
Corporate governance Role between CEO compensation and earnings management: A developing economy Perspective

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Abstract

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The purpose of this research is to examine the relationship of compensation of CEO and management of earnings of firm and further investigated the corporate governance role as a moderator in this relationship in developing country, Pakistan. In this research, a sample of 100 Pakistani listed firms is used from 2012 to 2022. In e-views software, the technique of panel data is performed as the data is both time series and cross sectional, and the results of fixed effect model are used for analysis. The study finds that the impact of compensation of CEO on earnings management is positive and the relationship is moderated by governance structure of the firm. The association between compensation of CEO and management of earnings is positive and it is strengthened in weak governance system of company but this relationship weakens in strong governance system of firm. The sample of the study comprises of only CEO's of firm. Other top management can be used to conduct this research. This study allows a clear understanding of how top management responds and reacts if corporate governance structure of the firm is weak or strong. Strong corporate governance structure can help the firm to control the manipulative behavior. The structure of CEO compensation may be designed in such a way that the interests of shareholders and managers are aligned and information asymmetry is reduced. This research adds significantly to the current literature by considering governance structure of company as a moderator between compensation of CEO and management of earnings in the perspective of Pakistan.

Introduction

The manager of the company is responsible for maintaining the relationship with stakeholders and increasing shareholder value because maintaining relationships with stakeholders is important for the firm to achieve its goals (Suknunan and Bhana, 2022). Managers of the company are important to shield the company assets. It is considered that

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the CEO takes key decisions in the firm (Wang et al, 2022). An agency problem may arise between the CEO of company and shareholders in firms (Shira, 2022). When a task is given to the CEO of the firm, he utilizes the resources of the organization for his personal benefit and gets involve in earnings management (Shira, 2022). But effective compensation strategies for the CEO of a firm build interest alignment between the CEO and shareholders of the firm (Khursheed and Sheikh, 2022). According to Edmans et al. (2021), the cash compensation of the CEO depends on good company performance and CEO talent. Hence, it is argued that the conflict between owners and managers can be reduced by appropriate compensation contracts (Sun, 2012).

However, as stated by Sun (2012); a compensation contract encourages the CEO to manipulate earnings as the compensation is dependent on the stated earnings of the firm. In case of bad performance by firm, compensation of the CEO is affected because of which CEO manipulates the earnings of the company to get his proper compensation (Yahaya, 2022). Using his power as CEO, he acquires the chance to affect the procedures of financial reporting (Ngo and Van Nguyen, 2022). In other words, when the CEO is not able to achieve the goals of the company, earnings of the firm are manipulated by the CEO to get his desired compensation (Gajdosikova et al, 2022). It involves utilizing accounting techniques which do not reflect the essential value of a firm (Arif et al, 2023). While earnings are a reliable measure to conclude the financial performance of a firm only when appropriate monitoring systems and strong governance structure is in place to control the financial performance of a company (Boachie and Mensah, 2022; Musa et al, 2023). Manipulation of earnings by CEO to fulfill his/her interests decreased earnings reliability to use them as an indicator for measuring the company's financial performance.

The need for a strong corporate governance structure arises when the managers who are controlling the firm are not the owners of the firm. Strong corporate governance structure helps to reduce the opportunistic behavior in the firm and appoints a strong board which properly monitors the company's CEO performance (Shira, 2022). Strong mechanism of corporate governance helps in reducing earnings management (Rezaee and Safarzadeh, 2023). When corporate governance structure is weak in the firm, the board members are not properly selected, and they are not so active to perform their role effectively due to which there is less check and control on the firm activities and everyone in the firm wants to get maximum returns instead of caring about the company value (Boachie and Mensah, 2022). CEO compensation is abnormally high in firms with weak corporate governance structure because compensation of CEO is decided by himself (Qu et al, 2022). Strong corporate governance structure, effective compensation strategies, and proper monitoring of the performance of managers help to resolve the conflict between shareholders and managers (Sun et al, 2012). Financial reports are used as a monitoring instrument, if there is no manipulation in reports (earnings management), then managers are rewarded for their good performance (Saeed, 2022). So it is essential to find corporate governance role as a moderator in the association of compensation of CEO and

management of earnings of firm. And it is important to consider all three variables in the model to find the company value.

According to agency theory, performance-based compensation of the CEO helps to decrease the moral hazard and bad selection of accounting practices (Anderson et al, 2018). Conflicts can be decreased by effective governance structure in the firm. In agency theory it is explained that the agent (manager) has more information than principal (shareholder) due to which agency problem arises inside company. If corporate governance structure of the firm is strong there are effective compensation strategies designed for the firm executive and there is proper monitoring of CEO activities. When manager of the firm is not able to achieve his compensation contract means he performs poorly then he is involved in manipulative behavior, and it is easy for him because he has information power and nobody controls his performance and activities. Due to this earnings manipulation arises in the firm, the investor loses interest in the firm and firm's value is reduced (Shahzad et al, 2023). The information asymmetry between shareholders and managers is not controlled by weak corporate governance practices in developing economies. The variables earnings management, corporate governance and CEO compensation are explored by Assenso-Okofu et al in 2021 and they find that corporate governance is important in moderating the association of compensation of CEO and management of earnings. When there is strong governance system, earnings management is less, and CEO compensation is according to his responsibilities and talent. There is a need to conduct this study in developing country (Pakistan) to check whether this relationship holds in Pakistan or not.

In developing country, like Pakistan there is a need to conduct research on corporate governance because in Pakistan mostly businesses are family owned and in the firms owned by families the clashes raise between the persons having large no of shares of the company and the persons having low number of shares of the company. As the persons having large stake in the firm are controlling the firm. There are more chances of misconduct by the controlling owners of firm which is reduced when the management of family owned firm is separate from owners of firm or corporate governance structure of the firm is so strong that there is no information asymmetry between majority and minority shareholders of firm and outside shareholders can easily monitor the activities of firm (Arif et al, 2023). But in Pakistan, the corporate governance structure of the firms is not strong and family owned firms are controlled by the owners of firm, so is there a need to conduct research on corporate governance in Pakistan ? Hence, the research objective is to find out that how much earnings management is affected by the compensation of CEO of firm and to see that is corporate governance an important variable to affect the relationship of earnings management and CEO compensation in listed firms of Pakistan stock exchange.

