

# The Effect of Ownership Structure and Board Characteristics on Excessive Compensation of Top-Level Management

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**How to cite this paper:** Liou, J.-S., Lee, C.-C. and Liu, J.-T. (2024) The Effect of Ownership Structure and Board Characteristics on Excessive Compensation of Top-Level Management. *Journal of Mathematical Finance*, 14, 34-63.

<https://doi.org/10.4236/jmf.2024.141003>

**Received:** December 7, 2023

**Accepted:** February 16, 2024

**Published:** February 19, 2024

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## Abstract

This study explored the impact of ownership structure and board characteristics on executive excessive compensation in Taiwan-listed companies from 2012 to 2021. Regarding ownership structure, the research findings indicate that managerial ownership, institutional ownership, and ownership deviation from earnings are significantly positively related to executive excessive compensation. This suggests that top managers may be motivated by self-interest to receive excessive compensation, while institutional shareholders tend to provide higher compensation to incentivize top-level management. Moreover, when company ownership is concentrated among a few controlling shareholders, agency problems become more severe, leading to higher executive excessive compensation. Additionally, large shareholders' and board directors' ownership percentages showed a significant negative relationship with executive excessive compensation. This indicates that higher ownership percentages by large shareholders and board directors enhance their monitoring effectiveness, restraining excessive compensation for top-level management. Regarding board characteristics, empirical results show that board size, the busyness of independent directors, and the frequency of compensation committee meetings are significantly positively associated with executive excessive compensation. Larger board sizes and the busyness of independent directors reflect poorer corporate governance, enabling top-level executives to obtain higher levels of excessive compensation. In contrast, a higher frequency of compensation committee meetings suggests greater engagement of committee members. This can lead to better operational performance of companies and increased executive excessive compensation.

## Keywords

Ownership Structure, Board Characteristics, Excessive Compensation

## 1. Introduction

The subprime mortgage crisis occurred in the United States in 2007 and led to a global financial crisis in 2008. It caused a severe recession in the global economy, and many businesses were declared bankrupt and closed down due to poor performance. Under such circumstances, the US government implemented a number of bailout packages in the hope of helping companies through the crisis. However, many enterprises trapped in continued losses received high government subsidies, but paid high compensation to their managements. The fact that these executives can still receive high compensation even when their companies are losing money has made the term “fat cat” a popular issue of general concern. In *Cambridge Advanced Learner’s Dictionary*, “fat cats” are defined as “someone who has a lot of money, especially someone in charge of a company who has the power to increase their own pay”. Many scholars believe that the compensation of top-level managers should not only be measured by the performance of the company, but also by factors such as the quality and experience of talents, market conditions and the industrial characteristics of the company [1]. It is also widely believed by the outside world that the main reason why the top-level management of enterprises can receive high compensation is that they can lead the enterprise to create good results. However, taking the Taiwan High Speed Rail Corporation for example, it has been losing money for many years, but its top-level management receives high compensation of more than NTD 10 million per year.<sup>1</sup> In addition, Asia Pacific Telecom continued to lose money in 2018-2019, but its top-level management (general manager, assistant general manager, etc.) received high compensation as much as NTD 10 million.<sup>2</sup> This situation has made the outside world question the rationality and fairness of the compensation of top-level managers.

In response to the above phenomenon, the Market Observation Post System of Taiwan publishes the list of listed/OTC companies that make annual after-tax losses but the total compensation of their directors and supervisors or average compensation per director and supervisor increases, commonly known as the “Fat Cat List”, in the “Information About Compensation of Directors and Supervisors” in the section of Corporate Governance. In addition, in 2020, the Financial Supervisory Commission amended the *Regulations Governing Information to be Published in Annual Reports of Public Companies*, which stipulates that, listed/OTC companies that have made after-tax losses in the last three years, or that rank in the bottom 20% of the most recent annual review of corporate governance, must disclose the compensation information of the top five highest-paid executives. In this way, it hopes to make the compensation information of the top-level management more transparent, formulate compensation policies more reasonably, and review their overall compensation policies and their implementation in a timely manner. In view of this, whether it is reasonable for the company’s top-level management to receive high compensation has also aroused the attention of the academia and other fields.

