

CEO Compensation and Firm's ESG Performance – An Analysis of Banks and Insurance Companies

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Abstract Chief executive officers (CEOs) of environmental, social, and governance (ESG) firms are known to take lesser pay and engage themselves in corporate social responsibility activities to achieve the dual objective of the enhancement of firm's performance as well as benefit for stakeholders in the long run. This study examines the role of ESG transparency in strengthening the impact of firm performance on total CEO pay in ESG firms. A panel of 67 firms for the period of 2014–2019 has been analyzed using the two-step system GMM model, with NSE Nifty 100 ESG Index as the data sample and ESG scores from Bloomberg database as a proxy for transparency. Findings reveal that environmental and governance disclosure scores have the potential to intensify the negative relationship between firm performance and CEO compensation, while social disclosure scores do not. In addition, various firm-specific, board-specific, and CEO-specific attributes have also been considered controls affecting remuneration. This paper contributes to the literature by exploring the effect of exhibiting ESG transparency and its nexus with CEO pay as well as firm performance.

Keywords: • compensation • ESG • banks • insurance

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<https://doi.org/10.4335/2023.3.25> ISBN 978-961-7124-14-9 (PDF)
Available online at <http://www.lex-localis.press>.



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1 Section 1: Introduction

1.1 Background

The 2008 financial crisis can be attributed to the unsound incentive compensation system for the management in the financial industry and CEO compensation has become a central topic in society. At the same time, environmental pollution problem is more serious in the world, and environmental protection problem has also become a major debate in society and most of firms are facing more pressure from governmental regulations and criticism of the public. For the long-term development of firms, the current CEO compensation system should be improved, as well as take environmental and social factors into account.

1.2 Significance and motivation

Over the past few years, the topic of CEO compensation and firm performance has been widely discussed. Early compensation studies only focus on the perspective of the pay-to-performance relationship. Research by Coleman (2000) studied the association between CEO compensation and firm performance and concluded that the association is observable and strong. However, Sigler and Carolina (2011) suggested an opposite view in their study. During the 2008 financial crisis, people were concerned with the unfair CEO compensation system since they discovered that twenty CEOs of banks got over \$90 million in compensation, which is not consistent with firm's performance (Gomstyn, 2009).

The research of CEO compensation and firm performance has been continuously developed. For instance, research by Berrone and Gomez-Mejia (2009) points out that good environmental awareness is aligned with better firm performance, as such, firms should add environmental performance standards into the CEO compensation system. Moreover, Waldman et al. (2006) also demonstrated that CEOs have an obligation to plan for the company's strategy and they should push the development of firm's social and environmental performance.

With the promotion of the concept of environment, social and governance performance, the correlation between CEO compensation and ESG performance has been widely discussed by many researchers. For instance, work by Jian and Lee (2015) found that the association between CEO compensation and corporate social responsibility is negative in regulated industries on the basis of poor corporate governance. However, work by Fabrizi and Mallin (2014) concluded that the connection between CEO compensation and corporate's social and environmental responsibility is positive in various industries in the USA, which is different from Jian and Lee's (2015) study.

The study mentioned above are concentrated on the different industries and only focus on only one or two factors in ESG performance. However, there are limited studies

measuring the association between CEO compensation and ESG performance in the financial industry. Within these research, discussions on the relationship between CEO compensation and ESG performance have not reached a unified view. Therefore, it seems to be a motivation to study the link between the CEO compensation and ESG performance in banks and insurance companies.

1.3 Aim and objectives

Many previous researches have concentrate their topic mainly on the structure of the CEO compensation and firm performance. However, not many researchers connected the CEO compensation with ESG performance. The aim of the research is to examine the differences on the relationships between CEO compensation with ESG performance in banks and insurance companies. The ESG performance is consisted of three factors: environmental; social; and corporate governance, each factor will be individually linked to CEO compensation in this research.

The concept of ESG performance is a new concept to the society, and the discussion between CEO compensation and ESG performance is rare in existing articles and the findings of this research can provide some ideas about the management of company to the readers. Moreover, in order to measure the listed banks and insurance companies from the point view of environmental, social and corporate governance respectively, four different multiple liner regression models will be created in this research. Furthermore, in each model, the choice of variables is based on the following four research questions.

- Firstly, whether the degree of resource consumption and environmental pollution will affect the CEO compensation?
- Secondly, whether the level of female participation in management will affect the CEO compensation?
- Thirdly, will the diversity and independence of the board affect CEO compensation?
- Fourthly, which component of CEO compensation has the main impact on CEO compensation and which factor in ESG performance has the dominant influence on CEO compensation?

This research study the connection between each factor on ESG performance and CEO compensation and make a comparison between banks and insurance companies. Based on the findings of the research results in this study, the regulators and firm's managers can make their decision more wisely, which are beneficial to the sustainable development of firms in the future.

1.4 Structure

The paper is divided into six sections starting with this introduction as the first section. This section mentioned the background, significance and motivation, aim and objectives

of the research topic. In section 2, firstly, it will give some basic concepts about the structure of CEO compensation. Secondly, the measurements of firm performance will be illustrated. Thirdly, some analytical summaries of studies in ESG performance will be discussed. Fourthly, this paper will demonstrate the association between CEO compensation and ESG performance accordingly. The third section focuses on research methodology. The research philosophy and research approaches will be illustrated in the beginning. And then, the source of the data as well as the size and criteria of sample will be presented. Next, four research questions about the association between CEO compensation and ESG performance will be showed. Based on these four research questions, four corresponding hypotheses are proposed. Additionally, four multiple linear regression models are created to answer these questions and verify the hypotheses. Then the formula and the process of ANOVA test and T-test will be presented. In section 4, based on the model in section 3, the result of data analysis will be presented, followed by the test of hypothesis. In section 5, the overall findings will be demonstrated. Moreover, based on section 2 and section 4, the similarities and differences between the result of data analysis and literatures reviews will be discussed from the perspective of banks and insurance companies, followed by interpretation. Finally, the implication of findings will be illustrated. In section 6, the overview of the research results will be illustrated, then the limitation and recommendations of this research will follow.

2 Section 2: Literature review

This section provides background to readers. The basic concepts about the structure of CEO compensation will be provided. Then, it will illustrate the measurements between different firm performances. Following that, ESG performance will be introduced. Lastly, the relationships between CEO compensation and ESG performance will be demonstrated.

2.1 CEO compensation

Nowadays, CEO compensation plans are adopted by many companies in different industries around the world. The management of CEO compensation has become a part of the corporate governance and the board of directors decides the level of CEO compensation in firms. Trammell (2014) suggested that CEO uses their talents and ability to help the company produce and sell the products, in order to appreciate the effort and contribution of CEOs, the firms will reward CEOs in financial compensation or non-financial compensation under normal circumstances.

Managing CEO compensation is critical for company, as well as a hot topic in society. The discussion on the drawbacks of CEO compensation has spread to various industries in the next ten years (Frydman and Saks, 2007). In order to cope with this tense situation, both the Reconstruction Finance Corporation and the Federal Trade Commission asked for companies to disclose information on CEO compensation and limited the pay of CEO

(Leff, 2003). The Securities and Exchange Commission requires companies to publicly disclose executive compensation information through legislative means, and the information on CEO compensation is available to the general public since 1934 (Loss and Seligman, 1995).

Particularly, the structure of the CEO compensation in the financial industry has been the concern of the public for a long time. Eavis (2014) has suggested that the structure of CEO compensation package is changing and becoming more complicated in the past decades. Garner (2013) also demonstrated that a good CEO compensation package is consisted both of short-term incentive compensation (including salaries and bonus) and long-term incentive compensation (including stock awards and options awards). This combination will be conducive to the structure of CEO compensation and firm's long term development. In this research, the structure of CEO compensation package will focus on CEO's salaries, bonus, stocks awards, options awards, non-equity incentive awards and pension.

Table 1: Key literature on CEO compensation

Author(s)	Titles of the papers	Models (or theories) used	Data used and sources	Key findings
Joel Trammell	Lead From the Top: 5 Core Responsibilities of CEO	Agency theory	500 companies in the world and firm's proxy statement	Demonstrate the function and responsibilities of CEO in the firms
Frydman, C., & Saks, R	Historical trends in executive compensation	Agency theory	50 largest firms CEO data and the data is from Compustat	The problems existing in the CEO compensation are widely discussed in the society.
Proctor, R., & Murtagh, J	Incentive Compensation for Bank CEOs and CFOs before and after the Financial Crisis	Agency theory	50 largest financial institutions and the data obtained from the firm's proxy statement	The management of the structure of the CEO compensation is connected with the firm performance
Balsam, S	An introduction to executive compensation	Agency theory		Explains and illustrates the various components of the compensation package
Chen, J., Goergen, M., Leung, W. S., and Song, W. (2019)	CEO and director compensation, CEO turnover and institutional investors: Is there cronyism in the UK?	Agency theory		

2.1.1 The types of CEO Compensation

Salary

Salary is a fixed yearly payment paid to the CEO on the basis of their performance, which is normally paid in cash. Research by Balsam (2002) has showed that the annual salary in a large company in the United States averages 1 million dollars, making salary as a dominant form of payment in CEO compensation. According to the related filing provided by Federal, most of bank's CEOs received a huge amount of compensation in the way of salary (Stych, 2011). The CEO of U.S. Bancorp, Richard Davis, was rewarded \$19.4 million in 2014 and his salary is about 1.2 million dollars. Compared with his 2013 salary, his salary increased by about eight percent in 2014 (Johnson, 2015).

