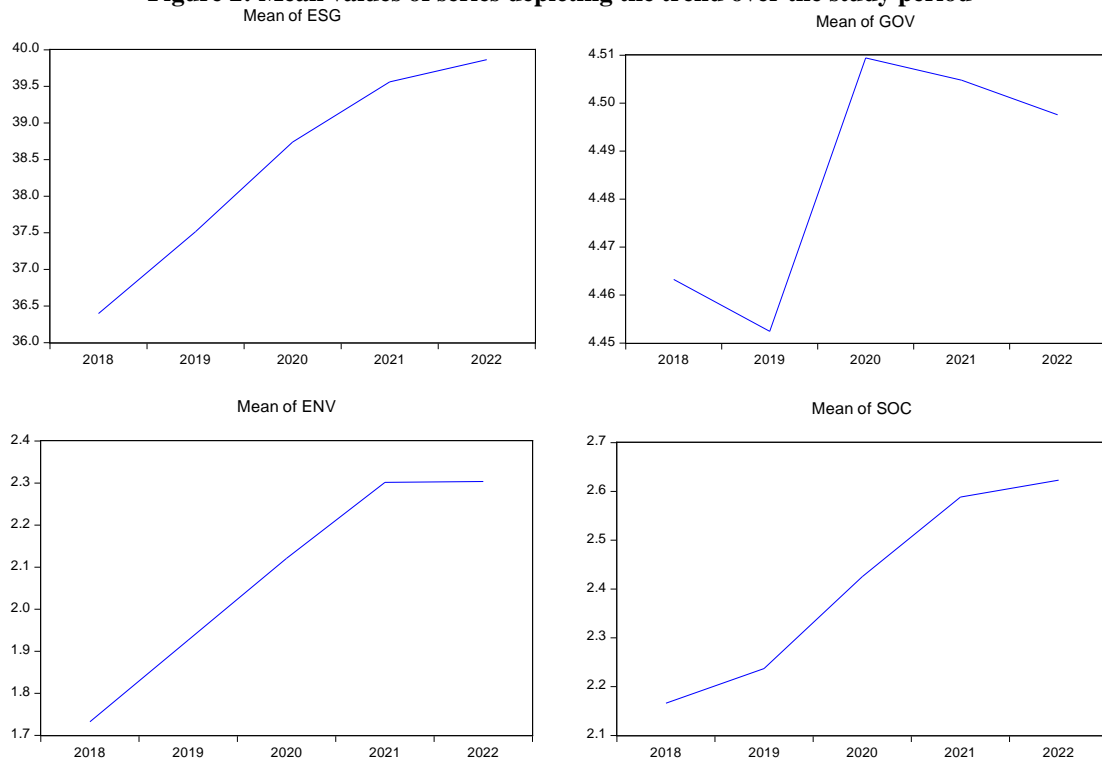
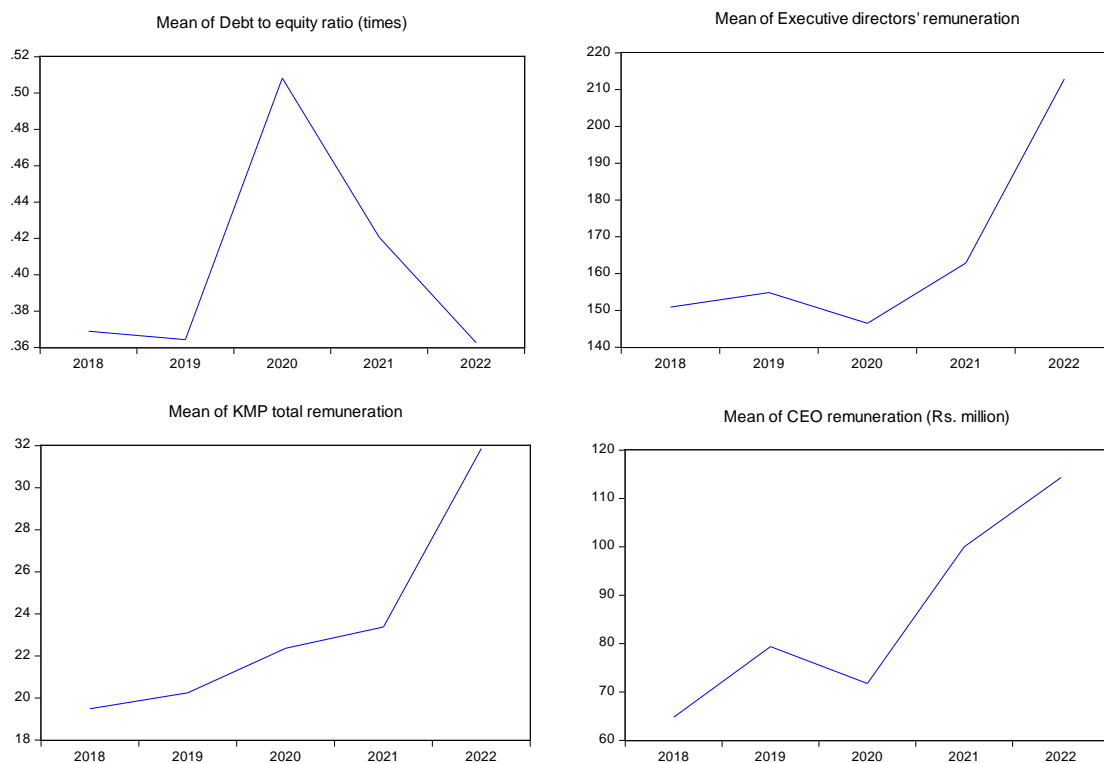