The “fat cat” phenomenon in enterprises makes the agency problems that often occur in corporate governance come to the fore. [2] found that in the case of equity dispersion, the ownership dispersion of the company would make shareholders’ control over the company decrease, while managers’ control over the company increases, which would lead to the separation of management rights and ownership, that is, the assumption of equity dispersion. According to [3], the agency problem refers to the conflicts of interest between the principal and the agent when the goals and interests of the principal (shareholder) and the agent (enterprise manager) are inconsistent under the case that ownership and management rights are separated. Managers tend to maximize their own interests and damage the shareholders’ rights and interests, which may reduce the value of the company. In addition, enterprise managers should be mainly responsible for the decision-making of the company, avoid making decisions that are harmful to the interests of shareholders, and jointly safeguard the rights and interests of shareholders. Enterprises also hope to reduce the conflicts of interest between top-level management and shareholders through the formulation of compensation mechanisms. In order to make both of them have common interest goals, most enterprises pay attention to setting the compensation system based on the performance of the company. Through the close connection between the two, top-level managers have to try their best to help enterprises create higher performance for their own interests, and enhance the interests of shareholders, so as to achieve the purpose of win-win. [4] mentioned that when a company lacks large shareholders who have significant influence on the board of directors, corporate managers would become the main potential factor of agency costs for the perspective of self-interest. In this case, the adoption of market-oriented mechanisms (such as supervision from external directors) could adjust the stakes between the management and shareholders. In addition, in the well-known management rights dispute of Gloria Material Technology Corp. occurred in Taiwan in 2018,<sup>3</sup> the company suffered losses due to its board of directors failed to play the role of a good supervision mechanism. This case also makes the agency problem under corporate governance attract increasingly attention. Therefore, through providing the management with variable compensation based on the improvement of enterprise performance, enterprises expect to give managers incentives to improve enterprise performance and retain outstanding talents. However, top-level management may take advantage of the information asymmetry between them and investors and enterprises to collect unreasonable excessive compensation. As a result, the compensation does not square with the performance, and such imbalance is detrimental to the sustainable development and operation of enterprises. [5] pointed out that shareholders’ failure to respond to the increase in the compensation of the top-level management indicated that there were defects in corporate governance and shareholders failed to effectively monitor the compensation of the top-level management. Therefore, appropriate supervision mechanisms should be established and implemented. [6] divided corporate governance into internal and external mechan-

isms. The external mechanism is to prevent the company's managers from arbitrarily worsening the company's operating conditions through the relevant regulations set by the government and the supervision forces such as shareholders and investors. The internal mechanism is to balance the forces of all parties through the design of the ownership structure, and to reduce the agency cost between investors and managers by taking good play of the functions of supervision and advisory of the board of directors. It can also avoid the tendency of managers to increase their own compensation due to the expansion of power, which may damage the interests of shareholders. Therefore, it is beneficial to make the formulation and design of enterprise compensation policies more reasonable and fair.

In determining compensation, top-level management may maximize their personal interests, but this still depends on the governance effectiveness of the board. If the board is controlled by the top-level management, then top-level managers may maximize their own compensation. When the board of directors is unable to effectively monitor the performance and responsibility of the top-level management, the top-level management may be more likely to receive high compensation [7]. [8] also pointed out that the excessive compensation of the top-level management would be monitored and controlled by the board of directors, and the decision-making and implementation of the compensation of the top-level management would often be affected by the power and interests of board members. [9] found in their studies that seven mechanisms could solve the agency problem between managers and shareholders, namely, shareholding of insiders, institutional investors and large shareholders, outside directors, debt policies, the labor market for managers and the market for corporate control. Moreover, they pointed out that each mechanism is interdependent, and the effect of a single mechanism on corporate performance cannot be considered separately. Therefore, it is necessary to maintain a balance between the two and a reasonable authorization to ensure the fairness of the compensation received by top-level managers.