Agency theory is supported because it focuses on corporate governance structure, conflict of interest between owners and managers and financial reporting quality (Shahzad et al, 2023). Agency theory states that there is performance based compensation of CEO

which reduces the moral hazard and encourages the good selection of accounting practices (Anderson et al, 2018). So agency theory explains the whole model. Recent literature on earnings management covers various aspects in relation to CEO compensation. Shahzad et al. (2023) shed light on how value of firm is affected by effective corporate governance mechanism in the presence of opportunistic behavior in the firm. The findings reveal that strong corporate governance practices are valuable for firms because when a firm has strong corporate governance structure then the firm can control the manipulative behavior and can increase its value. Further, Musa et al. (2023) argue that CEO compensation and financial expertise are important to reduce earnings management in the firm. When the board is independent, it enhances CEO ability to lessen the earnings management in the firm.

In the same vein, according to Elage and Dardour (2021) there is positive impact of CEO compensation on management of earnings by the CEO of firm. Family oriented firms' CEO involve less in earnings management when proper compensation is provided to him. Another study has been conducted by Arif et al in 2023 on the power of CEO and earnings management. The findings show that CEO with high expert and structural power has significant effect on earnings management. Powerful CEO use accrual techniques to manage the earnings. In the same vein, other recent studies focused on association of CEO pay and earnings management through moderating role of CEO share ownership (Farouk and Ahmed, 2023), ownership concentration, large board size and CEO duality (Sheikh et al., 2018), investor protection in firm and strong corporate governance system reduces earnings management (Farouk and Ahmed, 2023).

In Pakistan, no previous research is conducted on corporate governance index taken as moderator in relation to CEO compensation and earnings management. This study, thus, addresses this gap and investigates the moderation linkage of corporate governance. Moreover, this linkage of above-mentioned variables is mostly conducted in developed countries. It is mentioned above that Assenso- Okofo et al in 2021 researched on governance structure of firm as a moderating variable between compensation of CEO and management of earnings association. They find that CEO wants to increase his compensation that's why he manages the earnings of firm. It is found in this study that bonus compensation of CEO is increased by managing earnings. An important role is played by corporate governance of firm that the effect of managing earnings is less on compensation of CEO if the governance structure of the firm is strong. Corporate governance effect on firm value in the presence of earnings management is checked in Pakistan by Shahzad et al in 2023. The study finds that firms with strong governance structure have high value and low earnings management. The study is conducted by Hassan et al in 2023 on the power of CEO and earnings management. They find that more powerful CEO can easily use the techniques of manipulation and involve in earnings management.

There is a need to look at earnings management by the CEO of firm because company's now need to maximize their profits and grab the growing opportunities by

attracting more investors and by showing high value of firm (Sheikh et al, 2018). CEO involves in earnings management due to different reasons. If CEO has performance based pay and he is not able to achieve the goals then to get his compensation he manage earnings of firm. Or if the pay of CEO is not according to his desires then he manages the earnings of firm. So in both cases firm needs perfect governance structure to design the compensation contract for the CEO and monitoring of CEO activities (Arif et al, 2023). Competition is high in the market there is a need to focus on proper appointment of CEO and his desired compensation in order to compete in the market. For appointing CEO with good qualities and designing his compensation contract and proper monitoring of CEO activities the governance structure of the firm should be strong (Elage and Dardour, 2021). That's why there is a need to conduct research on role of governance structure as a moderating variable between compensation of CEO and management of earnings association.

This research is conducted in a developing country (Pakistan). In Pakistan, there is no stock-based compensation (Sheikh et al, 2018). This study can give much understanding to the board of directors about the CEO attributes and power and how board has to play an important role to prevent manipulative behavior in the firms. The importance of proper implementation of strong corporate governance structure is elaborated through this research. So that government should play its part in implementing strong corporate governance policies in the firm. Corporate governance regulators get help from this research to enhance the standards of accounting so that firms have effective monitoring to limit the opportunistic behavior of top management. This study recommend regulators that proper financial information and reports should be provided to the investors. This research adds significantly to the existing literature by empirically testing the association between corporate governance, compensation of CEO and management of earnings in Pakistan.

To draw the conclusion of this research, data from 100 listed companies of Pakistan for the years 2012-2022 is taken and the technique of panel data technique is performed in which the results of fixed effect model is found significant which shows the strong impact of compensation of CEO on the management of earnings in the firm. The positive relationship of compensation of CEO of the firm and management of earnings in the firm is strengthened in weak governance structure of firm. But in the case of a strong governance structure in the firm, this relationship is not supported. Strong governance structure weakens this relationship.

The remaining part of paper is ordered as follows. Segment 2 explains a short literature review followed by hypothesis for the study. In segment 3, the methodology of the research is explained with frequency of data, source of data, description of variables, econometric model of research and method used to find the results. Segment 4 describes the findings of the research and its discussion. Segment 5 draws the conclusion.

Literature Review

To align the shareholders and executive interest, a strong governance mechanism is required because shareholders assign the task to the executives of the firm and if there is no interest alignment between shareholders and executives then agency conflict may arise (Pham et al, 2022). According to positive accounting theory and agency theory, an effective compensation contract for the CEO of a firm helps to align the interest of shareholders and executives (Khursheed and Sheikh, 2022). Performance-based pay is important to create motivation for the CEO because through this CEO uses firm resources in a valuable way and tries to take profitable projects for the firm (Wang et al, 2017). But performance based pay may involve the CEO in manipulative behavior because in order to get his pay he is involved in earnings management. And it is possible only when there is weak governance structure of the firm. When governance system is weak, the check on CEO activities and performance is not effective and to fulfill his (CEO) desires he may easily do what he wants (Pham et al, 2022). CEO makes relationships with board members and gets benefits as board members design policies that are helpful for the CEO of the firm (Dinh et al, 2022). According to agency theory, an effective monitoring system by the shareholders of the firm helps to lessen the agency conflict between shareholders and executives (Kyerere and Ausloos, 2021).