Figure 2: Mean values of series depicting the trend over the study period





**Table 3: Results of correlation analysis for variables under study**

	KMP rem	Ex.Dir rem	CEO rem	ESG	Soc	Gov	Env
Ex.Dir rem	0.219*						
CEO rem	0.277*	0.685*					
ESG	0.280*	0.197*	0.152**				
Social	-0.013	0.037	0.152	0.497*			
Governance	0.142*	-0.037	-0.232	0.021	-0.038		
Environmental	0.113**	-0.044	0.023	0.620*	0.354*	0.100**	
DE	0.055**	-0.045	-0.147	0.008	-0.001	-0.062	(-0.086) **

\*Significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%

**Granger causality test and direction of causation**

The Granger causality test was run to check the direction of causation among the dependent and the independent variables. The results reported that the ESG disclosure score caused the executive director’s remuneration and key managerial personnel’s remuneration at one-year lag. CEO remuneration was found to cause ESG disclosures at one-year lag. Two-way causation was not found as the executive director’s remuneration and key managerial personnel’s remuneration did not Granger cause ESG disclosure score. The results of the Granger causality test are summarised in Table 4.

**Table 4: Results of the Granger causality test**

H <sub>0</sub> for pairwise Granger causality tests at 1 lag	N	F	p
ESG does not Granger cause KMP remuneration	727	4.715*	0.030
KMP remuneration does not Granger cause ESG	727	2.229	0.136
ESG does not Granger cause executive director's remuneration	1037	3.872*	0.049
Executive director's remuneration does not Granger cause ESG	1037	0.465	0.495
ESG does not Granger cause CEO's remuneration	89	0.518	0.474
CEO remuneration does not Granger cause ESG	89	3.198**	0.077
*Significant at 5%, ** significant at 10%			

**Regression analysis**

Proxies for executive remuneration were regressed on ESG disclosure score and debt-equity ratio of sample companies over 5 years 2017-2022. Similar regression was estimated for the environmental, social and governance components. The variance of the error term varied across companies and the assumptions of the ordinary least square regression model were violated. The Heteroskedasticity LR test was significant for the cross-section effect for all equations estimated, implying heteroscedasticity across different companies. Also, the Durbin Watson statistic and Serial LM test results indicated that the OLS regression model suffered from autocorrelation.