As discussed above, a good ownership structure can reduce the internal agency problems of a company, and the supervision mechanism of the board of directors can also reduce the occurrence of agency problems. In past literature, most literature on ownership structure and relevant board characteristics discussed the relationship between the above two items and corporate value, but few of them included both of them in the discussion of their effects on excessive compensation of the management. Therefore, this study aims to explore the effect of the internal ownership structure and board characteristics on the excessive compensation of the top-level management.

## **2. Literature Review and Hypotheses Development**

### **2.1. Excessive Compensation of the Top-Level Management**

CEO is ultimately responsible for the company's investment strategy, operation-

al activities, human resource management and financial decisions, as well as the company performance in all aspects. Excessive compensation is the CEO's total compensation minus the compensation the CEO received for his or her own ability, effort, and the company's rewards based on performance (risk premium). Excessive compensation refers to the part of compensation that cannot be reasonably explained by the above three items [10]. [11] also pointed out that the source of excessive compensation mainly depends on the power of the top-level management and the strength of corporate governance. In addition, [12] showed that with weaker corporate governance mechanism, the agency problems are more serious. Under such circumstances, the top-level management of the company receives higher compensation, but the company's future performance becomes worse. [13] found that in the case of weak corporate governance, the compensation design of the top-level management is likely to deviate from the interests of the company, resulting in the decline of the company's performance and return on equity. [14] pointed out that too high excessive compensation of the top-level management may have a negative effect on corporate performance and corporate governance. When the excessive compensation of the top-level management of the company is high, it is more likely that the top-level management will focus on the pursuit of personal interests rather than the interests of the company.

Many factors may affect the compensation of the top-level management of a company, and the excessive compensation may vary with the power of the management and corporate governance. If the corporate governance mechanism is relatively good, it can reduce the occurrence of agency problems and restrain the excessive compensation received by the top-level management. Therefore, appropriate compensation structures and supervision mechanisms are important, and they could ensure that the interests of the top-level management are aligned with those of the company.

## **2.2. Ownership Structure and Excessive Compensation of the Top-Level Management**

In terms of the ownership structure, scholars mainly discuss internal ownership (such as managerial ownership and director's ownership) and external ownership (such as institutional ownership and shareholder's ownership). Therefore, in this study, the effect of the shareholding ratio of managers, large shareholders, institutional investors, directors and supervisors, and the ownership deviation from earnings on the compensation of the top-level management was discussed.

### **1) Shareholding ratio of managers**

According to the entrenchment hypothesis proposed by [15], when the shareholding ratio of internal managers is high, their voting rights and work are more guaranteed. This leads to the anti-takeover behavior of them, which is harmful to the company as a whole and decreases the value of the company. [16] pointed out that there is a negative correlation between the shareholding rate of corporate managers and corporate performance. When the shareholding ratio of

corporate managers is high, they are more likely to harm the interests of corporate shareholders out of the consideration of pursuing their own interests, which is in line with the entrenchment hypothesis mentioned above. Based on the above literature, it is inferred in this study that when the shareholding ratio of corporate managers is high, they are more incentivized to maximize their own interests. In other words, they have motivation to increase their own excessive compensation regardless of the company's long-term development and long-term shareholder value. Therefore, the following hypothesis is proposed:

**H1-1: When the shareholding ratio of managers is high, the excessive compensation of the top-level management is also high.**

#### **2) Shareholding ratio of large shareholders**

[17] pointed out that when the shareholding ratio of a company's external large shareholders is high, the incentive for shareholders to monitor the management is stronger so as to maximize their own interests. Large shareholders have the right to fire the incompetent management to protect their own interests. Therefore, when the shareholding ratio of large shareholders is high, the supervision of the top-level management is stricter. If the top management of a company receives excessive excessive compensation based on self-interested motives and harms the interests of the company, large shareholders tend to exert pressure to mitigate the problem of poor link between compensation and performance caused by the power of the management. Therefore, the following hypothesis is proposed:

**H1-2: When the shareholding ratio of large shareholders is high, the excessive compensation of the top-level management is lower.**