Bonus

Under normal circumstances, bonus is used to reward for the performance and it can be both short-term compensation and long-term compensation (Sirkin and Cagney, 2015). Proctor and Murtagh (2014) also demonstrated that the majority of the bonus payments are paid in cash. Sometimes, the bonus payment is not in accordance with the performance. For example, the banks in the Wall Street has reserved around \$4.7 billion to their CEOs and staffs as compensation on the basis of their poor performance during the financial crisis of 2008 (Quinn, 2009).

Stock Awards

The stocks awards are also known as equity-based compensation which typically is rewarding CEOs with the company's restricted stock shares (Proctor and Murtagh, 2014). The accounting rules were adjusted after 2004, it required all the companies to pay for the options, therefore, stock compensation has become increasingly popular (Reiner, 2006). Different researchers have different attitude towards stock awards. Fahlenbrach and Stulz (2011) analyzed the sample of U.S. banks and concluded that stock awards cannot affect the performance of the bank. However, Bhagat and Romano (2009) suggested that stock awards are the main components of the CEO compensation, and they believed that stock awards can provide a long-term benefit for the investors and is conducive to the development of firm in the future.

Option Awards

Proctor and Murtagh (2014) states that most of options awards are based on the shares of the firm's common stock. Due to the encouragement and support from the institutional investors and regulators in the 1990s, the total amount of stock options showed a significant growth in the world (Bebchuk and Fried, 2003). Moreover, stock options not only provide a way to shape the behavior of CEO and then regulate the interest between employees and CEOs, it also encourages and attracts talented young people to join the company (Barnes, n.d.).

Non-equity Incentive Awards

Similar to bonus, non-equity incentive awards are typically paid out in cash to CEOs. In 2006, the concept of the non-equity incentive awards was first formally introduced by the SEC in the regulations when it enforced the requirement to disclose CEO compensation to the general public (Enderle, 2015). In addition, Ayure (2016) demonstrated that non-equity compensation provides a platform for employers to encourage the CEOs and enables them to enjoy the success of the firm under the premise of simplifying the capital structure of the company.

Pension and Non-Qualified Defined Pension

Pension can be considered as a fund, where the amount of money in the employee's employment period is constantly accumulated, and during the period of employee's retirement, the compensation will be paid regularly to employees in order to support their daily lives (The Internal Revenue Service, 2015). Ippolito (1991) demonstrated that the existence of pension effectively provides stable financial help to retired employees at the same time. Furthermore, Weight (2013) suggested that the pension is not only a significant part of the CEO compensation, but also vital for regulators, firms and investors. Additionally, Collins (2011) states that among the one hundred most influential companies in the world, about eighty percent of companies have adopted non-qualified defined pension plan in the past few years in the financial industry.

2.2 Firms Performance Measures

Neely et al. (2005) illustrated that the measurement of firm is a process of assessing the effectiveness and efficiency of decisions. Performance management is a process of cooperation with the business strategy and objectives for the firms in which decent performance in the firm can bring more profits to their managers and shareholders (Eccles and Serafeim, 2014). According to the criteria of classification, a firm's performance can be measured by financial performance and non-financial performance. Work by Hofmann (2001) demonstrated that financial performance measures are used to evaluate firm's total value and non-financial performance measures are used to estimate the value of performance. Research by Al-Matari (2014) also illustrated that the dominant measurement of the financial performance is accounting-based metrics, which usually includes ROA and ROE. However, Moon and Fitzgerald (1996) believed that in the increasing complexity of the global economy and growing number of competitors, accounting-based measurements is too simple and is not adequate for firms to adopt to the complex environment in the process of making strategy. In addition, Banker et al. (2000) also illustrated that non-financial measures cannot be ignored because it focuses on satisfaction of employee, product quality and customer service, which can provide better indication for firm in the long term.

Table 2: Key literature on firm's performance measures

Author(s)	Titles of the papers/books	Model (or theories) used	Data used and sources	Key findings
Hofmann, C.	Balancing financial and non-financial performance measures	The model is based on the LEN-model and principal/agent model	Used agent pre-decision information and non-financial performance data from company's annual report.	A firm should set a balance point between the measurement of financial and non-financial performance
Banker, R. D., Potter, G., & Srinivasan, D.	An empirical investigation of an incentive plan that includes nonfinancial performance measures	Two estimation models for non-financial performance and four estimation models for financial performance	Financial data in 18 hotels come from hotels' headquarters; non-financial data from interviews and company documents	Non-financial measures is beneficial to firm performance in the long term
Moon, P., & Fitzgerald, L.	Delivering the goods at TNT: the role of the performance measurement system	A multivariable model for financial performance and non- financial performance	The data collected form the questionnaire of CEO in the Australia and Mauritian manufacturing companies	The role of non-financial performance can not be ignored

2.3 ESG performance

Table 3: Key literature on the relation of ESG performance

Author(s)	Titles of the papers/books	Model (or theories) used	Data used and sources	Key findings
Amankwah, G., & Abonge Viyu, H.	Investigating Environmental, Social and Governance (ESG) considerations in Venture Capital & Private Equity firms: A study in US and UK venture capital industry	A multivariable model	The ESG data in 112 private companies in the UK and USA and data is collected from the firm's proxy statement	The ESG performance has been a vital part in the firm's performance measures and sustainable development
Aguilera, R. V., Williams, C. A., Conley, J. M., & Rupp, D. E	Corporate governance and social responsibility: A comparative analysis of the UK and the US	A multi-level theoretical model about corporate governance	The CSR index in the UK and US and collect from Dow Jones Sustainability Indices and the FTSE4 Good Index	The role of ESG performance is unique for the firm and it has been widely used by many companies
Global Sustainable Investment Association	Global Sustainable Investment Review	A theoretical model based on the agency theory	Financial and ESG data are provided by each national or regional Sustainable Investment Forum (SIF) and collated by GSIA	ESG performance is positively related to financial performance

2.3.1 The background of ESG performance

ESG is the abbreviation of the environmental, social and corporate governance criteria, which refers to a series of standards and factors in evaluating a company's sustainable and moral influence of an investment and it is belonging to non-financial performance (Amankwah and Viyu, 2011). According to the report by Goldmansachs (2015), environmental criteria are focus on environmental pollution problems and the utilization and consumption of sources; social criteria concentrates on the diversity and independence of firm's recruitment system, the level of consumer and employee protection; governance criteria looks at the structure of management, and employee satiation degree.

2.3.2 Agency theory and ESG performance

The purpose of the agency theory is to help people have a deeper understanding of the association between agents and principals. Both shareholders and managers have the right to pursue the maximization of their own interests. As a result, the conflicts between

shareholders and managers about the interests will bring a lot of unnecessary issues to company in financial and administrative area.

The following researches are focus on the evaluation between ESG performance and CEO compensation, and ESG performance is part of non-financial performance. Each part successively corresponds to environmental, social and corporate governance.

Firstly, Friedman (2008) demonstrated that profitability is negatively connected with environmental performance in firm on the basis of agency theory. However, Brouwers et al. (2014) challenged this view and stated that the relationship between firm performance and environmental performance is positive, because the cost in environmental performance in earlier stage is valuable and it will be returned in the future. Secondly, research by Gkliatis (2009) suggested that based on agency theory, the function of the board of directors cannot be ignored and firm's performance can be enhanced with the help of board. In addition, work by Hillman and Dalziel (2003) illustrated that the function of board is not only to monitor the relationship between agents and managers but also protect the interests of the shareholders from the perspective of the agency theory. Thirdly, Hong et al. (2015) evaluated the link between corporate governance and CEO compensation from the view of agency cost and found that higher level of corporate governance is in line with the less agency cost, which is beneficial to shareholders. In addition, Rekker et al. (2014) states that when CEOs are acquired to shoulder corporate social responsibility, they will be rewarded with less compensation and agency problems will be reduced at the same time.