Agency theory states that agency cost arises due to conflicts between owner and principal. Corporate governance is important in reducing these conflicts and agency cost. In this model the agency conflict arises between managers and shareholders. When CEO is involved in manipulative behavior, he does not reflect the true financial picture of the company and deceives shareholders. CEO wants to fulfill his own desires instead of increasing value for company. Due to this the conflict arises between top management and shareholders (Dinh et al, 2022). CEO has power and information due to which it becomes easy for him to use manipulation techniques and manipulate firm earnings. CEO can easily change the actual earnings of firm in weak governance structure of firm. When governance structure of the firm is weak, the check on the top management activities is not effective. And top management do whatever that want (Lyu et al, 2022). So strong corporate governance structure is important for the company to increase its value. The business activities and managers behavior is controlled through strong governance system of firm. Strong governance system helps the stakeholders to protect the investment of shareholders, company reputation, reduce asymmetry of information between stakeholders and top management and maintain reliable performance reports of top management. Due to all this the conflicts can be resolved between owners and managers (Valerievich, 2022).

Impact of compensation of CEO on earnings management

The board of the company designs strategic plans and policies, and the CEO helps in implementing these plans. CEO is the extremely highly paid executive in the company (Jenter and Lewellen, 2021). The economic reward for the CEO is composed of basic pay, bonus, and stock options (Shah, 2009). The balance of power between shareholders and

executives decides the CEO pay. The parts of the compensation of CEO includes basic salary, bonus, share and option grants and long-term encouragement are provided to them. (Langanger, 2022). Salary and bonuses are mostly given in the form of cash and the bonus is given once a time in a year when the company goals for performance are achieved (Noorazem, 2021). The compensation committee decides parts of income and rewards are given to the executives when a firm achieves its goals (Langanger, 2022). Moral hazard is an important agency problem faced by the shareholders of the firm and it arises when the CEO uses the resources of the organization for his personal benefits (Varma, 2021).

If the firms' earnings prospects are not fulfilled then the tool used by the CEO to get the targeted earnings of a firm is earnings management (Kontesa et al., 2021). The actual performance of the firm is veiled from the shareholders through management of earnings (Abubakar, 2021). Executives are involved in earnings management when they have earning-based compensation because they want to maximize their returns (Kong et al., 2021). The firm's performance is used as a base to design the compensation of CEO. CEO is involved in opportunistic behavior when CEO performance is not satisfactory, and firm is not able to fulfil its goals. He is involved in earnings management so that his decided compensation is not affected (Yahaya, 2022).

To constrain earnings management, strong corporate governance practices are required such as an independent board and effective compensation strategies (Assenso-Okofu et al., 2021). An effective compensation strategy is important to control earnings management (Yahaya, 2022). In industries, where the opportunities to manage earnings are more, performance-based pay is essential (Sun, 2012). But according to Shira in 2022, pay for performance encourages earnings management. In theory, the conflicts between shareholders and managers are reduced through compensation contracts for managers of the company. But in actuality this compensation contract encourages earnings management because the compensation is based on bookkeeping earnings which are stock prices and bonuses (Sun, 2012). If earnings targets are not achieved then there are more chances that the CEO is involved in earnings management when he is also the owner of the company because the CEO wants to increase the firm value at any cost (Nguyen, 2021).

The relationship between between earnings management and long-term incentives for executives is positive and significant (Shira, 2022). If the CEO wants more compensation than his actual compensation, he is involved in earnings management. It is possible when the activities of the CEO are not monitored effectively by the board members (Shira, 2022). The strategies constructed by the company about how to compensate the CEO of firm depends upon the corporate governance structure of the organization. A powerful governance structure motivates the CEO of the firm to bring quality work to the company (Anjam, 2011). In strong corporate governance structure, if the CEO is capable enough then his pay package is designed in such a way that is more than his expectations so that CEO put much effort to produce quality work and tries to achieve the desired results (Byun et al, 2021). However, the personality characteristics of

the CEO are more important to decide whether instead of high compensation, the CEO tries to increase the firm value or focus on fulfillment of his own desires only (Shah, 2009). Proper compensation strategies for the CEO and monitoring of CEO performance are important to make the CEO bring quality work and increase firm value (Sun, 2012). Executives are involved in opportunistic behavior to get their desired compensation and to secure their job in case of poor performance of the firm (Shira, 2022).

According to Shah in 2009, if the CEO is satisfied with his salary and it is enough for him then he is not involved in opportunistic behavior and tries to raise the value of firm. The association between management of earnings and compensation of CEO in the firm is found negative when the firm fixes the salary of the CEO (Yahaya, 2022). Managers who have a basic salary are less involved in opportunistic behavior (Kong et al, 2021). The salary of CEO and management of earnings show a negative relationship because when earnings are manipulated CEO may lose his job and reputation (Kong et al, 2021). Salary of the CEO is based on competition (Arif et al, 2023). The salary of the CEO increases due to growth in company earnings and good performance of the CEO (Anjam, 2011). Agency theory states that conflicts arise between shareholders and managers when managers are not satisfied with their job. Shareholders do not care about the rights of managers and managers are not satisfied with their salaries. To resolve the conflicts proper compensation strategies are developed for the executives and managers of the firm and compensation of executives should be performance based (Arif et al, 2023) performance based compensation helps to involve the CEO in earnings management (Musa et al, 2023). From the above mentioned literature and according to agency theory the hypothesis established is:

H₁ = The compensation of CEO has positive impact on earnings management of firm.

Corporate governance as a moderator in the association of CEO compensation and earnings management.

Methods of distributing economic returns of the company to the shareholders and stakeholders depend upon corporate governance structure of the firm (Stoelhorst and Vishwanathan, 2022).

