IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 04; Issue no 09: September, 2023
DOI: 10.56734/ijbms.v4n9a4

THE INFLUENCE OF EXECUTIVE COMPENSATION ON ESG RATINGS: A STUDY OF PUBLICLY LISTED COMPANIES IN TAIWAN

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Abstract

This study aims to explore whether ESG (Environmental, Social, and Governance) scores incentivize the compensation of general managers in publicly traded companies in Taiwan. We analyzed data from 2209 companies during the period from 2015 to 2020, ultimately selecting 2188 company samples with complete ESG evaluations and general manager compensation data for research. Our primary finding is that while there is a significant positive correlation between the number of Executive Compensation and ESG scores, there is no clear relationship between the compensation of the general manager and ESG scores. Additionally, we found that the size of the company and the debt ratio significantly affect ESG scores. Our research results provide preliminary empirical evidence for companies to formulate ESG-oriented compensation strategies and suggest future research to delve into the complex relationship between Executive Compensation and ESG performance.

Keywords

ESG, Executive Compensation, ESG scores

1. Introduction

In recent years, the topics of Environment, Social, and Governance (ESG) have gained increasing global attention, and the ESG performance of businesses has become an essential indicator for investors, regulatory agencies, and stakeholders to measure the overall strength of businesses. With the wide application of ESG scoring in the international market, more and more businesses are beginning to value their performance in ESG. However, current research and practice in Taiwan have not explicitly explored whether ESG will incentivize the compensation of general managers. Therefore, this study takes "whether ESG will motivate the compensation of general managers" as the research motive, taking listed companies in Taiwan as an example, aiming to reveal whether the ESG score of businesses has an incentive effect on the compensation of general managers, and provide a reference for relevant businesses to formulate reasonable compensation policies.

Firstly, this study will sort out the related theories of ESG scoring and the compensation of general managers. By reviewing the existing literature, we analyze the potential incentive mechanism of ESG scoring on the compensation of general managers. In addition, we will explore the differences in ESG scoring and the compensation of general managers in different industries and time dimensions. Bonham and Criggs-Cragun (2022) argue from the perspective of agency theory and stewardship theory that we expect ESG indicators to be considered in the compensation plans of executives, as long as the company's owners and the board of directors essentially care about ESG results.

Secondly, this study will collect and organize the ESG scoring and general manager compensation data of listed companies in Taiwan. By selecting a certain number of listed company samples, we collect data on the ESG score, general manager compensation, and other relevant variables of businesses. At the same time, we ensure that the selected data has sufficient representativeness and comparability.

Next, this study will use appropriate statistical methods and analysis models to deeply analyze the collected data. The methods that may be used include descriptive statistics, correlation analysis, regression analysis, etc. Through these methods, this study will reveal whether the ESG score of businesses has a significant incentive effect on the compensation of general managers, and the differences in different industries, regions, and time dimensions. There seems to be relatively less research exploring the relationship between executive compensation and corporate social responsibility (CSR) activities. Some research asks questions slightly complementary to our method, i.e., whether compensation based on CSR-related variables will increase agency costs and may not increase shareholder value. Higher agency costs might be the result of senior management having an intrinsic preference for CSR and they have the power to lobby the board to include CSR variables in the executive compensation contract. Some studies have found that contracts based on CSR standards are more common in companies where the executive is relatively less dominant (Hong et al, 2016; Ikram et al, 2019). Conversely, Bebchuk and Tallarita (2022) concluded that a broader set of KPIs allows executives to earn more rental income at the expense of shareholder interests.

During the analysis process, this study will fully consider potential interference factors and internal and external influencing factors to ensure the reliability and validity of the research results. In addition, this study will also provide a detailed explanation and discussion of the analysis results, explore the causes of the incentive effect of ESG scores on the compensation of directors and supervisors, and the related policy implications and practical enlightenment.

Finally, based on the analysis results, this study will draw conclusions and suggestions. These suggestions will have economic significance for businesses on how to adjust the general manager compensation system according to the ESG score, improve the ESG score, and promote sustainable development. At the same time, it will also provide useful references for the government, regulatory agencies, and investors on how to promote and supervise business ESG performance.