Panel EGLS was estimated due to the problem of heteroscedasticity and autocorrelation as the generalised least squares (GLS) method provides robust estimates of regression coefficients. The White cross-section coefficient covariance method was used due to suspected heteroscedasticity. The redundant fixed effects test and Hausman test were used to check for the appropriateness of fixed effect or random effect regression models. The redundant Fixed Effects test was significant ( $p < 0.05$ ) and indicated that cross-section fixed effects and period fixed effects significantly contributed to the model’s explanatory power in all regressions estimated. The Hausman test was not significant ( $p > 0.05$ ) for all regressions estimated and indicated that the regression model with cross-section random effects was appropriate. Hausman test was significant for component analysis except for the regression between KMP and environmental component score.

**KMP remuneration and ESG score**

The summary of regression analysis between KMP remuneration and ESG score has been presented in Table 5. The Panel EGLS regression (Model 1), cross-section and period fixed effects regression (Model 2) and cross-section random effects regression (Model 3) have been presented in Table 5 which reported a significant association of KMP remuneration with ESG scores and debt-equity ratio.

The model 2 was a good fit. Overall model 2 had better goodness of fit indicators than models 1 and 3. The standard error of regression was the least, the adjusted R-squared was the highest and the Durbin-Watson statistic was appropriate for Model 2. The adjusted R squared of Model 3 was low signifying that either the predictors did not explain much variability of the KMP remuneration or the model was not a good fit. Model 2 was significant ( $F = 12.306, p < 0.01$ ) and it explained around 75% variation in the KMP remuneration. The standard error of 12 indicates that, on average, the predictions made by this regression model deviate from the actual values by approximately 12 million rupees. In other words, the typical distance between the predicted values and the actual values is 12 million rupees.

The predicted value of the KMP salary would be approximately 13 million rupees (intercept coefficient) if the ESG score and D/E were zero. For every additional unit of ESG score, KMP remuneration would be expected to increase by approximately 0.20 million rupees. The debt-equity ratio had a significant positive association with KMP remuneration indicating that the KMP are incentivised to deal with the risk of higher financial leverage.

**Table 5: Regression results for KMP remuneration and ESG score**

Dependent variable: KMP remuneration	Panel EGLS (Cross-section weights)	Fixed effects Panel Least Squares #	Cross-section random effects Panel Least Squares
	Model 1	Model 2	Model 3
Independent variables	Coefficient/t statistic		
ESG	0.537	0.203	0.519
	31.236*	1.720***	5.863*
D/E	1.292	1.845	1.974
	3.504*	2.724*	2.656*
Constant	-0.539	13.614	0.942
	-0.934	3.016*	0.257
R-squared	0.504	0.816	0.041
Adjusted R-squared	0.503	0.750	0.039
S.E. of regression	23.227	12.311	12.472
F-statistic	499.951*	12.306*	21.188*
Durbin-Watson stat	0.589	2.188	1.613
N (observations)	988 (257 companies*5 years)		

#White cross-section standard errors & covariance was used for these regression models to deal with cross-section heteroscedasticity

\*Significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%



**Executive director’s remuneration and ESG score**

The summary of regression analysis between KMP remuneration and ESG score has been presented in Table 6. The Panel EGLS regression (Model 1), cross-section and period fixed effects regression (Model 2) and cross-section random effects regression (Model 3) have been presented in Table 6 which reported a significant negative association of executive directors’ remuneration with ESG scores and debt-equity ratio.

The model 2 was a good fit. Overall model 2 had better goodness of fit indicators than models 1 and 3. The standard error of regression was the least, the adjusted R-squared was the highest and the Durbin-Watson statistic was appropriate for Model 2. The adjusted R squared of Model 3 was low signifying that either the predictors did not explain much variability of the executive directors’ remuneration or the model was not a good fit. Model 2 was significant (F =14.901, p<0.01) and it explained around 75% variation in the Executive director’s remuneration. The standard error of 120 indicates that, on average, the predictions made by this regression model deviate from the actual values by approximately 120 million rupees. In other words, the typical distance between the predicted values and the actual values is 120 million rupees.