Corporate governance system is distributed into two methods. One is the internal method and the other is the external method. The compensation of CEO is included in internal method (Almashadani and Almashadani, 2022). The board of the company, structure of the company ownership, compensation of CEO and disclosure of financial reports all are included in corporate governance structure of the firm (Yahaya, 2022). Corporate governance structure is important in resolving conflicts that arises in the firm. The clashes are between minority and majority shareholders of the firm and between the people who own the company and people who manage the company affairs (Yahaya, 2022). When corporate governance structure is weak, the problem arises between people who own the firm and people who manage the firm because of information asymmetry. It creates the agency cost for the firm. To eliminate this agency cost, a strong corporate governance system needs to be developed in the firms (Nienhaus, 2022).

With a strong corporate governance system and less information asymmetry, CEO is not able to involve in manipulative behavior and become satisfied with his compensation (Assenso-Okofu et al, 2021). The manipulation of earnings is not easy for CEO of the firm which has powerful governance system (Shira, 2022). There are a lot of differences in the governance system of developed and developing countries so on developing countries, we can't apply the results of studies conducted in developed countries (Mihail and Dumitrescu, 2021).

In this research, for corporate governance the proxy used is governance index which comprises of audit committee independence, ownership structure and board of directors. The board of directors performs many functions like hiring a CEO with desired qualities, making compensation and other strategies, making plans to achieve the objectives of the firm and monitoring the process of goals achievement (Dinh et al, 2022). The board of directors has two important functions, one is to decide compensation for executives and managers and the second is to monitor the performance of executives and managers due to this the possibility of opportunistic behavior is less in the firm (Lyu et al, 2022). In corporate governance structure the part which is considered important is the board of directors of the company (Baysinger and Butler, 2019). Agency problems are created between shareholders and managers and the reason is separate ownership and control. Pay for the performance of managers plays an important role in reducing these problems (Valerievich, 2022). For the growth of the company an efficient board plays an important role, and the board creates a link between investors and managers of the company (Anjam, 2011). Ownership structure plays an important role in monitoring executive performance and constraining the earnings management in the firm (Al-Shaer, 2022). Ownership concentration increases the firm value as Owners use different methods to motivate the executives of the firm and to monitor their performance, so ownership structure increases firm value (Valerievich, 2022). Through proper monitoring audit committee independence helps to restrict earnings management by the executives of the company (Al-shaer, 2022).

A strong corporate governance structure ensures that financial reporting is free of errors and that's why the trustworthiness of financial statements is retained (Danoshana and Ravivathani, 2019). When the payment of the executive is performance based then there is less earnings management in the company. In a strong governance structure, the board of directors decides that CEO pay is performance -based. But when the power of the CEO is high in the firm then there is the possibility that he may decide his compensation. Hence, a strong governance structure is required to restrict this behavior of the executive (Nawaz and Pang, 2022). According to Yahaya (2022), when the CEO's pay is performance-based he is involved in earnings management only when a company's performance is poor and desired earnings of the firm are not achieved. Because when the company targets are not achieved the CEO does not get performance-based pay (Shira, 2022). The board of directors decides on CEO pay. Proper compensation strategies are not designed if the board is inefficient (Files and Liu, 2022). If a strong corporate

governance structure is followed in the firm, then there is proper monitoring of executive's performance and company value is high in such firms, CEO compensation depends on company performance (Kayani and Gan, 2022). In firms where there is a weak corporate governance structure, firm performance is poor because the CEO tries to fulfill his interests rather than that of shareholders by using organizational resources as there is ineffective monitoring of CEO activities by the board of directors of the firm. In a strong governance structure, firm performance is high because a board of directors aligns the interest of the CEO and shareholders and properly monitors the CEO activities (Baysinger and Butler, 2019). The interest alignment between shareholders and managers depends on the pay for the performance of managers (Dinh et al, 2022). If the CEO's compensation is performance-based and he is satisfied with his compensation package then he works hard to increase the shareholder value and financial performance of the firm but if the CEO's compensation does not depend on meeting targets of the firm then the CEO is not motivated to achieve firm targets and increasing firm value now at this point he finds it important to manipulate earnings and get maximum benefits (Arif et al, 2023). CEO manages the earnings of firm when he has high compensation because firm has no effective monitoring of CEO activities. And agency theory depicts that conflicts arise between CEO and shareholders of the firm when value of firm is not important for the CEO and he only works to satisfy his needs (Musa et al, 2023). The conflicts between CEO and shareholders of the firm are resolved by having a strong governance structure in the firm (Yahaya, 2022). Proper check of CEO activities by the board of directors helps to reduce earnings management (Wimelda and Chandra, 2018). So on literature base and agency theory the hypothesis established is:

H₂= Corporate governance moderates the association of compensation of CEO and earnings management.

According to previous research, CEO of the firm may or may not involve in earnings management. CEO pay and his satisfaction are the important elements for the CEO. If CEO pay is performance based and according to CEO expectations then he is satisfied and try to work hard and increase firm value. But when targets of the firm are not achieved then CEO is not able to get the performance based pay. So in this case he tries to manipulate the firm earnings to get his performance based pay (Assenso-Okofu et al, 2021). It is possible only when the corporate governance structure of the firm is weak that is the monitoring of CEO activities is not effective. The board is not so efficient to monitor the CEO activities and CEO use different manipulation techniques to manipulate the earnings of firm. But if corporate governance structure of the firm is strong then CEO compensation is performance based and there is proper monitoring of CEO activities. It is not easy for the CEO to manipulate the earnings of the firm. So CEO works hard to achieve the goals of the firm and his desired compensation (Yahaya, 2022). Hence it is important to check that whether in Pakistan, how companies are operating, is there strong or weak governance system of firm and is compensation of CEO has any impact on management

of earnings o firm. And to find that is the association of compensation of CEO and earnings management is moderated by governance system of firm.