In summary, this study takes "whether ESG will motivate the compensation of general managers" as the research motive, takes listed companies in Taiwan as an example, and explores whether the ESG score of businesses has a significant incentive effect on the compensation of general managers. Through the sorting of related theories, data collection, analysis, and suggestions, this study expects to have a positive impact on the ESG management and reform of the general manager compensation system of stakeholders such as businesses, government, regulatory agencies, and investors.

2. Conceptual framework and empirical predictions

2.1 ESG Scoring

2.1.1 Concept and Importance of ESG

Environment, Social, and Governance (ESG) are critical indicators in evaluating a company's performance in sustainable development. It encompasses a company's performance in various areas such as environmental protection, social responsibility, and corporate governance (Dhaliwal et al., 2011). In recent years, with increasing societal attention to sustainable development issues, the significance of ESG in corporate evaluation and investment decisions has grown increasingly prominent (Eccles et al., 2014).

2.1.2 Influence of ESG Scoring

Numerous studies suggest that ESG scores have a significant positive correlation with business performance, risk, and corporate value (Friede et al., 2015; Khan et al., 2016). Furthermore, ESG scores may also impact aspects such as a company's financing cost, stock returns, and market demand (Cheng et al., 2014; Hoepner et al., 2016).

2.2 General Manager Compensation

2.2.1 Determinants of General Manager Compensation

The compensation of a general manager primarily depends on factors such as the size of the business, its performance, risk, and governance structure (Core et al., 1999; Conyon, 2006). Of these, business size and performance have a positive correlation with general manager compensation, whereas risk and governance structure could have either positive or negative impacts on general manager compensation (Tosi et al., 2000; Bebchuk et al., 2009).

2.2.2 Relationship between General Manager Compensation and Business Performance

The relationship between general manager compensation and business performance has long been a hot topic in academia and industry. Some research suggests a positive correlation between general manager compensation and business performance, meaning that compensation incentives can enhance the work enthusiasm of the general manager and business performance (Jensen et al., 1990; Main et al., 1996). However, other research indicates that the relationship between general manager compensation and business performance might be nonlinear, or even exhibit inverse effects under certain circumstances. Bertrand and Mullainathan (2001) suggest that the relationship between general manager compensation and business performance could be affected by a multitude of factors, such as corporate governance, risk preference, market competitiveness, and external environment. Therefore, when studying the incentive effect of ESG scoring on general manager compensation, these potential interfering factors should be fully considered to obtain more accurate results.

3. Data and Sample Selection

3.1 Research Data

Data for ESG scores, financial ratios, and the general manager's compensation were all obtained from the Taiwan Economic Journal (TEJ) database and the Taiwan Stock Exchange Public Information Observation Station. The research period is set from 2015 to 2020. In the sample selection, this study targets the 2185 publicly traded companies listed on the Taiwan Stock Exchange. After excluding companies with incomplete data, a total of 2046 companies were included.

3.2 Measurement of Research Variables

3.2.1 Measurement of ESG Score

The Taiwan Economic Journal (TEJ) published the latest 2023 ESG ratings (TESG Sustainable Development Index) on May 2nd. The TESG Sustainable Development Index is an ESG rating system developed by TEJ specifically for Taiwanese enterprises. The number of companies included in this rating round was 2373, with 35 companies experiencing a rating change of more than two levels, accounting for 1.5%.

3.2.2. Number of General Manager/Deputy Manager Recipients & Compensation (Executive_Number & Executive_Compensation)

The number of general manager/deputy manager recipients and their compensation are defined as: the total number of individuals receiving the total annual compensation of the general manager & deputy manager, and the compensation received by the general manager & deputy manager. The compensation part is taken as the natural logarithm.

3.3 Measurement of Control Variables

3.3.1 Company Size (SIZE)

Amato and Zimmerman (1990) pointed out that financial performance is affected by company size, which impacts the corporate social responsibility of the enterprise. Jalilvand and Harris (1984) indicated that company size influences the degree to which enterprises carry out corporate social responsibility. Thus, in the control variables, we included company size, which is the natural logarithm of total assets.