2.3.3 ESG performance in financial industry

As a new indicator for measuring the long-term development of the company, ESG performance is getting more attention from people and companies. The ESG performance is popular because its unique function for companies. Maverick (2016) states that there are two main factors to promote the prevalence of ESG performance in society. The first is the increasing awareness of environmental protection in general public, taking consideration of environmental when making investment decisions; the second is ESG-based investing can produce a higher return and higher ESG rating means lower cost of capital. Moreover, Reynolds (2014) states along with disclosing CEO compensation to the public, they should also be required to include comments regarding to the connection between environmental, social and corporate governance. It is apparent that more and more companies have realized the significance of ESG performance. In 2005, ESG performance was formally incorporated into the mainstream market. The connection between ESG performance and financial performance is stronger than before, and from the perspective of investment market, the concern about corporate governance and environmental protection is becoming increasingly significant (Aguilera et al., 2006).

In addition, the correlation between ESG performance and financial performance is also widely discussed in existing literature. A number of articles demonstrated that the ESG performance need to be encouraged as it can develop financial performance. For instance, Ballou et al. (2003) illustrated that the action to strengthen the management of the company by using ESG performance did not damage the financial performance, on the contrary, this behavior guaranteed the efficiency of the enterprise and the maximum efficiency of the management of personnel. Furthermore, Edmans (2011) has also found that companies that are considering ESG performance are gain more stock returns than the other companies in the same industry in the period of 1984 to 2009, which is far beyond the expectation from the economists.

Conversely, some people hold the opposite attitude toward the relationship between ESG performance and financial performance. Work by Boettke (2003) has suggested if the ESG performance is used in firms, not only will the financial performance be negatively affected but the market will also be damaged. He concluded that in the long run, ESG performance will harm the firm's development. In addition, Hoops (2005) believed that ESG performance is harmful to portfolio performance and stock returns.

2.4 Relation between CEO compensation and ESG performance

Table 4: Key literature on the relation between CEO compensation and ESG performance

Author(s)	Titles of the papers/books	Model (or theories) used	Data used and sources	Key findings
Stanwick, P. A., & Stanwick, S. D.	CEO compensation: does it pay to be green	A multivariable model	186 firms' s CEO compensation and environmental reputation index and data is collected from Fortune	The relation between environmental performance and CEO compensation is positive
Namrita Kapur	The benefits of tying executive compensation to sustainability			The association between CEO compensation and firm's sustainable development is positive
Bertrand, M., & Hallock, K. F	The gender gap in top corporate jobs	Theory of Discrimination	Use Standard and Poor's ExecuComp data, which contain information on compensation for the top five executives for all firms in the S&P 500, S&P Midcap 400, and S&P Small Cap 600	The gender difference can be explained by some potential reasons and this article also highlighted the importance of female management
Conyon, M. J., & He, L.	Executive compensation and corporate governance in China	Agency theory	Use two compensation data sets that cover all firms listed on China's domestic stock exchanges, the Shanghai and Shenzhen Stock Exchange	On the basis of increasing the number of independent directors in board, the relationship between corporate governance and CEO compensation can be strengthened
Wade, J. B., O'Reilly III, C. A., & Pollock, T. G.	Overpaid CEOs and underpaid managers: Fairness and executive compensation	Social comparison theory	Individual-level data from 120 firms and the data are come from the a survey conducted from 1981 to 1985 by a compensation consultant company	The employee's attitude and their reaction to CEO compensation is important in the measurement of social performance

During the past few decades, the relation between ESG performance and CEO compensation is being widely discussed in society. As a new concept of ESG performance

several researchers were interested on this topic. Kapur (2013) suggested that the practice of linking CEO compensation and ESG performance not only improve the power of long-term financial profitability for company, but also encourage firms to increase the sense of social responsibility and positive cultural impact. However, Guevarra (2011) states that the link between the ESG performance and CEO compensation is not only weak, but firms will have to invest a large amount of money for the ESG performance in the early stage.

In this study, the connections between executive compensation and environmental, social, corporate governance performance will be illustrated separately in order to make its relations become easier to understand.

2.4.1 CEO compensation and environmental performance

As the global economy continues to develop, different kinds of environmental pollution problems also arise at the same time. With the increasing pollution problems in the world in the last twenty years, people's environmental awareness is also raising. The consumption of the energy as well as the related policy have been the essential elements to measure the relation between CEO compensation and environmental performance. In S & P 100, about one tenth of companies take environmental factors into consideration when making the CEO compensation plan, and the consumption of the energy as well as the related policy have been the essential elements to measure the relation between CEO compensation and environmental performance, which is in line with the goal of sustainable development (Ferracone, 2011).

Environmental issues have become the focus of society, and companies are facing more and more strict laws and regulations on environmental protection. As an important part of company management, the relationship between CEO compensation and environmental performance cannot be ignored. Some previous studies have evaluated the connection between CEO compensation and environmental performance. For instance, Stanwick and Stanwick's paper (2001) demonstrated that the connection between CEO compensation and environmental performance is positive and firm's environmental reputation is also playing a vital role in the measurement of the environmental performance. Work by Berrone and Gomez-Mejia (2009) used about 500 companies as samples to analyze the relationship between CEO compensation and environmental performance and concluded that the better environmental performance, the higher the CEO got paid. However, only a few studies hold the opposite. For example, Coombs and Gilley (2005) believed that this strong and positive relation dose not exist.

2.4.2 CEO compensation and social performance

Social performance is used to measure the level of achievement in a company's social goals and the management of social performance will influence employee, suppliers and customers. Social performance is consisted of many factors, which mainly focus on human right, employee turnover rate and level of female participation in management of company. In the past few years, researchers have been paying more attention to these topics for firm's long term development.

The association between women's participation in management and CEO compensation has been a hot topic in society and it can be traced back to the last century (NCPE, 2009). Research by Mohan and Ruggiero (2007) illustrated that lack of equal opportunity leads to a low participation rate of women in the management of firm and the gender differences may be a reason for the women's low participation rate. However, other studies have shown some reasonable explanations for this issue. Bertrand and Hallock (2001) suggested that female CEO compensation is generally lower than men's compensation about forty-five percent, but seventy-five percent of this gap can be explained by the differences in company's size and this gap would not affect the enthusiasm of women's participation in management. Khan and Vieito (2008) also found that the gap in CEO compensation pay between female and male is becoming smaller over time. Work by Dezsö and Ross (2012) also illustrated that the representation of women in management bring social diversity benefits for firms and improve firm performance.

In addition, the concept of the corporate social responsibility (CSR) and employee turnover rate are also closely associated with firm's social performance, which are becoming increasingly popular in firms. Work by D'Amato et al. (2009) suggested that the concept of CSR is positively associated with social performance, which is not only being widely used in businesses, it also ensures the sustainable development for firms. Wade et al. (2006) also illustrated that employees would measure the rationality of CEO compensation by themselves and a certain degree of employee turnover is helpful to the development of the company.

Traditionally, CEOs need to be rewarded for their hard work. However, most of the related studies hold the opposite attitude toward this opinion. For instance, work by Jian and Lee (2015) has evaluated the association between CEO compensation and social performance and suggested that the correlation is negative. Furthermore, Cai et al. (2011) has approved this statement and concluded that higher level of social performance is in accordance with lower CEO compensation.

2.4.3 CEO compensation and corporate governance performance

A company is made up of various departments with different functions. In order to maintain the power and cohesiveness of firm for the long term development, corporate

governance is essential for the company. The structure of the corporate governance is mainly concentrated on the board, shareholders and directors. The link between CEO compensation and corporate governance performance has been argued by many researchers.

Most studies indicate that the board is totally controlled by CEO and it is actually not independent. For instance, Crystal (1992) states that the board of directors will not maintain a fair attitude in the process of setting the level of CEO compensation, as most of them are hired by CEO and they have to follow the CEO's instructions. In addition, research by Conyon and He (2011) found that higher percentage of independent directors in the board, closer the association between CEO compensation and corporate governance. Research by Brogi (2008) also illustrated that there are some differences on the regulations about corporate governance between banks and insurance companies.

Moreover, there are numerous researches on the relationship between CEO compensation and corporate governance performance with different methods and data in different countries from the various aspects. For example, Ntim et al. (2015) uniquely created a set of corporate governance devices on the basis of the three stages least square method to measure the link between CEO compensation and corporate governance. Hong et al. (2015) used new CEO compensation data to analyze the connection between CEO compensation and corporate governance and found that the relationship is positive.

From the above discussions it is clear that CEO compensation, ESG performance and its relations have been widely discussed by many researchers. However, there is not a common view on the correlations between CEO compensation and environmental performance, CEO compensation and social performance as well as CEO compensation and corporate governance performance due to the various research methodologies. Moreover, most of the researches only focus on one or two relations between CEO compensation and ESG performance. It is important to find more evidences to refine the discussion of the three relationships. This gap will be bridged in this research.

3 Section 3: Methodology

3.1 Characteristics of Data

The data in this research are focuses on the world's most influential banks and insurance companies. Stata is also used to analysis the four multiple liner regression models. These four models are created to measure the links between CEO compensation and ESG performance and some dummy variables are also included in order to improve the accuracy of model. In addition, ANOVA test is used to measure how well the model fits for the data and then T-test is used to test the level of correlation between independent variable and dependent variables.