#### **3) Shareholding ratio of institutional investors**

In addition to the shareholders of the company, institutional investors also play the role of monitoring the company. According to the efficient monitoring hypothesis proposed by [18], compared with ordinary minority shareholders, institutional investors usually hold more shares, and their evaluation is more professional and comprehensive. Therefore, institutional investors have the ability and the right to monitor the management. [19] found that there is a negative correlation between the shareholding ratio of institutional investors and the compensation of the top-level management, and there is a positive correlation between performance and compensation sensitivity. It means that institutional investors can play a role of monitoring the agency problem between shareholders and the management, and reduce the excessive compensation of the company's top-level management. Therefore, based on the above literature, the hypothesis proposed in this study is as follows:

**H1-3: When the shareholding ratio of institutional investors is high, the excessive compensation of the top-level management is lower.**

#### **4) Shareholding ratio of directors and supervisors**

[12] pointed out that when the shareholding ratio of directors increases, the interests of the board members and the company's shareholders tend to be consistent, so the motivation of the management to receive high compensation will

be reduced to increase the value of the company's shareholders. [20] suggested that when the shareholding ratio of directors and supervisors is high, the corporate governance effect is better, the agency costs and abuse of power is less, and the company's excess stock returns are higher. Based on the above literature, it can be found that a higher shareholding ratio of directors and supervisors can improve the supervision effectiveness on the company's management and board of directors, and pay more attention to the interests of shareholders, thus producing positive benefits for the company. Therefore, in this study, it is inferred that when the shareholding ratio of directors and supervisors is high, in order to avoid the loss of their own interests, they are more able to exert their supervision duties and restrain the excessive compensation of the company's top-level management. Therefore, the following hypothesis is proposed:

**H1-4: When the shareholding ratio of directors and supervisors is high, the excessive compensation of the top-level management is lower.**

#### **5) Degree of ownership deviation from earnings**

[17] proposed that when a company's ownership control rights deviates from earnings distribution rights, there will be conflicts of interest between controlling shareholders and minority shareholders, resulting in the agency problem of large shareholders encroaching on minority shareholders' interests. [21] argued that the ultimate controller's ownership control rights in the company are greater than its earnings distribution rights. This deviation between ownership control rights and earnings distribution rights makes the ultimate controller pursue their own interests and encroach minority shareholders, resulting in the damage to the interests of minority shareholders. [22] found that among the listed companies in Taiwan, the companies with the concentrated shareholding structure accounted for 61%, and controlling shareholders have 32% ownership control. In other words, it is common in the listed companies in Taiwan that there is ownership deviation from earnings. To sum up, when the degree of ownership deviation from earnings is high, the agency problems of the company are more serious, and the top-level management is more likely receive excessive compensation for their own interests. Therefore, the following hypothesis is established in this study:

**H1-5: When the degree of ownership deviation from earnings is high, the excessive compensation of the top-level management is higher.**

### **2.3. Board Characteristics and Excessive Compensation of the Top-Level Management**

The board of directors plays an important role in corporate governance. Good internal governance mechanisms (e.g., board size, independent directors, directors' shareholding and compensation committees), and external mechanism (e.g., institutional investor shareholding) can reduce the internal agency problem of the company and has a positive effect on the company value [23].

#### **1) Board size**

[24] found that with a large board, the company performs better, and the

board of directors is less likely influenced by the management. [25] argued that a large board can benefit from the participation of experts from different professional backgrounds, who can provide more professional insights for the decision-making of the corporate, thereby facilitating better decision quality.

[26] proposed that when the board size is large, the cash bonus compensation of top-level managers is high. Moreover, a large board is less likely to be controlled by the management, so as to ensure the effectiveness of its monitoring function.

However, some studies indicated that a large board has inferior monitoring quality. [27] pointed out that if the size of a company's board of directors is too large, it may lead to too much disagreement among directors, which may further delay the board's decision-making, and cause a negative effect on the company's operation and decision-making efficiency, and ultimately reduce the company's value. [28] found that is high, which indicates that the board of directors has not effectively played its monitoring function. According to the above literature, in this study, the direction of the effect of the board size on the excessive compensation of the company's top-level management is not expected, and it is only inferred that there is a correlation between the two. Therefore, the following hypothesis is established:

**H2-1: The board size of a company affects the excessive compensation of the top-level management.**

### 2) The chairperson concurrently acts as the general manager

[29] pointed out that when the chairperson concurrently acts as the manager, the board of directors has both rights of execution and supervision of decision-making, and the lack of independence and poor quality of supervision will lead to the deterioration of enterprise performance. [30] found that when the chairperson concurrently acts as the general manager, the directors and supervisors usually receive higher compensation. In other words, a chairperson concurrently acting as the general manager has greater power in the company, and the supervision environment of the company is weaker. Therefore, this paper proposes that if the chairperson of the company concurrently acts as the general manager, the supervisory effectiveness of the board of directors on the top-level management of the company is reduced, and its independence is also reduced. The supervisory effectiveness is diminished, and the excessive compensation of the top-level management is higher. Therefore, the following hypothesis is established:

**H2-2: If the chairperson of the company concurrently acts as the general manager, it affects the excessive compensation of the top-level management.**

### 3) Proportion of independent directors

Independent director refers to the external non-affiliated director who does not hold office in the company and has no direct interest in the company, and has a detached and independent status. In addition to monitoring the management, independent directors also provide their own professional advice to the board of directors to help them improve the quality of decision-making. Some studies explored the effect of board independence on compensation. [7] pointed out that when the shareholding rate of outside directors is low, the compensa-

tion level of the top-level management is higher. [31] proposed that when the number of independent directors and their shareholding ratio in the company is high, the independence of the board of directors is also high. The independence of directors is negatively correlated with the compensation of the top-level management. According to the above literature, it is inferred in this study that when the proportion of independent directors in a company is high, the monitoring function of the board of directors for the company is stronger, which reduces the excessive compensation of the top-level management.

**H2-3: When the proportion of independent directors in a company's board of directors is high, the excessive compensation of the top-level management is lower.**

#### **4) Busyness degree of independent directors**

A busy board refers to a board in which an outside director of a company concurrently serves as a director in three or more companies [32]. According to the busyness effect, when a director is also an external director of another company, the director's attention may be distracted and he/she will not be able to devote enough time to monitor the operation of the company. In addition, due to the lack of knowledge about the company, the compensation of the top-level management may be too high [12]. [33] found that with the increase of the busyness degree of independent directors, the market would have a significantly negative standardized cumulative abnormal return, which also verifies the busyness effect of the above-mentioned directors. [34] proposed that the busyness degree of board members is significantly negatively correlated with the performance of the company, because busy directors have limited time and energy to participate in the company and cannot devote themselves wholeheartedly to the supervision activities of the company. [35] suggested that the busier the board of directors of a company, the higher the compensation of its CEO. The reason is that if the directors of a company are busy, their supervision effectiveness of the company is reduced, which may lead to poor corporate governance. Thus, the CEOs can increase their own compensation based on the motivation of self-profit. Based on the above literature, this paper infers that when a company has more independent directors concurrently serve as directors of other companies, the more obvious the business effect will be. Directors are very busy and may not be able to fully understand the company's operations due to limited time and energy, which may result in increased governance risks for the company. Therefore, when the business degree of independent directors is high, the excessive compensation of the company's top-level management is also higher. Therefore, the following hypothesis is established:

**H2-4: When the business degree of independent directors is high, the excessive compensation of the top-level management is also higher.**

#### **5) Frequency of Compensation Committee Meetings and average attendance rates**

In order to effectively restrain the asymmetry between the compensation of the top-level management and corporate performance, Legislative Yuan, Taiwan

added Article 14-6 of the *Securities and Exchange Act* in November 2010. It requires that all companies with shares listed on the stock exchange or traded on the premises of securities firms shall set up the Compensation Committee. In addition, the Financial Supervisory Commission established the *Regulations Governing the Appointment and Exercise of Powers by the Remuneration Committee of a Company Whose Stock is Listed on the Taiwan Stock Exchange or the Taipei Exchange* in 2011. It is stipulated that, the main responsibilities of the Compensation Committee include formulating and regularly reviewing the policies, systems, standards and structures of managers' performance evaluation and compensation.