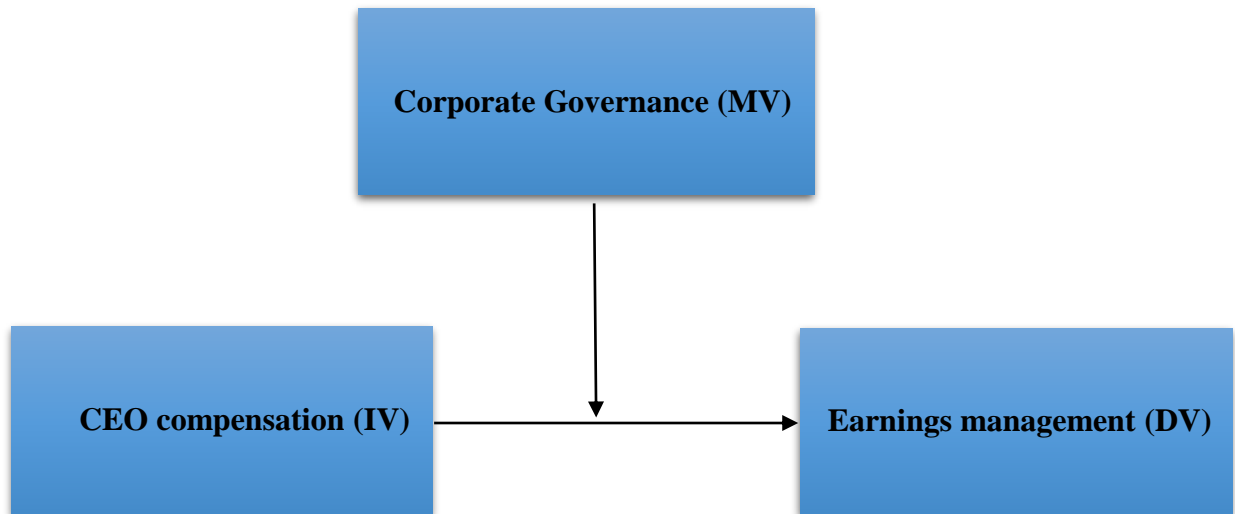


Figure-1: Model

Methodology

In this study, the sample is taken from Pakistan stock exchange. The sample comprises of 100 firms from various sectors. The easily available annual reports for the selected years of the firms are chosen to use in the study. The time period is from 2012-2022. The firms whose annual reports are missing are not used in the study. The firms whose annual reports are available for all years from 2012-2022 are selected only. So the total 100 firms are used in the study. As the data is collected from annual reports so the type of data is secondary. Annual reports are collected from the selected company's websites. E-views software is used and results are generated using technique of panel data. Fixed effect and random effect model results are generated and then one model is used to analyze the results of the study. Results of all three models (fixed effect, common effect and random effect model) findings are compared and fixed effect model is found suitable to evaluate the results.

Earnings management is used as a dependent variable. The independent variable is CEO compensation and the moderating variable is corporate governance. The regression model of the study is:

$$[\text{Disc Accr} = \beta_0 + \beta_1 \cdot \text{Log}(\text{CEO Comp}) + \beta_2 \cdot \text{CG Index} + \beta_3 \cdot (\text{CEO Comp}) * \text{CG Index} + \varepsilon] \quad (1)$$

Disc Accr= discretionary accruals

CEO comp= CEO compensation

CG Index= corporate governance index

Discretionary accrual is the proxy used for dependent variable which is earnings management. While Log (CEO comp) is the proxy used for CEO compensation. CEO compensation is collected from annual reports then natural log is taken to find the value for the independent variable CEO compensation. This is done for each year of each

company. Index word is used to denote the moderating variable which is corporate governance. For corporate governance an index is developed that's why index is used for denotation. CEO comp*CG Index means the values for moderation. And ϵ is the error term. β_1 , β_2 and β_3 are the values of the coefficients. Symbol β_1 denotes the value of the coefficient for independent variable. Symbol β_2 denotes the value of the coefficient for moderating variable that is corporate governance and symbol β_3 is the value of the coefficient for interactive term.

Earnings management

Management of earnings happens in the firm when the top management or the person who have authority is involved in opportunistic behavior means managing the earnings of firm to manipulate the final results (Kong et al, 2021).

Accruals are used to measure earnings management. Two methods are used to measure accruals of firm:

1. Approach of cashflow statement
2. Approach of Balance sheet

The method to find accruals in this research is the cashflow statement approach. The total accruals are calculated as

$$TA_t = [NI_t - CFOP_t] \quad (2)$$

Annual reports from the company websites are downloaded and used to collect the data for measuring earnings management.

Discretionary and Non-discretionary are two parts of accruals. Mostly the proxy used for measuring earnings management in a firm is discretionary accruals. In this study, the research conducted by shah (2009) is followed for measuring earnings management. Mostly the model that is used for measuring discretionary accruals is modified cross sectional jones model. This research also uses this model because it has been used by many researchers previously.

In the research of Dechow et al in 1995, the five models used to find discretionary accruals are compared and the best model found among all of them is modified cross sectional jones model.

First of all, non-discretionary accruals are calculated as:

$$NDA = \alpha_1 \frac{1}{A_{t-1}} + \alpha_2 \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \alpha_3 \frac{PPE_t}{A_{t-1}} \quad (3)$$

The earnings management expectation year is used to measure non-discretionary accruals.