3.2 Sample

There are 56 banks and 55 insurance companies are being chosen in this research. The list of banks and insurance companies are presented in the Appendix. We choose these 111 financial institutions according to its comprehensive strength and the rankings released by the World Bank. In addition, CEO compensation data, ESG performance data and the financial data are obtained from Bloomberg. A panel dataset is chosen in this research and all data are quantitative. Since the concept of ESG performance was proposed in 2006, the time horizon used in this research is from 2006 to 2015.

3.3 Research questions

Unlike other existing researches which only focuses on one or two questions when evaluating the relationships between CEO compensation and ESG performance, four questions are presented in this research.

Firstly, whether the degree of resource consumption and environmental pollution will affect the CEO compensation?

Secondly, whether the level of female participation in management will affect the CEO compensation?

Thirdly, will the diversity and independence of the board affect CEO compensation?

Lastly, which component of CEO compensation has the main impact on CEO compensation and which factor in ESG performance has the dominant influence on CEO compensation?

3.4 Models

In the following models, as dependent variable, CEO compensation comprises of total salary paid, total bonus paid, stock awards granted, option awards granted, non-equity incentives granted and pension and non-qualified defined pension in a given fiscal year. In addition, *CEO compensation_i* represents compensation for banks and *CEO compensation_j* represents compensation for insurance companies.

3.4.1 CEO compensation and environmental performance

Hypothesis 1: lower degree of resource consumption and environmental pollution is connected with the higher CEO compensation.

CEO compensation_{ij}

$$= \beta_0 + \beta_1 \times EDS + \beta_2 \times TGE + \beta_3 \times TEC + \beta_4 \times TWU + \beta_5 \times TW + \beta_6 \times EEP + \beta_7 \times ESCM + \beta_8 \times GBP + \beta_9 \times WRP + \beta_{10} \times EQMP + \beta_{11} \times BP + \text{INDUSTRY} + \text{YEAR}$$

Where:

EDS=Environmental Disclosure Score

TGE=Total GHG Emissions

TEC =Total Energy Consumption

TWU =Total Water Use

TW =Total Waste

EEP =Energy Efficiency Policy

ESCM =Environmental Supply Chain Management

GBP =Green Building Policy

WRP =Waste Reduction Policy

EQMP =Environmental Quality Management Policy

CCP =Climate Change Policy

BP =Biodiversity Policy

INDUSTRY = Dummy variables to control for industry fixed with 2 digital SIC level

YEAR = Dummy variables to control for year fixed effects

CEO compensation is conducted as a dependent variable. Research by Khanna and Damon (1999) used different kinds of resource consumption data to measure the impact on CEO compensation. In this model, TGE, TEC, TWU and TW are used to calculate the amount of emissions and consumption. Moreover, work by Zhang (2008) suggested that emission of polluting gases and consumption of resource are all affected by environmental protection policies. Therefore, the rest of variables in this model are used as dummy variable to control the effect of the preceding four dependent variables. The variable of year and industry are used to control the effect of industry and time.

3.4.2 CEO compensation and social performance

Hypothesis 2: the higher the participation of women in the firm's management, the higher the CEO compensation.

CEO compensation $_{ij}$

$$= \beta_0 + \beta_1 \times SDS + \beta_2 \times NOE + \beta_3 \times ET + \beta_4 \times WIW + \beta_5 \times WIM + \beta_6 \times HSP + \beta_7 \times EOP + \beta_8 \times HRP + \beta_9 \times BEP + \beta_{10} \times AEP + \beta_{11} \times UGCS + \beta_{12} \times PRI + INDUSTRY + YEAR$$

Where:

SDS=Social Disclosure Score

NOE =Number of Employees

ET =Employee Turnover %

WIW =% Women in Workforce

WIM =% Women in Management

HSP =Health and Safety Policy

EOP =Equal Opportunity Policy

HRP= Human Rights Policy

BEP =Business Ethics Policy

AEP =Anti-Bribery Ethics Policy

UGCS =UN Global Compact Signatory

PRI=PRI Signatory

INDUSTRY = Dummy variables to control for industry with 2 digital SIC level

YEAR = Dummy variables to control for year fixed effects

CEO compensation plays the role of the dependent variable. Following Medina (2012), the operating conditions of firm can be demonstrated by employee turnover rate. Furthermore, Elkinawy and Stater (2011) illustrated that degree of women's employment participation has become an important factor in firm's social performance. Hence, WIW and WIM are used as independent variables in this model. The remaining variables are used as dummy variables, which are made up of social-related policies so as to consider the rights of employees and safeguard their interests, such as health and safety policy and equal opportunity policy. Moreover, industry and year are used to control CEO compensation's industry and time effect.

3.4.3 CEO compensation and corporate governance performance

Hypothesis 3: higher level of diversity and independence of the board are associated with higher CEO compensation.

CEO compensation_{ij}

$$\begin{aligned}
 &= \beta_0 + \beta_1 \times GDS + \beta_2 \times SB + \beta_3 \times NEDOB + \beta_4 \times ID + \beta_5 \\
 &\times DU + \beta_6 \times WOB + \beta_7 \times FCEO + \beta_8 \times FE + \beta_9 \times BAL + \beta_{10} \\
 &\times BD + \beta_{11} \times BMA + \beta_{12} \times IDAC + \beta_{13} \times NEDCC + \beta_{14} \\
 &\times NEDNC + \beta_{15} \times CSR + \beta_{16} \times ESGLCB + \beta_{17} \times PD + \beta_{18} \\
 &\times GRIC + INDUSTRY + YEAR
 \end{aligned}$$

Where:

GDS = Governance Disclosure Score

SB = Size of the Board

NEDOB = % Non-exec Director on Board

ID = % Independent Directors

DU = CEO Duality

WOB = % Women on Board

FCEO = Female Chief Executive Officer or Equivalent

FE = % Female Executives

BAL = Board Age Limit

BD = Board Duration (Years)

BMA = Board Meeting Attendance %

IDAC = % Independent Director on Audit Commitment

- NEDCC = Non-executive Director on Compensation Commitment
- NEDNC = Non-executive Director on Nomination Commitment
- CSR = CSR/Sustainability Committee
- ESGLCB = ESG Linked Compensation for Board
- PD = Political Donations
- GRIC = Global Reporting Initiatives Checked
- INDUSTRY = Dummy variables to control for industry with 2 digital SIC level
- YEAR = Dummy variables to control for year fixed effects

CEO compensation is used as a dependent variable. Following Ahmed et al. (2013) and Boyd (1994), this model uses SB, FCEO and DU to control the influence of the board structure. In order to measure the influence of dependence and diversity of the board, the following variables are used as independent variables, there are NEDOB, ID, WOB, FE and BAL. The board duration and the percentage of board meeting attendance are used to control the characteristic of the board. Moreover, in order to control the impact of other various committee of board, the number of directors in audit committee, compensation committee, nomination committee and sustainability committee are also considered. The effect of global surrounding is also measured, both the variable of political donations and global reporting initiatives checked are included as dummy variables in this model. Additionally, there are two more dummy variables used in this model to control the effect of industry and time-series, industry and years.

3.4.4 CEO compensation and ESG performance

Following the prior studies by Jian and Lee (2015) on the relationship between CEO compensation and corporate social responsibility as well as previous three models, the following model is used to test the connections between CEO compensation and ESG performance.

Hypothesis 4: salary is the leading element in total CEO compensation, and social performance is the dominant factor in ESG performance to influence CEO compensation.

$$\begin{aligned}
 \text{CEO compensation}_{ij} &= \beta_0 + \beta_1 \times \text{Environment} + \beta_2 \times \text{Social} + \beta_3 \\
 &\times \text{Governance} + \beta_4 \times \text{ROA} + \beta_5 \times \text{Return} + \beta_6 \times \text{VOLARET} \\
 &+ \beta_7 \times \text{MCTBV} + \beta_8 \times \text{TSP} + \beta_9 \times \text{TBP} + \beta_{10} \times \text{SAG} + \beta_{11} \\
 &\times \text{OAG} + \beta_{12} \times \text{NIP} + \beta_{13} \times \text{PNDP} + \beta_{14} \times \text{CEO Duality} \\
 &+ \text{INDUSTRY} + \text{YEAR}
 \end{aligned}$$

Where:

CEO compensation = total CEO compensation paid

Environmental = comprising environmental disclosure score, total GHG Emissions and other ten factors

Social = comprising social disclosure score, social supply chain management and other ten factors

Governance = comprising governance disclosure score, board structure and other fifteen factors

ROA = Return on assets

RETURN = Return on common equity

VOLARET = volatility in 360 days

MCTBV = Market Capitalization to Book Value

TSP = Total Salary Paid

TBP = Total Bonus Paid

SAG = Stock Awards Granted

OAG = Option Awards Granted

NIP = Non-equity Incentives Granted

PNDP = Pension and Non qualified Defined Pension

CEO Duality = CEO is also the chairman of the board

INDUSTRY = Dummy variables to control for industry with 2 digital SIC level

YEAR = Dummy variables to control for year fixed effects

CEO compensation is the dependent variable. In order to control the influence of economic determinants of CEO compensation, the following variables are being used in this model: ROA; RETURN; VALARET; and MCTBV. Following the previous three models in this research, this model focuses on finding the dominant factor in CEO compensation and ESG performance. Proctor and Murtagh (2014) demonstrated that the analysis of the leading factor on the structure of CEO compensation is an important part in firm's management. The main components of CEO compensation as independent variables are used in this model and following the research by Lee (2014) and Peni (2014), the feature of the CEO such as CEO duality is used as dummy variables. In addition, the variable of industry and years will be also used in the models.