Past studies mentioned that a Compensation Committee could have a positive effect on a company. [36] proposed that for a company with poor performance, if the frequency of Compensation Committee Meetings increases, the operating performance of the company may be improved. In other words, the frequency of Compensation Committee Meetings can be seen as the degree of active participation in the company. [37] tested whether the attendance, busyness degree and other quality characteristics of the members of the Compensation Committee could affect the compensation performance of top-level managers, and found that the quality of the Compensation Committee was positively correlated with the sensitivity of the compensation performance of top-level managers. [38] measured the quality of the Compensation Committee from many aspects, including the attendance of the Compensation Committee and the size of the Compensation Committee, and tested its effect on the compensation of directors and supervisors of companies running under deficit. Therefore, with reference to the above literature, it is inferred in this study that the higher the frequency of Compensation Committee Meetings and the average attendance rate are, the more actively its members will participate in the formulation of the compensation policy of the company's management, and the more time they will have to evaluate the compensation policy of the company, so as to restrain the excessive compensation of the top-level management. Therefore, the following hypothesis is established:

**H2-5: When the frequency of Compensation Committee Meetings is high, the excessive compensation of the top-level management is lower.**

**H2-6: When the average attendance rate of the Compensation Committee is high, the excessive compensation of the top-level management is lower.**

### 3. Research Design

#### 3.1. Sample Selection and Data Source

In this study, all listed/OTC companies of Taiwan Stock Exchange are selected as the object of study. The study period is from 2012 to 2021, a total of 10 years. The sample data source is the database of Taiwan Economic Journal (TEJ). It includes 8,788 original samples, in which 7,005 final samples are taken as observations after excluding samples from the finance, securities, insurance industry

and samples with data omissions or incompleteness. The selection process and industrial distribution of samples are shown in **Table 1** and **Table 2**.

### 3.2. Empirical Model

The purpose of this study is to explore the effect of ownership structure and board characteristics on the excessive compensation of the top-level management. In order to test the hypothesis, after the control variable and other variables, relevant variables of ownership structure and board characteristics are added to test their effect on the excessive compensation of the company's top-level management. The empirical model is as follows:

$$\begin{aligned}
 EXCOMP_{it} = & \beta_0 + \beta_1 MANAGER_{it} + \beta_2 BLOCK_{it} + \beta_3 INST_{it} \\
 & + \beta_4 DIRECT_{it} + \beta_5 VC_{it} + \beta_6 B\_SIZE_{it} + \beta_7 DUAL_{it} \\
 & + \beta_8 ID_{it} + \beta_9 BUSYDIRECT_{it} + \beta_{10} CCQ1_{it} + \beta_{11} CCQ2_{it} \quad (1) \\
 & + \beta_{12} GROWTH_{it} + \beta_{13} SIZE_{it} + \beta_{14} INDUSTRY_{it} \\
 & + \beta_{15} YEAR_{it} + \varepsilon_{it}
 \end{aligned}$$

**Table 1.** Table of sample screening.

	Number of samples
Original samples from 2012 to 2021	8788
Less: Samples from the finance, securities, insurance industry	419
Less: Samples with data omissions or incompleteness	1364
Final observations from 2012 to 2021	7005

Source: Compiled by this study.

**Table 2.** Industrial distribution of samples.

New industry category	Industry categories covered (TEJ industry category)	Number of samples	Sample proportion (%)
A. Construction	Cement industry, steel industry, building materials and construction industry	718	10.25%
B. Food	Food industry	203	2.90%
C. Textile	Textile fiber industry	346	4.94%
D. Electronics	Communication network industry, electronic components, electromunication industry, semiconductors, computers and peripherals, optoelectronics industry, information service industry, other electronics industry	2851	40.70%
E. Electromechanics	Electrical machinery, electrical cables	445	6.35%
F. Plastics and Chemicals	Plastics, chemical biotechnology, rubber industry, oil, electricity and gas	566	8.08%
G. Service and Sales	Automobile, tourism, trade and general merchandise industry	413	5.90%
H. Others	Paper, glass, shipping, other industries	1463	20.88%
Aggregated observations		7005	100%

Source: Compiled by this study.