The predicted value of the Executive director’s salary would be approximately 219 million rupees (intercept coefficient) if the ESG score and D/E were zero. For every additional unit of ESG score, the Executive director’s remuneration would be expected to decrease by approximately 1 million rupees. Contrary to normative belief, this suggests that the executive directors may be disincentivised for their ESG performance and disclosures. The debt-equity ratio reportedly had a significant negative association with executive remuneration indicating that the higher the financial leverage, the lower the executive director’s remuneration.

**KMP’s remuneration with environmental score, social score, and governance score**

Key managerial personnel’s remuneration was regressed on environmental disclosure score, social score, and governance score separately with the debt-equity ratio as a control variable for leverage. The summary of regression analysis has been presented in Table 8. Cross-section and period fixed effects regression models were estimated to test hypotheses for component analysis with the White cross-section coefficient covariance method. The results of fixed effects models have been reported in Table 8. The results reported a significant association of KMP’s remuneration with environmental disclosure score, social score, and governance score respectively. The debt-equity ratio was also significantly positively associated with the environmental, social, and governance disclosure scores. The fixed effects models were a good fit.

Though the GLS with cross-section weights and the White cross-section coefficient covariance method reported a significant association of KMP remuneration with the environmental score and governance scores of sample companies, the weighted GLS regression models did not fit well. The weighted GLS regression model results have not been reported in Table 8 as the F statistic was not significant, the Durbin-Watson statistic was unfavourable, adjusted R-squared values were very low and standard errors were higher than the fixed effects and random effect models.

Hausman test indicated that cross-section or period random effects were not appropriate for testing the association of KMP remuneration with social and governance disclosure scores. To test the association of KMP remuneration with environmental disclosure scores, cross-section random effects were appropriate but the R-squared was very low (see Table 8).

**Table 8: Regression results for KMP’s remuneration with environmental score, social score, and governance score**

Dependent variable: KMP remuneration	Cross-section and period fixed effects PLS	Cross-section fixed effects PLS	Cross-section random effects Panel EGLS	Cross-section and period fixed effects PLS		Cross-section and period fixed effects PLS		
	1	2	3	4		5		
ENV	1.061	2.472	2.324	SOC	2.635	GOV	2.778	
	0.842	2.00**	1.737***		2.324**		1.755***	
D/E	3.176	3.165	3.004	D/E	3.109	D/E	3.310	
	6.662*	7.672*	8.842*		5.753*		6.753*	
C	26.556	23.466	23.069	C	22.610	C	16.592	
	9.605*	9.045*	6.205*		8.569*		2.414**	
R-squared	0.834	0.818	0.030		0.836		0.848	
Adjusted R <sup>2</sup>	0.772	0.753	0.025		0.774		0.785	
S.E.	14.873	15.455	15.305		14.807		15.542	
F	13.342*	12.596*	5.875*		13.483*		13.385*	
Durbin-Watson	1.994	1.989	1.501		2.017		2.076	
N	388 (101 companies for 5 years)						313 (87 x 5)	

\*Significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%  
White cross-section standard errors & covariance (no d.f. correction)

**Executive director’s remuneration with environmental, social, and governance scores**

Executive director’s remuneration was regressed on environmental, social, and governance disclosure scores separately with the debt-equity ratio as a control variable. The summary of regression analysis has been presented in Table 9.

Cross-section and period fixed effects regression models were estimated to test hypotheses for component analysis with the White cross-section coefficient covariance method. The results of fixed effects models have been reported in Table 9. The results reported a significant association of the Executive director’s remuneration with the environmental and governance disclosure scores. The debt-equity ratio was also significantly associated with the Executive director’s remuneration. The fixed effects models were a good fit.

Though the GLS with cross-section weights and the White cross-section coefficient covariance method reported a significant association of executive director’s remuneration with the environmental score and governance scores of sample companies, the weighted GLS regression models did not fit well.