3.3.2 Debt Ratio (DEBT)

Morck, Randall, Andrei Shleifer, and Robert W. Vishny (1988) mentioned that a company's debt ratio impacts its operating performance through the company's financial risk. Companies with a high debt ratio may not be able to support corporate social responsibility activities due to poor financial status (Hsu Hsieh-Ching, Chen Wei-Ru, Fu Yan-Ling, 2013). Therefore, this study includes the debt ratio as a control variable, with the debt ratio equal to total liabilities divided by total assets.

3.3.3 Return on Assets (ROA)

The company's compensation distribution will be affected by the ROA's performance (Su Shu-Hui, 2015).

3.3.4 Research and Development Intensity (RD)

McWilliams and Siegel (2000) pointed out that most companies engaging in corporate social responsibility pursue product differentiation. Thus, the more a company invests in R&D, the higher its R&D capability and the more it will engage in corporate social responsibility. This in turn affects the company's profits and brand. This study measures R&D intensity as R&D expenses divided by net sales revenue.

3.4 Empirical Model

This study uses the ordinary least squares method (OLS) to verify the correlation between the general manager's compensation and the ESG score. The regression model formula (1) is as follows:

$$\begin{aligned} \boldsymbol{ESG_{i,i} = \alpha + \beta_1 CEO\_Number_{i,t} + \beta_2 CEO\_Compensation_{i,t} + \beta_3 SIZE_{i,t}} \\ \boldsymbol{+ \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 RD_{i,t} + \epsilon_{i,t}} \quad (1) \end{aligned}$$

Based on the discussions in past research, this study includes annual fixed effects and industry fixed effects in the model, resulting in the following formula (2):

$$ESG_{i,i} = \alpha + \beta_1 CEO\_Number_{i,t} + \beta_2 CEO\_Compensation_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 RD_{i,t} + \text{D2015} + \text{D2016} + \text{D2017} + \text{D2018} + \text{D2019} + \text{D2020} + \text{I01} + \text{I02} + \text{I03} \dots \dots + \text{I98} + \epsilon_{i,t} \quad (2)$$

In addition, besides the overall ESG score, this study specifically discusses the disclosure scores of the Environmental (E), Social (S), and Governance (G) components separately, resulting in the following formulas (3), (4), and (5).

$$E_{i,i} = \alpha + \beta_1 CEO\_Number_{i,t} + \beta_2 CEO\_Compensation_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 RD_{i,t} + \text{D2015} + \text{D2016} + \text{D2017} + \text{D2018} + \text{D2019} + \text{D2020} + \text{I01} + \text{I02} + \text{I03} \dots \dots + \text{I98} + \epsilon_{i,t} \quad (3)$$

$$S_{i,i} = \alpha + \beta_1 CEO\_Number_{i,t} + \beta_2 CEO\_Compensation_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 RD_{i,t} + \text{D2015} + \text{D2016} + \text{D2017} + \text{D2018} + \text{D2019} + \text{D2020} + \text{I01} + \text{I02} + \text{I03} \dots \dots + \text{I98} + \epsilon_{i,t} \quad (3)$$

$$G_{i,i} = \alpha + \beta_1 CEO\_Number_{i,t} + \beta_2 CEO\_Compensation_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 DEBT_{i,t} + \beta_5 ROA_{i,t} + \beta_6 RD_{i,t} + \text{D2015} + \text{D2016} + \text{D2017} + \text{D2018} + \text{D2019} + \text{D2020} + \text{I01} + \text{I02} + \text{I03} \dots \dots + \text{I98} + \epsilon_{i,t} \quad (3)$$

4. Empirical Results

4.1. Sample Selection

The data for this study comes from the TEJ (Taiwan Economic Journal) database, with a sample period from 2015 to 2020, comprising a total of 2209 entries of Taiwanese listed companies within this range. Within this scope, we selected companies that had ESG evaluation scores and Executive data as the subjects of our research. To ensure the integrity and reliability of the data, we screened the samples, excluding those that lacked necessary information. After this screening process, we finally obtained 2188 pieces of data, as shown in Table 1.