Profits in one year minus profits in previous year = ΔREV_t

Total receivables in one year minus total receivables in previous year = ΔREC_t

At the end of year PPE is the gross property plant and equipment = PPE_t

At year-end whole assets are denoted as = A_{t-1}

specific parameters of the firm are denoted by = $\alpha_1, \alpha_2, \alpha_3$

Discretionary accruals are obtained as total accruals minus non-discretionary accruals.

$$DA = TA - NDA \quad (4)$$

CEO compensation: (Independent variable)

CEO is the person who has highest salary in the firm (Jenter and Lewellen, 2021). The salary of CEO consists of basic pay, stock options and bonus plans (Shah, 2009). According to Langanger in 2022, CEO compensation is comprised of basic salary, share grants, long-term encouragement plans and bonuses. Salary and bonuses are mostly given in the form of cash and the bonus is given once a time in a year when the company goals for performance are achieved (Noorazem, 2021). The compensation committee decides parts of income and rewards are given to the executives when a firm achieves its goals (Langanger, 2022). The proxy used for measuring CEO compensation is the log of salaries plus benefits. This proxy is used by Shah (2009). Salary is the bigger component of CEO compensation. The executive skills, qualifications and experience of the CEO determine the salary of the CEO (Anjam. 2011). Along with salary, Car, house and free medical facilities are also provided to the CEO of a company in Pakistan. The proxy used by Noorazem in 2021 for CEO compensation is the total of salary, stock options, cash allowances and bonuses. The log of whole amount of salary of CEO is taken as a proxy for compensation of CEO by Anjam et al in 2011. Data for CEO compensation is calculated from annual reports (2012-2022) from the websites of the companies.

Corporate Governance: (Moderating variable)

Corporate governance system of the firm includes two methods one is internal and one is external. Internal method includes CEO compensation (Almashadani and Almashadani, 2022). The whole corporate governance structure consists of structure of board of firm, structure of ownership of firm, compensation of executive and financial information disclosure (Yahaya, 2022). To resolve the conflicts that arises in the firm corporate governance structure is important. Due to weak corporate governance structure there is information asymmetry in the firm. Information asymmetry gives rise to conflicts between persons controlling the firm and persons managing the firm. Due to this company bears a cost named as agency cost. Strong governance system is needed to eliminate the agency cost (Nienhaus, 2022).

In this study, the governance index is used to measure corporate governance. This proxy is used by Shah in 2009.

The equation used to measure corporate governance is:

$$\text{Corporate governance quality} = f(\text{Board structure, ownership structure, Audit committee independence}) \quad (5)$$

Corporate governance index of each company is calculated by using these variables (BS, OS, and ACI) collectively. The mean score of corporate governance is calculated for each year of each company. Annual reports for the year 2012-2022 of each company are used to calculate data. These variables (BS, OS, and ACI) are also used independently to measure corporate governance.

The index for corporate governance is constructed as:

The variables audit committee independence, Board structure and ownership structure are used to construct corporate governance score for every firm. First in each company the variables are recognized and then annual reports are used to collect the data and then the mean score of every company is calculated for every year.

The score range is 1-5.

Table 1: Corporate governance variables scoring

Size of Board		Independent board and independent audit committee		ownership of managers and concentrated ownership	
6 or 7 members	1 score	From 0% to 20%	1 score	From 0% to 20%	5 score
8 or 9 members	2 score	From 21% to 40%	2 score	From 21% to 40%	4 score
10 or 11 members	3 score	From 41% to 60%	3 score	From 41% to 60%	3 score
12 or 13 members	4 score	From 61% to 80%	4 score	From 61% to 80%	2 score
14 or 15 members	5 score	From 81% to above all	5 score	From 81% to above all	1 score

Corporate governance index is used as proxy by shah et al in his PHD thesis. He explains how this index is constructed. In this paper the same procedure is followed to make corporate governance index. He administered a questionnaire by the CEO and CFO of different companies. According to this survey weightage is assigned to the responses given by the respondents. The questions about the variable which is considered more important by the respondent is given 25% weightage. The responses about the variable considered important is given 20% weightage and responses considered less important are given 15% weightage.

Table 2: Allotment of weights to the variables

Variables used in constructing corporate governance index	Weightage assigned to the responses of the variables
Board structure	15%
Board independence	25%
Audit committee independence	25%
Managerial ownership	20%
Ownership concentration	15%
Aggregate	100

Score of each variable for each year and each company is multiplied by the weights assigned. To get the total score of each company for every year, the every variable calculated weighted marks are summed up. .

Data Analysis and Findings

Data consisted of both cross-sectional and time series data. Panel data technology is used to develop and elaborate results.

Table 3: Table of Descriptive Statistics

	Earnings management	Corporate Governance score	CEO compensation	CEO comp* CG score
Mean	0.13	4.42	16.12	52.82
Standard Error	0.005	0.03	0.13	0.45
Median	0.04	3.9	14.72	53.88
Standard Deviation	0.28	0.63	4.05	13.11
Sample Variance	0.04	0.38	8.26	187.13
Kurtosis	285.43	-0.32	15.79	2.51
Skewness	15.85	-0.36	-3.07	-1.27
Range	4.78	3.9	19.57	73.52
Minimum	0.000	1.7	0	0
Maximum	4.78	4.9	19.57	73.52

It can be seen in the table above that the highest mean value is for the interactive term which is 52.83 and then of CEO compensation which is 16.11. It means corporate governance plays a moderating role between management of earnings and compensation

of CEO. CEO compensation has a significant effect on earnings management. In comparison, earnings management has the smallest mean value.

The standard deviation of interactive term is high that is 13.11 and then CEO compensation has high standard deviation that is 4.04. The data for management of earnings and score of corporate governance is smooth and reliable as these variables show less variation. Earnings management is positively skewed. Corporate governance score and interactive term are somewhat skewed. CEO compensation is negatively skewed.

Table 4: Table of Correlation

	Manageme nt of Earnings	Score of Corporate Governance	CEO compens ation	CEO compensation*scor e of corporate governance
Management of Earnings	1			
Score of Corporate governance	0.029	1		
CEO compensation	0.0016	0.274	1	
CEO compensation* score of Corporate governance	0.0207	0.806	0.785	1

It is shown in the table above that no strong correlation is found between independent and dependent variables.

To check multicollinearity among independent variables, correlation is used. When there are significant differences in the correlation of different variables then a test called VIF is performed (Hassen, R.B. 2014). It is important to detect the multicollinearity between independent variables. In this paper, the values of all variable statistics are below 10. It means the problem of multicollinearity does not exist in this data. OLS method is used to estimate the coefficients for autocorrelation and heteroscedasticity. The results obtained are unbiased. It shows that autocorrelation and heteroscedasticity problems do not exist in the data.