4 Section 4: Results and Analysis

We analyzed the factor of environmental, social and corporate governance in ESG performance separately with CEO compensation. There are four research questions regarding CEO compensation and ESG performance in this study, which was mentioned in section 1: Introduction. In order to answer these questions clearly, the process of analysis is divided into two steps. First, the ANOVA test will be used to estimate how well the models used for the data analysis were and the result of deceptive statistics data will be demonstrated, followed by T-test results. Then, testing the hypothesis based on the results of ANOVA test and T-test, followed by a summary.

Table 5: Summary of Statistical tests

Name Test	Purpose	Model	Input (data)	Output (result)	Interpretation of the result	Use of the output
ANOVA test	To test the model how fits for the data	CEO compensation and environmental performance	CEO compensation data, environment-al performance data and financial data in banks and insurance companies	The model fits for the data	The value of Prob > F is zero	Confirm that model is suitable for the data
T-test	To determine whether the difference between two sets of data is significant	CEO compensation and environmental performance	CEO compensation data, environment-al performance data and financial data in banks and insurance companies	For banks, estimated coefficient on TGE and TWU is smaller than zero as well as TEC and TW is bigger than zero. For insurance companies, estimated coefficient on TGE, TEC, TWU and TW are all bigger than zero	For banks, TGE and TWU are showing negative impact on CEO compensation TEC and TW are positively associated with CEO compensation. For insurance companies, TGE, TEC, TWU and TW are showing positive impact on CEO compensation	To illustrat-ed the association between two data sets is positive or negative, and weather the association is significant
ANOVA test	To test the model how fits for the data	CEO compensation and social performance	CEO compensation data, social performance data and financial data in banks and insurance companies	The model fits for the data	The value of Prob > F is zero	Confirm that model is suitable for the data
T-test	To determine whether the difference between two sets of data is significant	CEO compensation and social performance	CEO compensation data, social performance data and financial data in banks and insurance companies	For banks, estimated coefficient on ET and WIM is bigger than zero as well as WIW is smaller than zero. For insurance companies,	For banks, both ET and WIM are showing positive impact on CEO compensation, and WIW is showing negative effect. For insurance companies,	To illustrat-ed the association between two data sets is positive or negative, and weather the

				estimated coefficient on ET, WIW and WIM are bigger than zero	ET, WIW and WIM are positively associated with CEO compensation	association is significant
ANOVA test	To test the model how fits for the data	CEO compensation and corporate governance performance	CEO compensation data, corporate governance performance data and financial data in banks and insurance companies	The model fits for the data	The value of Prob > F is zero	Confirm that model is suitable for the data
T-test	To determine whether the difference between two sets of data is significant	CEO compensation and corporate governance performance	CEO compensation data, corporate governance performance data and financial data in banks and insurance companies	For banks, estimated coefficient on NEDOB, ID, WOB, FE and BAL are bigger than zero. For insurance companies, only the estimated coefficient on NODOB is smaller than zero, the rest of the variables are larger than zero.	For banks, NEDOB, ID, WOB, FE and BAL are positively associated with CEO compensation. For insurance companies, only NEDOB has negative impact on CEO compensation	To illustrate the association between two data sets is positive or negative, and weather the association is significant
ANOVA test	To test the model how fits for the data	CEO compensation and ESG performance	CEO compensation data, ESG performance data and financial data in banks and insurance companies	The model fits for the data	The value of Prob > F is zero	Confirm that model is suitable for the data
T-test	To determine whether the difference between two sets of data is significant	CEO compensation and ESG performance	CEO compensation data, ESG performance data and financial data in banks and insurance companies	For banks, estimated coefficient on salary and employee turnover rate are bigger than zero as well as dominant in CEO compensation and ESG performance. For insurance companies, the estimated	For banks and insurance companies, salary is the dominant element in CEO compensation as well as the social performance has the biggest impact on ESG performance	To illustrate the association between two data sets is positive or negative, and weather the association is significant

				coefficient on salary and employee turnover rate are bigger than zero as well as dominant in CEO compensation and ESG performance.		
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4.1 CEO compensation and environmental performance

4.1.1 CEO compensation and environmental performance in banks

Model fitting

Table 6: ANOVA test for CEO compensation and environmental performance in banks

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	9143.46517	22	415.612053	0.0000	538
Residual	23844.0285	515	46.2990845		
Total	32987.4937	537	61.4294427		

The value of Sum of square, Degree of freedom and Mean square are used to calculate the value of $P > |F|$. If the value of $P > |F|$ is below 0.05, and then the model is considered to be suitable for the data. In Table 6, the value of $P > |F|$ is obtained after the ANOVA test and it shows as zero, it means that this model fits for the data and the model can be used for the data analysis.

Table 7: Descriptive statistics for CEO compensation and environmental performance in banks

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
TGE	-0.0010785	0.004617	-2.34	0.020
TEC	0.0034487	0.0007736	4.46	0.000
TWU	-0.000145	0.0002357	-0.06	0.951
TW	0.0013007	0.0021241	0.61	0.541

Table 7 shows the multiple liner regression result of the relationship between CEO compensation and environmental performance in banks. The estimated coefficient on TGE (Total GHG Emissions) and TWU (Total Water Use) is negative, while TEC (Total

Energy Consumption) and TW (Total Waste) is positive. In other words, as mentioned in section 3: Research Methodology, after controlling the environmental protection policy, such as EEP (Energy Efficiency Policy) and ESCM (Environmental Supply Chain Management), it shows CEOs receive higher total compensation with higher TEC (Total Energy Consumption) and TW (Total Waste), as well as lower TGE (Total GHG Emissions) and TWU (Total Water Use). The result of T-test is also presented in Table 6, the value of $P > |t|$ in TGE (Total GHG Emissions) and TEC (Total Energy Consumption) are smaller than 0.05, which implies that significance of these two variables is high. In particular, the significance of TEC (Total Energy Consumption) is the highest among the dependent variables.

4.1.2 CEO compensation and environmental performance in insurance companies

Model fitting

Table 8: The ANOVA test for CEO compensation and environmental performance in insurance companies

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	6453.62336	22	293.346516	0.000	481
Residual	17440.8278	458	38.080499		
Total	23894.4511	480	49.7801066		

The ANOVA test shows how well the model is used for the analysis. The use of F-test can provide more details for the model. When value of $P > |F|$ is more than 0.05, it means that the model does not fit the data. In Table 8, the significance of statistics is high as the numerical value of the $Prob > F$ is zero, which is smaller than 0.05.

Table 9: Descriptive statistics for CEO compensation and environmental performance in insurance companies

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
TGE	0.0003212	0.0009206	0.35	0.727
TEC	0.113817	0.0021277	5.35	0.000
TWU	0.007176	0.000901	0.80	0.426
TW	0.007649	0.0006408	1.19	0.233

Table 9 illustrates the multiple liner regression result of the relationship between CEO compensation and environmental performance in insurance companies. The independent variables of TGE (Total GHG Emissions), TEC (Total Energy Consumption), TWU (Total Water Use) and TW (Total Waste) presents a positive impact on TCP (Total CEO Compensation). As mention in section 3: Research Methodology), after governing the environmental protection policy such as EEP (Energy Efficiency Policy) and ESCM (Environmental Supply Chain Management), CEOs receive higher total compensation with higher consumption of resource in insurance companies. Moreover, the value of t-statistics in TEC (Total Energy Consumption) is zero, which suggests that the level of significance between TEC (Total Energy Consumption) and TCP (Total CEO Compensation) is high.

4.1.3 Testing the hypothesis

Hypothesis 1: lower degree of resource consumption and environmental pollution is connected with the higher CEO compensation.

The results shown in Tables 6 and 7, TGE (Total GHG Emissions) shows a negative impact on CEO compensation and their correlation is significant. However, the TEC (Total Energy Consumption) is suggesting a positive impact on CEO compensation and their correlation is also significant. Hence, hypothesis 1 is rejected in the industry of banks.