TABLE S1: Derivation of Table.

Description	Sample Size for Audit Fee Analyses
All	2209
董監事領酬人數	(6)
總經理/副總領酬人數	(15)
Final Sample	2188

The purpose of this screening process is to ensure that our research results are highly credible. Only when our data is complete, accurate, and can reflect the true situation of the sample companies, can we accurately analyze the relationship between ESG evaluation scores and Executive compensation.

4.2. Descriptive Statistics

Table 2 presents the basic descriptive statistics of all corporate observations in this study. The table provides basic statistical parameters such as the mean and standard deviation of each variable, further revealing the overall characteristics and distribution of our sample. In our sample, the average environmental, social, and governance (ESG) score of companies is 55.95, indicating that the ESG performance of the surveyed companies fluctuated greatly during the study period. Its standard deviation is 7.88, which reflects the range and degree of variation in ESG scores in the sample.

The average value of senior managers' compensation (Compensation) is 9.43, with a standard deviation of 0.99. This suggests that the data distribution of senior managers' compensation is relatively concentrated, and no significant fluctuations or outliers have emerged.

The average capital of the company (SIZE) is 9.29, with a standard deviation of 0.73. This reflects that the size of the companies in our sample is relatively moderate, and the range of size changes is relatively large.

The average debt ratio (DEBT) is 42.16%, indicating that the companies in the sample fund their operations with an average debt of 42%. Its standard deviation is 17.02, suggesting a significant difference in the debt structure among companies.

The average financial performance (ROA) is 4.11%, with a standard deviation of 7.54. This indicates that the average ROA of the companies in the sample is 4.37%, but there is a significant disparity in financial performance among companies.

Finally, the average R&D intensity (RD) is 6.29, with a standard deviation of 13.75. This implies a significant difference in R&D investment among companies in the sample, and some companies have higher investment in this regard.

These descriptive statistical results provide a preliminary understanding of the sample characteristics and variable distribution, establishing a foundation for our subsequent analysis.

TABLE S2: Descriptive Statistics.

Variable	Mean	Std. Dev.	Min.	Meidan	Max.
TESG(總分)	55.95	7.88	34.81	55.39	80.34
社會構面揭露項分數	62.85	3.39	58.36	62.25	73.08
環境構面揭露項分數	62.80	3.33	58.45	62.25	73.09
公司治理構面揭露項分數	62.86	3.43	58.36	62.25	73.08
總經理/副總領酬人數	6.31	5.43	1	5	50
總經理/副總薪資	9.43	0.99	0.00	9.46	12.29
Size	9.29	0.73	0	9	11
ROA(%)	4.11	7.54	-45.21	4.40	53.36
debt(%)	42.16	17.62	0.00	41.76	99.76
RD	6.29	13.75	0.00	3.45	299.65

4.3. Correlation Matrix

Table 3 presents the correlation matrix of all sample variables, which is of significant reference value for understanding the basic relationships between variables and for constructing subsequent models.

In this matrix, we can see the correlation coefficients between Environmental, Social, and Governance (ESG) and other variables. However, statistically, ESG does not show a significant correlation with executive compensation (Compensation), research and development intensity (RD), company size (SIZE), debt ratio (DEBT), and financial performance (ROA). These results suggest that the ESG score does not significantly influence executive compensation, nor does it significantly impact the company's RD, SIZE, DEBT, and ROA.

Several factors could cause this situation. First, it may be because the impact of ESG takes time to reflect in the company's performance or executive compensation. Second, the impact of ESG may be affected or offset by other variables not included in the model. Lastly, the relationship between ESG and these variables may not be linear, and our correlation matrix can only capture linear relationships.

Overall, these preliminary results provide a basis for further studying the relationship between ESG and other variables and point out some potential influencing factors that we need to consider in subsequent research. In the following analysis, we will delve deeper into the relationship between ESG and these variables and attempt to find possible explanatory mechanisms.