Table 5: Analysis of panel data table

Description	Fixed effect Model		Random effect Model	
	Coefficient value	Value of T –statistic	Coefficient value	Value of T-statistic
Direct effect				
CEO compensation and earnings management	0.0065	274.23	0.0001	0.881
Moderating effect				
CEO compensation	0.003862	33.78	-0.028	-34.20
CG score	0.030564	50.06	-0.147	-32.72
Interactive	-0.001267	-26.81	0.009	34.39
R square	0.01258		0.0051	
Adjusted R square	0.01368		0.00515	

To choose between model of fixed effect and model of random effect, Hausman test is used. This test gives the value of F-statistic for both tests. The study is analyzed using a model of fixed effect because its values are significant. Random effect model is rejected because its values are not significant.

Table 6: Fixed effect and Random effect models values of F statistics and P values

		Fixed effect Model	Random effect Model
CEO compensation and Earnings management	F-statistic	0.0609	0.778
	P value	0	0.3777
Interactive term	F-statistic	0.0333	425.49
	P value	0	0.13

The results in the table above are significant at a 95% level of significance. It means data is stationary at level zero. On the taken listed companies of Pakistan, before panel data, a panel unit root test is performed in order to examine the effect of

compensation of CEO on management of earnings and determine the corporate governance role as a moderator in this relationship. To make a choice between the model of fixed effect and the model of random effect, F statistic is used. Findings are found noteworthy for fixed effect model so the study is analyzed using this model. In fixed effect model the P value for impact of CEO compensation on earnings management is $0 < 0.05$ which is significant and for interactive term the P value is $0 < 0.05$ which is also significant. In random effect model, the value of P is more than 0.05. The findings for model of random effect are not significant as the P value for impact of CEO compensation on earnings management is $0.37 > 0.05$ and value of P for interactive term is $0.13 > 0.05$.

CEO compensation and Earnings management

Model of fixed effect

According to the fixed effect model, for compensation of CEO and management of earnings relationship, the tabulated value of T which is 2 is lower than the calculated value of T that is 33.78 and there is positive sign of the coefficient. So, it describes that compensation of CEO and management of earnings has positive and significant relationship. It means one unit change in CEO compensation brings 0.0038 change in dependent variable. And if compensation of CEO is high then earnings management is high. Contract of compensation induces the CEO to get involved in management of earnings (Sun, 2012). The performance-based contract of the CEO encourages him to be involved in earnings management (Nienhaus, 2022). When CEO compensation is performance-based, and the CEO is not able to achieve the targets of firm then the CEO gets less compensation than the decided compensation. As the CEO doesn't want to get low compensation so he manages the earnings of the firm to show that the company earnings are achieved but in actual company earnings are less (Yahaya, 2022). Earnings management is more when CEO Compensation is in the form of bonuses and stock options. CEO is involved in earnings management due to his power (Arif et al, 2023). Executive compensation and earnings management have a significant and positive relationship (Shira, 2022). According to Ahmed in 2023, managerial incentives and earnings management have a positive relationship. The positive relationship is determined by sun et al in 2012 on the association of compensation of CEO and management of earnings in the company. So it is justified that compensation of CEO is one reason of increase in earnings management of firm. CEO of firm is not able to achieve the firm targets that's why he is involved in earnings management. So that he can get his proper compensation instead of caring for company value. It is recommended by many authors (Shira, 2022), (Nienhaus, 2022). When CEO has more power in the firm he use different accrual manipulation techniques to manage the earnings of the firm (Arif et al, 2023). A study is conducted by Faruk and Ahmed in 2023 on executive compensation, earnings management and share ownership of executive. The findings show that the increase in executive compensation leads to increase in earnings management. If executive has share ownership in the firm then increase in executive compensation decreases earnings management in firm.

Index of corporate governance and earnings management

Model of fixed effect

The T tabulated value which is 2 is lower than the T calculated value which is 50.06 and there is plus sign of coefficient. The findings depicts that earnings management has a noteworthy and positive association with the corporate governance index. It shows that one unit change in corporate governance score brings 0.0305 change in earnings management. It means that earnings management is high in companies with strong corporate governance structure. It is possible only when the monitoring of CEO activities by the board of directors is poor and they have close links with the top management of the company. Hence, despite the powerful governance structure of the firm, the board of the company has strong relationships with the CEO and other top managers of the firm. It is the responsibility of the board to check the performance of the CEO. If the board considers the relationship with the CEO more important than its responsibilities, then the CEO of the company can do whatever he wants. No one checks his performance, and it becomes easy for him to manipulate the firm earnings (Ahn et al, 2020). In the firms of Pakistan which are not family oriented CEO built strong relations with the independent directors of firm due to which independent directors don't perform their work effectively. In family-oriented firms, independent directors are in the smaller number that's why they are not able to take the decisions in the firm (Anjam, 2011). In the firms with high concentration of ownership, the minority shareholders rights are taken by majority shareholders by making strong relations with the CEO of the company (Akbar et al, 2020). According to results, CEO due to his power can appoint board members, can decide his compensation and do whatever he want so it is easy for him to involve in earnings management. If a firm CEO selects independent audit committee members, then the audit committee has less check on CEO performance because CEO selects the audit committee persons of his own choice who only give benefits to the CEO of the company (Al-Absy et al, 2019). The results depicts that companies in Pakistan have weak corporate governance system in actual. The law shows that Pakistani firms have powerful governance system but in actual a weak governance system is implemented in Pakistani firms (Akbar et al, 2020). When board of the firm has expert members and there is gender diversity in the firm then earnings management is low in the firm (Velte, 2023). According to agency theory, when governance structure is strong then earnings management is low in the firm because strong governance structure reduce information asymmetries. There association between compensation of CEO and management of earnings of firm is negative when firm board has independent directors (Chatterjee and Rakshit, 2023).