Moreover, all factors involving consumption of resource and emissions of polluting gas shows a positive correlation to CEO compensation in insurance companies. And only TEC (Total Energy Consumption) meets the condition of significant correlation. It means that higher level of consumption in total energy correlates to higher CEO compensation. Therefore, hypothesis 1 is also rejected in the insurance companies.

Generally speaking, the negative link between the degree of resource consumption and environmental pollution is not significant in banks and insurance companies.

4.2 CEO compensation and social performance

4.2.1 CEO compensation and social performance in banks

Model fitting

Table 10: ANOVA test for CEO compensation and social performance in banks

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	10593.0548	22	481.502492	0.0000	531
Residual	22092.8171	508	43.4897975		
Total	32685.872	530	61.6714565		

The ANOVA test is used to measure how well the model fits the data. The use of F-test can provide further details for the model. When value of $P > |F|$ is more than 0.05, it means that the model does not fit the data well. Table 10 illustrates the result of ANOVA test. This table suggests that this model fits the data and the significance of the statistics is high because the value of the $\text{Prob} > F$ is zero.

Table 11: Descriptive statistics for CEO compensation and social performance in banks

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
ET	0.2915286	0.073015	3.99	0.000
WIW	-0.1591135	0.376698	-4.22	0.0313
WIM	0.0811142	0.326576	2.48	0.000

Table 11 explains the outcome of multiple liner regression between CEO compensation and social performance in the banking industry. It shows ET (Employee Turnover %) and WIM (% Women in Management) have a positive impact on TCP (Total CEO Compensation), while WIW (% Women in Workforce) has a negative impact on CEO compensation. When CEO compensation increased one unit, both ET (Employee Turnover %) and WIM (% Women in Management) will increase by 0.29 and 0.08 units respectively. And WIW (% Women in Workforce) decreased by approximately 0.16 units. The result of T-test is also illustrated in Table 11, where both ET (Employee Turnover %) and WIM (% Women in Management) shows a high level of significance associated with TCP (Total CEO Compensation).

4.2.2 CEO compensation and social performance in insurance companies

Model fitting

Table 12: ANOVA test for CEO compensation and social performance in insurance companies

Source	Sum of square	Degree of freedom	Mean square	$\text{Prob} > F$	Number of observations
Model	52000.30958	22	236.377708	0.0000	485
Residual	19179.0805	462	41.5131612		
Total	24379.0805	484	50.5131612		

The number of observation is 485 in the ANOVA test. The value of Sum of square, degree of freedom and mean square are used to calculate the value of $P > |F|$. If the value of $P > |F|$

is below 0.05, then it shows that this model is considered to be suitable for the data. As shown in Table 12, the value of Prob > F is zero in this model, which indicates that the model is suitable for data analysis and the significance of model is in a high level.

Table 13: Descriptive statistics for CEO compensation and social performance in insurance companies

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
ET	0.264837	0.0083517	3.17	0.002
WIW	0.236968	0.0195188	1.12	0.225
WIM	0.1710085	0.0280381	6.10	0.000

From Table 13, descriptive statistics shows the outcome of multiple liner regression between CEO compensation and social performance in insurance companies. It suggests that the estimated coefficient on ET (Employee Turnover %), WIW (% Women in Workforce) and WIM (% Women in Management) are positive, which illustrates that TCP (Total CEO Compensation) is positively connected with these three variables. As mentioned in section 3: Research Methodology, after controlling company operation policy such as HSP (Health and Safety Policy) and EOP (Equal Opportunity Policy), the CEO can receive higher level of compensation with higher ET (Employee Turnover %), WIW (% Women in Workforce) and WIM (% Women in Management) in insurance companies. The result of T-test can be obtained from the Table 13, where ET (Employee Turnover %) and WIM (% Women in management) shows a high level of significance connected to TCP (Total CEO Compensation) as both of the value of on $P > |t|$ is zero.

4.2.3 Testing the hypothesis

Hypothesis 2: the higher the participation of women in firm's management, the higher the CEO compensation.

Firstly, it is suggested that factors such as ET (Employee Turnover %), and WIM (% Women in Management) are positively related to CEO compensation for banks as shown in the statistics outcome in Table 11. In particular, value of $P > |t|$ on ET (Employee Turnover %) and WIM (% Women in Management) is zero, which represents that the association between these two variables and dependent variable is significant. Therefore, combining the results shown in Tables 10 and 11, it suggests hypothesis 2 is proved to be true in the banking industry.

Secondly, the estimated coefficient on ET (Employee Turnover %), WIW (% Women in Workforce) and WIM (% Women in Management) are positive in insurance companies, which shows that dependent variable is positively connected with these three independent variables. Additionally, both ET (Employee Turnover %) and WIM (% Women in

Management) shows a significant correlation. Hence, combining the results presented in Table 12 and Table 13, suggests that hypothesis 2 is true for insurance companies.

To summarize, the positive relationship between the participation of women in management and CEO compensation exists both in banks and insurance companies.

4.3 CEO compensation and corporate governance performance

4.3.1 CEO compensation and corporate governance performance in banks

Model fitting

Table 14: ANOVA test for CEO compensation and corporate governance performance in banks

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	12331.8625	26	474.302402	0.0000	499
Residual	18996.0468	472	40.2458619		
Total	31327.9093	498	62.9074483		

The value of Sum of square, degree of freedom and mean square are used to calculate the value of $P > |F|$. If value of $P > |F|$ is more than 0.05, it means that this model cannot be used for data analysis. In Table 14, number of $P > |F|$ is obtained after ANOVA test and it shows zero, it means that the model fits the data.

Table 9: Descriptive statistics for CEO compensation and corporate governance performance in banks

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
NEDOB	0.0266576	0.030027	0.89	0.375
ID	0.0889572	0.0294563	3.02	0.003
WOB	0.0083163	0.035893	0.23	0.0817
FE	0.0580519	0.032174	1.80	0.072
BAL	1.118814	0.2284259	4.90	0.000

Table 15 describes the consequence of multiple liner regression on the connection between CEO compensation and corporate governance performance in banks. It reflects that after constricting the variable of DU (CEO Duality) and FCEO (Female Chief

Executive Officer or Equivalent), the following variables presents a positive impact on CEO compensation: NEDOB (% Non-Exec Director on Board); ID (% Independent Directors); WOB (% Women on Board); FE (% Female Executives); and BAL (Board Age Limit). It means that higher level of CEO compensation is associated with higher level of these variables. The outcomes of T-test are demonstrated in Table 15. According to observing the value of $P > |t|$, only ID (% Independent Directors) and BAL (Board Age Limit) represents a high significance among the variables.

4.3.2 CEO compensation and corporate governance performance in insurance companies

Model fitting

Table 10: ANOVA test for CEO compensation and corporate governance performance in insurance companies

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	9422.55753	26	362.406059	0.0000	424
Residual	12012.8911	397	30.2591716		
Total	21435.4487	423	50.6748195		

The value of Sum of square, Degree of freedom and Mean square are used to calculate the value of $P > |F|$. If the result of F-test is below 0.05, it means that this model is suitable for data analysis. As shown in Table 16, the value of *Prob > F* is zero, thus, the model fits for the data analysis and the significance of model is high.

Table 11: Descriptive statistics for CEO compensation and corporate governance performance in insurance companies

Independent variable	Coefficient	Standard error	t	<i>P > t </i>
TCP				
Dependent variable				
NEDOB	-0.0073194	0.0324603	-0.23	0.822
ID	0.0362896	0.0167569	2.17	0.031
WOB	0.0512612	0.0287276	1.78	0.075
FE	0.1238007	0.0266268	4.65	0.000
BAL	1.129651	0.1669955	6.76	0.000

The Table 17 presents the statistics result for the connection between CEO compensation and corporate governance performance in insurance companies. The estimated coefficient on ID (% Independent Directors), WOB (% Women on Board), FE (% Female Executives) and BAL (Board Age Limit) are positive, which suggests TCO (Total CEO Compensation) is positively linked with these variables. In other words, firm's CEO can get more compensation with higher level of these variables after controlling the DU (CEO

Duality) and FCEO (Female Chief Executive Officer or Equivalent). Table 16 illustrates the statistics results of T-test. It shows that value of $P > |t|$ on ID (% Independent Directors), FE (% Female Executives) and BAL (Board Age Limit) are smaller than 0.05, which proves that the significance of these variables is high. But value of NEDOB (% Non-Exec Director on Board) is very large, around 0.82, which means that the negative association between CEO compensation and NEDOB (% Non-Exec Director on Board) is not significant.

4.3.3 Testing the hypothesis

Hypothesis 3: higher level of diversity and independence of the board are associated with higher CEO compensation.

As shown in Table 15, all variables related to the diversity and independence of the board have expressed a positive influence on CEO compensation in banks. However, not all of them show the feature of significance linked to CEO compensation. Only dependent variables of ID (% Independent Directors) and BAL (Board Age Limit) hold the significant correlation with CEO compensation. In addition, the significance of the remaining variables cannot be demonstrated from the statistics result. As such, hypothesis 3 is rejected for banks.