**Table 9: Regression results for Executive directors' remuneration with environmental score, social score, and governance score**

Dependent Variable: Executive director's remuneration	Cross-section and period fixed effects PLS		Cross-section and period fixed effects PLS		Cross-section and period fixed effects PLS	
	GOV	32.156	SOC	12.886	ENV	-4.89
Independent variables		3.773*		1.527		(-2.031)**
	D/E	-38.568	D/E	-28.779	D/E	-27.26
		(-3.283) *		(-2.427) **		(-2.137) **
	C	96.827	C	225.423	C	266.03
		2.566*		9.209*		34.780*
R-squared		0.799		0.784		0.78
Adjusted R-squared		0.737		0.724		0.72
S.E. of regression		153.036		171.145		171.28
F-statistic		12.990*		13.043*		13.02*
Durbin-Watson stat		2.105		1.860		1.85
N	407 (90*5)		502 (104*5)			

\*Significant at 1%, \*\*significant at 5%

White cross-section standard errors & covariance were used for these regression models

The weighted GLS regression model results have not been reported in Table 9 as the F statistic was not significant, the Durbin-Watson statistic was unfavourable, adjusted R-squared values were very low and standard errors were higher than the fixed effects and random effect models. The Hausman test indicated that cross-section or period random effects were inappropriate for testing the association of the Executive director’s remuneration with environmental, social and governance disclosure scores.

**IV. Conclusion**

This paper empirically analysed panel data of 281 non-financial Indian listed companies from 2017-18 to 2021-22. The regression analysis was conducted to check for an association between ESG disclosure scores and executive remuneration. The regression analysis was also estimated for ESG components. The executive remuneration was measured through the total remuneration of the executive director, key managerial personnel (KMP) and CEO. H<sub>1</sub>, H<sub>1a</sub>, H<sub>1b</sub> and H<sub>1c</sub> were accepted. KMP remuneration had a significant positive association with ESG, environmental, social and governance scores.

H<sub>2</sub>, H<sub>2a</sub>, H<sub>2b</sub> and H<sub>2c</sub> were rejected. The executive director’s remuneration was not aligned as hypothesised and showed a significant negative association with ESG disclosures of the company. The component-level analysis helps explain the negative association between ESG scores and executive remuneration as the environmental scores were significantly negatively associated with the executive director’s remuneration. No significant association was found between the social scores and the executive director’s remuneration. These findings suggest that the compensation contracts of executive directors lacked explicit and clear linkage to the specific ESG indicators.

The study did not find a significant association between ESG scores and CEO remunerations so H<sub>3</sub> was rejected. The smaller sample size for studying CEO remuneration was a limitation of this study. There is future scope for research to analyse the association of CEO remuneration and ESG performance of Indian companies with a larger sample size. The content analysis of compensation contracts or the different components of the remuneration of KMP, executive directors and CEO can check whether specific ESG indicators are explicitly included in the compensation schemes. This study is based on third-party ESG scores measured by Bloomberg. Practitioners caution against ESG linkage to third-party ESG ratings and scores and support in-house

measurement and criteria selection of relevant ESG indicators in compensation schemes. The latent variable of the ESG performance of the companies is difficult to measure.

The study provides original empirical evidence of alignment between ESG performance and KMP remunerations. Descriptive statistics reported low ESG orientation of sample companies. The governance disclosures were the highest and environmental disclosures were the lowest among the ESG components. The low sustainability scores, especially environmental scores, mark the nascent stage of ESG reporting in India. The results imply that Indian companies have a huge scope for improving ESG performance by aligning executive compensation schemes with voluntary sustainability disclosures.

This also indicates that non-financial sustainability disclosures are considered in the compensation schemes of KMP but not executive directors. Section 2(51) of the Companies Act of India defines Key Managerial Personnel (KMP) as Chief Executive Officer (CEO), manager or Managing Director, Company secretary, Whole-Time Director, Chief Financial Officer (CFO), and other officers designated by the Board as KMP but are not more than one level below the directors in whole-time employment. The CEO is a KMP. Executive directors have a major supervisory role in the board and KMPs have a major managerial role as an agent. To avoid agency problems, KMP contracts are better designed than executive directors. The results of this study caution against the agency problem of executive compensations that are non-sensitive to ESG and lack of ESG accountability among the managers in the Indian capital market. The results of this paper correspond with the literature that does not support the alignment of sustainability disclosures and CEO compensation or executive remuneration.