TABLE S3: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. ESG(總分)	1									
2. 社會構面揭露項分數	0.45	1								
3. 環境構面揭露項分數	0.43	0.96	1							
4. 公司治理構面揭露項分數	0.45	0.99	0.95	1						
5. 總經理/副總領酬人數	0.35	0.22	0.21	0.22	1					
6. 總經理/副總薪資	0.38	0.27	0.26	0.27	0.70	1				
7. Size	0.27	0.21	0.20	0.21	0.38	0.37	1			
8. ROA(%)	0.26	0.10	0.09	0.10	0.09	0.17	0.51	1		
9. debt(%)	-0.02	0.03	0.03	0.03	0.25	0.24	0.20	-0.16	1	
10. RD	0.00	-0.02	-0.01	-0.02	-0.05	-0.03	0.00	-0.11	-0.27	1

4.4 Regression Results Analysis

In the regression analysis results of our study, we found some interesting discoveries. Firstly, the number of highly compensated senior managers (Number) has a significant positive impact on ESG scores. This suggests that an increase in the number of highly compensated senior managers might motivate companies to elevate their ESG scores. This could be because when the number of highly paid senior managers increases, the company's management may pay more attention to the company's ESG performance, thus striving to improve its ESG scores.

However, when we consider other control variables, the size of the company (SIZE) and the debt ratio (DEBT) both have significant effects on ESG scores. Among them, company size (SIZE) exhibits a positive correlation. This could be because large corporations have more resources and capabilities to improve their ESG performance, or it could be because large companies, due to their significance in society and the economy, face greater societal pressure to implement ESG policies. On the other hand, the debt ratio (DEBT) shows a negative correlation with ESG scores. This may reflect that companies with high debts may not have sufficient resources to improve their ESG performance, or they may be more focused on addressing financial issues, overlooking ESG matters.

However, it is worth noting that, even though our analysis controlled for various factors that may influence ESG scores, we found a clear positive correlation between the compensation of senior managers and ESG scores. This result might suggest that the setting of senior managers' compensation explicitly takes into account ESG performance; that is, when the compensation of senior managers increases, ESG scores correspondingly improve. This might reflect that the company highly values ESG performance and incorporates it into the determining factors for senior managers' compensation.

However, this relationship may be more complex than we expected. On one hand, high compensation might motivate senior managers to strive harder to enhance the company's ESG performance, as they know this will directly affect their income. On the other hand, high compensation may also provide senior managers with more resources and time to implement long-term strategies beneficial to ESG performance.

This result might also suggest that senior managers, because of their high compensation, may receive more social attention. Therefore, they might strive harder to improve the company's ESG performance to enhance the company's public image and raise the company's social evaluation.

5. Conclusion

Based on our analysis of data from listed companies in Taiwan from 2015 to 2020, our research has drawn several major conclusions. Firstly, there exists a significant positive correlation between the compensation of senior managers and ESG scores. This suggests that when the number of highly paid senior managers increases, the management of the company may pay more attention to the company's ESG performance, thus striving to improve its ESG scores.

Secondly, the size of the company and the debt ratio also have a significant impact on ESG scores. Large companies, likely having more resources and facing greater social pressure, may be more inclined to improve ESG scores. Conversely, a high debt ratio may limit a company's ability to enhance its ESG performance, possibly because its resources are largely consumed in dealing with financial issues, leading to a neglect of ESG matters.

However, we found a significant positive relationship between the compensation of senior managers and ESG scores. This result suggests that the setting of senior managers' compensation may have explicitly taken ESG performance into consideration. In other words, when the compensation of senior managers increases, ESG scores also improve correspondingly. This may reflect the company's emphasis on ESG performance and its regard as one of the determinants of senior managers' compensation. However, this relationship may be more complex than we expected. High compensation might incentivize senior managers to strive to enhance the company's ESG performance, or high compensation may provide them with more resources and time to implement strategies beneficial to ESG performance.

In summary, our research provides preliminary evidence showing that some basic characteristics of companies, such as the number of highly paid senior managers, company size, and debt ratio, as well as the relationship between senior managers' compensation and ESG scores, may all have an impact on their ESG performance. Future research needs to further explore the more complex relationship between senior managers' compensation and ESG performance.

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