For insurance companies, almost all variables related to the diversity and independence of the board have illustrated a positive effect associated with the CEO compensation, while NEDOB (% Non-Exec Director on Board) shows an opposite result. Moreover, the negative correlation between NEDOB (% Non Exec Director on Board) and CEO compensation is not significant as the statistics outcome is approximately 0.82. In addition, the value of $P > |t|$ on WOB (% Women on Board) is 0.075, which is over 0.05. This means that the positive correlation between WOB (% Women on Board) and CEO compensation is not significant. Consequently, the outcome of descriptive statistics for CEO compensation and corporate governance performance is not consistent with hypothesis 3 for insurance companies.

In sum, the positive association between the diversity and independence of board and CEO compensation is not significant in banks and insurance companies.

4.4 CEO compensation and ESG performance

4.4.1 CEO compensation and ESG performance in banks

Model fitting

Table 12: ANOVA test for CEO compensation and ESG performance in banks

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	29298.9127	62	472.563107	0.0000	482
Residual	1239.32941	419	2.95782675		
Total	30538.2421	481	63.4890688		

The number of observation is 482 in this ANOVA test. The value of Sum of square, Degree of freedom and Mean square are used to compute the value of $P > |F|$. If the value $P > |F|$ is below 0.05, and this model is considered to be suitable for the data analysis. It is suggested that the model is suitable for data and significance of the model is high due to the value of $Prob > F$ is zero in Table 18.

Table 13: Descriptive statistics for CEO compensation and ESG performance in banks

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
TSP	1.347682	0.1301002	10.36	0.000
TBP	0.8911485	0.0446013	19.98	0.000
SAG	0.950971	0.234598	40.54	0.000
OAG	1.105412	0.0395901	27.92	0.000
NIP	0.8197482	0.663881	12.35	0.000
PNDP	1.078551	0.0670222	16.09	0.000
ET	0.0831573	0.0258221	3.22	0.0001

In Table 19, descriptive statistics shows the result of multiple liner regression between CEO compensation and ESG performance in banks. The structure of TCP (Total CEO Compensation) is consisted of following components: TSP (Total Salary Paid); TBP (Total Bonus Paid); SAG (Stock Awards Granted); OAG (Option Awards Granted); NIP (Non-Equity Incentives Granted); and PNDP (Pension and Non qualified Defined Pension). Comparing the estimated coefficient in each element of CEO compensation, it is apparent that TSP (Total Salary Paid) plays the dominant role in TCP (Total CEO

compensation), followed by OAG (Option Awards Granted) and PNDP (Pension and Non qualified Defined Pension). Considering all the statistics results on the independent variables in ESG performance, after controlling the economic determinants of CEO compensation such as ROA (Return on assets), Return (Return on assets), VOLARET (volatility in 360 days) and MCTBV (Market Capitalization to Book Value), the ET (Employee Turnover %) has become the dominant factor in ESG performance, which is a part of social performance. And ET (Employee Turnover %) also shows a positive impact on CEO compensation as the estimated coefficient is positive. The value of $P > |t|$ in ET (Employee Turnover %) is 0.0001 and it represents that the level of significance between CEO compensation and ET (Employee Turnover %) is very high.

4.4.2 CEO compensation and ESG performance in insurance companies

Model fitting

Table 14: ANOVA test for CEO compensation and ESG performance in insurance companies

Source	Sum of square	Degree of freedom	Mean square	<i>Prob > F</i>	Number of observations
Model	20164.1917	62	325.228898	0.0000	416
Residual	463.09714	353	1.31188991		
Total	20627.2888	415	49.7043105		

In this ANOVA test, the number of observation is 416. The value of Sum of square, Degree of freedom and Mean square are used to calculate the value of $P > |F|$. If the value of $P > |F|$ is over 0.05, it means that this model is not suitable for the data. However, the number of *Prob > F* shows as zero in Table 20, which illustrates that the model fits the data well and the significance is high in this model.

Table 21: Descriptive statistics for CEO compensation and ESG performance in insurance companies

Independent variable	Coefficient	Standard error	t	$P > t $
TCP				
Dependent variable				
TSP	1.151621	0.1301002	10.36	0.000
TBP	0.9800219	0.0446013	19.98	0.000
SAG	0.9826425	0.0234598	40.54	0.000
OAG	1.030728	0.0395901	27.92	0.000
NIP	1.024277	0.0663881	12.35	0.000
PNDP	0.9743386	0.0670222	16.09	0.000
HRP	1.083483	0.2923669	3.71	0.000

Table 21 demonstrates the link between CEO compensation and ESG performance in insurance companies. It suggests that the leading components is TSP (Total Salary Paid) in CEO compensation, which shows the highest estimated coefficient among the other components. After governing the economic determinants of CEO compensation such as ROA (Return on assets), Return (Return on assets), VOLARET (volatility in 360 days) and MCTBV (Market Capitalization to Book Value), it is easy to find that the HRP (Human Rights Policy) became the major factor effecting the ESG performance, which is belongs to social performance. Table 21 also shows that all components of CEO compensation have a positive impact on CEO compensation. In particular, the value of $P > |t|$ TSP (Total Salary Paid) is zero, which suggests that the positive association between TCP (Total CEO compensation) and TSP (Total Salary Paid) is significant. Moreover, the value of $P > |t|$ for the variable of HRP (Human Rights Policy) is zero which represents the positive link between TCP (Total CEO Compensation) and HRP (Human Rights Policy) is significant.

4.4.3 Testing the hypothesis

Hypothesis 4: salary is the leading elements in total CEO compensation, and social performance is the dominant factor in ESG performance to influence CEO compensation.

It is clearly all components of CEO compensation are positively related to the CEO compensation, and their relations are both significant. In particular, the value of estimated correlation in TSP (Total Salary Paid) is the highest compared with other elements, around 1.15. It means that TSP (Total Salary Paid) plays a dominant role in CEO compensation. Based on comprehensive consideration of the correlation and significance between the independent variable and various dependent variables, it can be suggested that ET (Employee Turnover %) has become the most influential factor in ESG performance to influence CEO compensation. And this factor is belonging to the

measurement of social performance. Hence, hypothesis 4 is proven to be appropriate for banks.

Additionally, as shown in Table 21, TSP (Total Salary Paid) is the most important part of CEO compensation in insurance companies. The correlation between TSP (Total Salary Paid) and TCP (Total CEO Compensation) is positive and significant. Under the premise of fully taking account of correlation and significance between CEO compensation and several dependent variables, it is can be demonstrated that HRP (Human Rights Policy) has the greatest impact on CEO compensation and this impact is positive. Moreover, this element is a part of social performance. Consequently, hypothesis 4 is proven to be true for insurance companies.

In sum, in both banks and insurance companies, TSP (Total Salary Paid) is a key factor in CEO compensation. In addition, CEO compensation is deeply influenced by social performance.

4.5 Results

By using four multiple linear regression models, the four questions in this research and their corresponding hypotheses are answered and verified. The findings of the four models are listed below:

First, the negative association between the degree of resource consumption and environmental pollution is not significant in banks and insurance companies.

Second, the higher level of female participation in management is associated with higher CEO compensation in banks and insurance companies and its correlation is significant.

Third, the association between the diversity and independence of the board and CEO compensation is positive but not significant in banks and insurance companies.

Finally, from the perspective of banks and insurance companies, the TSP (Total Salary Paid) is the dominant factor in CEO compensation and social performance has become the most influential factor in the association between CEO compensation and ESG performance.

5 Section 5: Discussion of implication

5.1 Overall results

Based on the analysis and results in section 4, while it is apparent that CEO compensation is influenced by ESG performance, there are also differences exists between banks and insurance companies. In this research, the compensation data, ESG performance data and the financial data was first obtained from Bloomberg. Then, four multiple liner regression models are used to answer the four research questions for banks and insurance companies. Finally, four findings are obtained through the analysis of data.

Firstly, under the background of considering the relevant environmental protection policy, such as Environmental Quality Management Policy and Energy Efficiency Policy, the negative association between CEO compensation and environmental performance is not significant in banks and insurance companies.

Secondly, from the perspective of banks and insurance companies, the higher participation of female in management is associated with higher CEO compensation as well as their correlation are both significant.

Thirdly, after controlling the characteristic of board, it can be seen that higher level of diversity and independence of board is related to higher level of CEO compensation, but their correlation is not significant in banks and insurance companies.

Fourthly, the salary paid is the main component in CEO compensation whether in a bank or an insurance companies, and social performance has the biggest positive impact in ESG performance.

5.2 Finding and discussion

The discussion will be divided into four parts in order to have a better understanding of the relationship between existing literatures and research findings.