Compensation of CEO, Corporate governance index and management of earnings

Model of fixed effect

The findings show negative and significant results of the interactive term. The T tabulated value which is 2 is lower than the T calculated value of interactive term which is -22.65, it means that the results are significant, and the relationship of compensation of CEO and earnings management is moderated by corporate governance index. And the

negative sign shows that the relationship of compensation of CEO and earnings management is weakened by corporate governance index. In Table 5, the results depicts that one unit change in interactive term produces 0.001267 change in earnings management. It means earnings management in company is due to these variables also. There are also other variables that cause earnings management in firm.

If a firm has a strong corporate governance structure, then the high compensation of the CEO motivates the CEO to do his best and produce good quality results due to which earnings management is less in the company. (Assenso-Okofu et al, 2021). Results of this study and the study by Assenso-okofo et al in 2021 are same. That is CEO is involved in earnings management until his performance is checked. When strong governance system is implemented in the firm then CEO tries hard to increase the value of company. Opportunistic behavior is constrained in the company if a company has an effective board and there is proper monitoring of CEO activities (Arif et al, 2023). Through effective monitoring, excessive pay is not given to the CEO of the firm and CEO behavior is controlled. It leads to an increase in firm performance (Yahaya, 2022). Risk for firm investors is reduced due to the strong corporate governance structure of the firm (Houcine et al, 2021). It is the positive and effective structure of the board that decides proper compensation for the CEO of the firm and tries to constrain opportunistic behavior (Yahaya, 2022). In a weak governance structure, executives are involved in earnings management because their compensation is not according to their desires (Arif et al, 2023). Earnings management can be reduced by efficient monitoring and effective pay of the CEO (Assenso-Okofu et al, 2021). The above table 5 shows that CEO compensation, CG score and interactive term explains 0.0136 of earnings management because adjusted R square value is 0.01368.

The results show that when governance structure of the firm is strong then CEO is not able to manage earnings of firm. It is possible only when governance structure of the firm is weak. In Pakistan, mostly top management of firms try to smooth the income due to which earnings management is performed in the firms (Yahaya, 2022). According to agency theory, due to properly designed CEO compensation there is less opportunistic behavior in the firms (Lin et al, 2020). The findings of the study conducted by Musa et al in 2023 shows that when compensation of CEO in the firm is increased then management of earnings in the firm is reduced but it is possible only in the presence of independent non-executive directors on board. According to the findings of the study the two hypotheses are accepted that is CEO compensation has significant and positive impact on management of earnings of firm and corporate governance helps in moderating the association of compensation of CEO and management of earnings. According to the findings of study, when compensation of CEO is high then earnings management is also high and corporate governance weakens this relationship. That is in firms where structure of corporate governance is strong there is less earnings management because activities of CEO are properly monitored. And where corporate governance structure is weak, earnings management is high because CEO activities are not properly monitored by the board and

he tries to manage earnings to achieve his performance based pay instead of working hard and achieving goals.

The results are empirically supported as the condition of Pakistan is not good to attract enough foreign investors. So the policy makers and the management of the firm can get information from this study to consider that the activities of CEO of company should be monitored effectively so that company value will be increased and more foreigners will invest in the companies of Pakistan. It is the responsibility of policy makers to make important policies that can help the company to offer compensation to the CEO according to the goals the company wants to achieve and CEO qualities.

Conclusions and Discussion

In current study, effect of compensation of CEO on management of earnings of firm is studied and corporate governance role in moderating this association is examined in the context of Pakistan. In this study an index is created for corporate governance. This index includes board structure of firm, ownership structure of firm and audit committee independence. Discretionary accruals are calculated for management of earnings of firm and natural log of salaries plus benefits is taken for compensation of CEO of firm. In previous literature it is explained that CEO is involved in opportunistic behavior due to his compensation. The results of research support the two hypotheses that compensation of CEO has positive effect on earnings management and this association is negatively strengthened by corporate governance structure of the firm.

It is concluded from research that when governance structure of firm is strong then it weakens the positive association of CEO compensation and earnings management. Strong corporate governance structure means properly designed compensation of CEO of firm and proper monitoring of CEO activities. It means firms in Pakistan have strong corporate governance structure.

In Pakistan firms do not properly disclose financial information and practices of corporate governance. So the information available in annual reports may be somewhat misleading. So it is recommended that government of Pakistan should take steps to design practices of corporate governance and make sure its proper implementation in firms.

It is recommended that the power of CEO in the firm should be limited in order to avoid negativity in financial result and the board of directors can easily monitor the CEO's activities.

There should be low ownership concentration of the CEO in the firm because the CEO manages earnings of the firm to increase the value of the stock. When the CEO has more ownership in the firm then he has much authority and may decide his compensation also. There should be limited ownership of the CEO in the firm.

The results of the study may help investors invest in companies where there is a strong corporate governance structure and proper monitoring of executive activities so that shareholder rights are protected.

This study is important for regulators to consider whether corporate governance practices are implemented properly instead of only imposing these practices in the firm. The findings of the study are important for the management of the company to design compensation contracts according to the targets the firm wants to achieve and properly monitor the activities of executives. It is acknowledged that a strong corporate governance mechanism is followed in Pakistan-listed firms so that effective managers are produced and the confidence of investors to invest in the company is increased.

Policy makers can use this knowledge to understand the performance of firm and focus on these factors to make important policies and eliminate earnings management in the firm in order to increase firm value. Policy makers should give importance to corporate governance structure and compensation strategies of the firm to make effective policies.

The limitations of the study are, in future other variables should be considered that can moderate the association of compensation of CEO and management of earnings in the firm. For example: growth opportunities in the firm and performance of firm.

The corporate governance code is given in 2003 and this study conducted research from 2012-2022. So, it is the limitation of the study that prior years should be considered to check the performance of the companies with the passage of time from 2003 to 2022. Due to the absence of previous years data, this study conducted research from 2012-2022. In future, this study can be conducted using control variables such as firm size, leverage and return on assets.

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