5.2.1 CEO compensation and environmental performance

The factors such as the emissions of total greenhouse gases and use of total water, are used to measure the environmental performance in this research. From the perspective of banks, TGE (Total GHG Emissions) and TWU (Total Water Use) is negatively associated with CEO compensation, while TEC (Total Energy Consumption) and TW (Total Waste) show positive impact on CEO compensation. For insurance companies, the connections between these four factors and CEO compensation are all positive. Stanwick and Stanwick's paper (2001) demonstrated that connection between CEO compensation and environmental performance is positive and firm's environmental reputation is also a vital factor that influence this relationship. Banks and insurance companies are faced with

varying degree of environmental reputation in this research, which leads to the differences in the analysis results between them.

5.2.2 CEO compensation and social performance

With regards to the association between CEO compensation and social performance, the factor of women's participation and the percentage of employee turnover are involved in this study. From the perspective of banks and insurance companies, the results of this research presents a positive relationship between CEO compensation and employee turnover rate and women's participation in firm's management. The finding of Dezső and Ross (2012) illustrated that the representation of women in management bring social diversity benefits for firms and improve firm performance. Moreover, research by Wade et al. (2006) also found that when a firm has a certain degree of employee turnover rate, the connection between CEO compensation and social performance is positively related. For banks and insurance companies, based on the diversity of management and a certain level of employee turnover rate, the association between CEO compensation and social performance is positive.

5.2.3 CEO compensation and corporate governance performance

Factors such as independent directors, percentage of women on board, percentage of female executives and limitation of board age are used in corporate governance performance. For banks and insurance companies, it can be summarized from the data analysis that the association between CEO compensation and corporate governance performance is positive but not significant. Conyon and He (2011) believed that the relationship between corporate governance and CEO compensation can be strengthened by increasing the number of independent directors. Moreover, Brogi (2008) suggested that the regulations about corporate governance between banks and insurance companies are also dissimilar. For banks and insurance companies, due to the differences in the number of independent directors and regulations, the positive correlation between CEO compensation and corporate governance performance is not significant.

Table 22: Findings in banks and insurance companies

Hypotheses	Findings (results)		Interpretation
	Banks	Insurance companies	
Lower degree of resource consumption and environmental pollution is connected with the higher level of CEO compensation	Low GHG emission and high energy consumption is associated with high CEO compensation	Higher the level of resource consumption and environmental pollution is connected with higher level of CEO compensation	The varying level of environmental reputation between banks and insurance companies
Higher participation of woman in management in firm, the higher the CEO compensation	The participation of woman in firms' management has positive impact on CEO compensation.	The higher participation of female in management is connected to higher CEO compensation	Gender diversity and a certain level of employee turnover rate are good for firm
Higher level of diversity and independence of the board are associated with the high CEO compensation	The association between CEO compensation and corporate governance performance is positive but not significant	The association between CEO compensation and corporate governance performance is positive but not significant	The difference on the regulations between banks and insurance companies. The number of independent directors will influence the corporate governance performance.
The salary paid is the leading elements in the total CEO compensation, and the social performance will be the dominant factor in ESG performance to influence CEO compensation	Salary paid and social performance are dominant in CEO compensation and ESG performance respectively	Salary paid and social performance are dominant in CEO compensation and ESG performance respectively	Salary paid is fixed and annual. The concept of CSR is widely used in business.

5.2.4 CEO compensation and ESG performance

In order to control the effect of economic constraints, some economic elements such as ROA, volatility, market capitalization to book value and return on stocks are used to control the ESG performance. For banks and insurance companies, CEO compensation is divided into six parts in this research and each of element is positively associated with CEO compensation. Garner (2013) found that in order to optimize the structure of CEO compensation and ensure the long-term development of firms, a good compensation package must be composed of different types of compensation and each element is positively related to total CEO compensation. Moreover, salary accounted for the biggest portion in the structure of CEO compensation in this study, which is consistent with the findings by Balsam (2002). Balsam (2002) illustrated that the pattern of payment in salary is fixed and annual. Furthermore, the results of data analysis in this study also indicates that social performance has become the key factor in the relationship between CEO

compensation and ESG performance and its impact is positive. D'Amato et al. (2009) suggested that the concept of CSR (Corporate Social Responsibility) is associated with social performance, which is widely used in business to ensure the sustainable development of firms.

5.3 Implications of findings

It is suggested that as a part of non-financial performance, ESG performance not only has become a new indicator for firms to measure the sustainable development in the long term but is also be closely related to CEO compensation on the basis of literature review in section 2 and results of data analysis in section 4. In terms of the findings, ESG performance should be considered when analyzing an investment decision in order to promote the sustainable development for firms. The investors can measure the relationship between CEO compensation and ESG performance from their own perspective, and then make a decision. Furthermore, for policy makers, they can make some adjustment in the management of CEO compensation on the basis of ESG performance.

This research examines the relation between CEO compensation and ESG performance. Overall, there are some differences and similarities exists between this research's findings and previous research findings. This situation can be explained by the differences in the choice of variables and research perspectives.

6 Section 6: Conclusion

This section is organized in three s. 6.1 will provide a summary of the research. The limitation of this research will be illustrated in 6.2. Finally, the 6.3 will demonstrates the recommendation of this research.

After the financial crisis, an increasing number of people believed that the current CEO compensation system need to be improved in order for the system to be trusted in the future. At the same time, the concept of ESG performance is being formally put forward, as an important part of evaluating the company's non-financial performance.

This research studies the relationships between CEO compensation and ESG performance in banks and insurance companies, and how each factor in ESG performance are individually linked to CEO compensation. Firstly, the level of resource consumption and environmental pollution is considered to be the environmental factor in ESG performance. Secondly, from the point view of society, this study makes a connection between the level of women's participation in management and CEO compensation. Thirdly, from the perspective of corporate governance, the level of diversity and independence of board is measured against CEO compensation. Lastly, the dominant factor of CEO compensation and ESG performance is also investigated in this research.

From the literature reviews, there are some existing articles which illustrated the association between CEO compensation and ESG performance. The ESG performance is mainly consisted of three factors: environmental; social; and corporate governance. Most of the previous researches only focus on the link between one particular element in ESG performance and CEO compensation. In this research, each factor of ESG performance is respectively associated with CEO compensation and then discussed.

Most of the existing research concentrates on traditional industry and polluted industry, such as chemical industry and steel manufacturing industry. This research studies the association between CEO compensation and ESG performance in the financial industry, specifically, in banks and insurance companies. Corporate managers will be able to have a better understanding of the concept of CEO compensation and ESG performance through this study, and can use the associated knowledge in decision-making. Moreover, from the perspective of policy makers, they can take advantage of the results in this study and carry out some policies that can contribute to the long-term and stable development of society.

In order to achieve the research objectives and answer the research questions, this study follows the philosophy of positivism with the deductive approach. The secondary set of data are obtained from Bloomberg on the basis of quantitative method. Also, there are four multiple liner regression models are prepared to analyze the data with the help of Stata. The ANOVA test is required to confirm the model is suitable for the data in the beginning of the data analysis. After the models are performed, the correlation and the significant degree between variables will be displayed according to the value of estimated coefficient and t-statistics. In summary, there are some differences between CEO compensation and specific factor in ESG performance. First, the higher level of resource consumption and environmental pollution is positively associated with CEO compensation in insurance companies. Second, the CEO compensation will increase with the increase of women's participation in management. Thirdly, higher level of the diversity and independence in board of directors is linked to the higher CEO compensation. Lastly, salary is the dominant element in the structure of CEO compensation and social performance has become the determining factor in ESG performance.

6.1 Limitations

The first limitation in this research is the selection of the sample. The 111 financial institutions were chosen and they are classified as insurance companies and banks in this study. These financial institutions mainly come from the United States and the Europe, with only a few from Japan. As such, all financial institutions are from developed countries. Since the concept of ESG performance was officially put forward in 2006, many financial institutions in developing countries have not adopted this criterion in the

process of operation. For the further study, the financial institutions in developing countries may be considered.

The second limitation in this research is the selection of variables of each factor in ESG performance. For a factor, it may include a lot of variables. The variables in these four questions are selected on the basis of previous related literatures. Thus, they are not enough to answering the research questions entirely. For social governance, variables such as consumer protection, animal welfare and the firm's recruitment policy can also be selected into the multiple liner regression model in the further study.

The third limitation in this research is the selection of data analysis method. The panel data analysis is used instead of time series data analysis in this research. Conversely, the majority of researchers used time series data analysis in order to control time-series effect in this research area. Since there are four multiple linear regression models used in this study, the use of panel data analysis can avoid the problem of multivariate co-linearity.

6.2 Recommendations

Based on the limitation in this research, researchers can expand the size of the sample in further studies. If the financial institutions in developing countries are also included in the sample, the accuracy of the data analysis results can be improved to some extent. Moreover, for more in depth research, as the number of relevant variables in the model increases, the explanatory function of this model will increase.

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