where,

EXCOMP<sub>*it*</sub>: The estimated excessive compensation of the top-level management of Company *i* in Year *t*, which is measured by Model (2) and Model (3);

MANAGER<sub>*it*</sub>: The shareholding ratio of managers of Company *i* in Year *t*, which is measured by the proportion of managers' shareholding in the total issued shares of the company;

BLOCK<sub>*it*</sub>: The shareholding ratio of large shareholders of Company *i* in Year *t*, which is measured by the shareholding proportion of shareholders holding more than 10% shares of the company but not acting as directors and supervisors in the total issued shares of the company;

INST<sub>*it*</sub>: The shareholding ratio of institutional investors of Company *i* in Year *t*, which is measured by the proportion of institutional investors' shareholding in the total issued shares of the company;

DIRECT<sub>*it*</sub>: The shareholding ratio of directors and supervisors of Company *i* in Year *t*, which is measured by the proportion of directors and supervisors' shareholding in the total issued shares of the company;

VC<sub>*it*</sub>: The degree of ownership deviation from earnings of Company *i* in Year *t* (difference between shareholdings and earnings), which is measured by the shareholding control rights, the earnings distribution rights of the company's ultimate controlling shareholders;

B\_SIZE<sub>*it*</sub>: The board size of Company *i* in Year *t*, which is measured by ln (Number of directors in the board);

DUAL<sub>*it*</sub>: The chairperson of the company concurrently acts as the general manager, which is a dummy variable. If the chairperson concurrently acts as the general manager of Company *i* in Year *t*, the value of it is 1; otherwise, it is 0;

ID<sub>*it*</sub>: The proportion of independent directors of Company *i* in Year *t*, which is measured by the proportion of the number of independent directors in the board of directors;

BUSYDIRECT<sub>*it*</sub>: The busyness degree of independent directors of Company *i* in Year *t*, which is measured by the average number of companies in which independent directors concurrently serve as directors;

CCQ1<sub>*it*</sub>: The frequency of Compensation Committee Meetings of Company *i* in Year *t*;

CCQ2<sub>*it*</sub>: The average attendance rate of Company *i*'s Compensation Committee in Year *t*, which is measured by the number of committee members attending the meeting/the total number of the members of the Compensation Committee in that year;

GROWTH<sub>*it*</sub>: The growth opportunities of Company *i* in Year *t*, which is measured by Tobin's Q. Tobin's Q = (market value of common stocks + market value of special stocks + current liabilities + long-term liabilities) at the end of the period/the total assets at the end of the period;

SIZE<sub>*it*</sub>: The size of Company *i* in Year *t*, which is measured by ln (total assets of the company);

INDUSTRY<sub>*it*</sub>: The industry category of Company *i* in Year *t*, which is a dummy variable. If it is an electronics company, the value of it is 1; otherwise, it is 0;

YEAR<sub>*it*</sub>: The dummy variable for the sample year *t* of Company *i*. In this paper, the year of 2020 is set as the base year. If the sample is after 2020 (including 2020), the dummy variable of its control year is 1. If the sample is before 2020, the dummy variable of its control year is 0.

β<sub>0</sub>: Intercept term;

β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub>, β<sub>5</sub>, β<sub>6</sub>, β<sub>7</sub>, β<sub>8</sub>, β<sub>9</sub>, β<sub>10</sub>, β<sub>11</sub>, β<sub>12</sub>, β<sub>13</sub>, β<sub>14</sub>, β<sub>15</sub>: Parameters of the regression model;

ε<sub>*it*</sub>: Residual term.

### 3.3. Variable Definition

#### 1) Dependent variable—excessive compensation

The excessive compensation of the top-level management discussed in this study refers to the excessive compensation of top-level management with the position no less than general manager and vice-general manager. According to [30] and [39], Model (2) was used to calculate the reasonable compensation of the top-level management. Then, the excessive compensation of the top-level management can be obtained by deducting the reasonable compensation of Model (2) from the actual total compensation calculated by Model (3). The model is as follows:

##### a) Reasonable compensation of the top-level management

$$\begin{aligned} \text{COMP}^*_{it} = & \beta_0 + \beta_1 \ln \text{SALES}_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{RET}_{it} + \beta_4 \text{GROWTH}_{it} \\ & + \beta_5 \text{HOLD}_{it} + \beta_6 \text{LEV}_{it} + \beta_7 \text{STDROA}_{it} + \beta_8 \text{STDRET}_{it} \\ & + \beta_9 \text{RD}_{it} + \beta_{10} \text{INV}_{it} + \beta_{11} \text{YEAR}_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

where,

COMP\*<sub>*it*</sub>: The estimated normal compensation of the top-level management of Company *i* in Year *t*;

lnSALES<sub>*it*</sub>: Net sales of Company *i* in Year *t*, which is measured by ln (net sales);

ROA<sub>*it*</sub>: Return on assets of Company *i* in Year *t*, which is measured by dividing the net profit before tax of going-concern departments for that year by total assets;

RET<sub>*it*</sub>: Stock return of Company *i* in Year *t*;

GROWTH<sub>*it*</sub>: The growth opportunities of Company *i* in Year *t*, which is measured by Tobin's Q. Tobin's Q = (market value of common stocks + market value of special stocks + current liabilities + long-term liabilities) at the end of the period/the total assets at the end of the period;

HOLD<sub>*it*</sub>: The shareholding ratio of the top-level management of Company *i* in Year *t*;

LEV<sub>*it*</sub>: The liability ratio, which is measured by dividing total liabilities by total assets of Company *i* in Year *t*;

STDROA<sub>*it*</sub>: The standard deviation of Company *i*'s return on assets five years

before Year  $t$ , that is, the standard deviation of Company  $i$ 's return on assets in years  $t - 5$  to  $t - 1$ ;

STDRET $_{it}$ : The standard deviation of Company  $i$ 's annual stock return five years before Year  $t$ , that is, the standard deviation of Company  $i$ 's stock return in years  $t - 5$  to  $t - 1$ ;

RD $_{it}$ : R&D expenses/book value of total assets of Company  $i$  in Year  $t$ ;

INV $_{it}$ : Capital expenditure/book value of total assets of Company  $i$  in Year  $t$ ;

YEAR $_{it}$ : The dummy variable for the sample year  $t$  of Company  $i$ . In this paper, the year of 2020 is set as the base year. If the sample is after 2020 (including 2020), the dummy variable of its control year is 1. If the sample is before 2020, the dummy variable of its control year is 0.

$\beta_0$ : Intercept term;

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}$ : Parameters of the regression model;

$\varepsilon_{it}$ : Residual term.

### b) Excessive compensation of the top-level management

$$\text{EXCOMP}_{it} = \text{COMP}_{it} - \text{COMP}^*_{it} \quad (3)$$

where,

EXCOMP $_{it}$ : The estimated excessive compensation of the top-level management of Company  $i$  in Year  $t$ ;

COMP $_{it}$ : The actual total compensation of the top-level management of Company  $i$  in Year  $t$ ;

COMP\* $_{it}$ : The estimated normal compensation of the top-level management of Company  $i$  in Year  $t$ .

## 2) Explanatory variables

### a) Ownership structure

i) Shareholding ratio of managers (MANAGER)

In this paper, the shareholding ratio of managers is measured by the proportion of the number of managers' shares to the number of outstanding shares of the company. It is used to test the relationship between the shareholding ratio of managers and the excessive compensation of the top-level management. It is expected that there is a positive correlation between the two.

ii) Shareholding ratio of large shareholders (BLOCK)

In this study, the shareholding ratio of large shareholders is measured by the proportion of the number of large shareholders' shares to the number of outstanding shares of the company. Large shareholders are defined as the shareholders that hold more than 10% shares of the company but do not take the positions of directors and supervisors in the company. It is used to test the relationship between the shareholding ratio of large shareholders and the excessive compensation of the top-level management is tested. It is expected that there is a negative correlation between the two.

iii) Shareholding ratio of institutional investors (INST)

In this paper, the shareholding ratio of institutional investors is measured by the proportion of the number of institutional investors' shares to the number of

outstanding shares of the company. Institutional investors are defined as government agencies + financial institutions + trust funds + corporates + other institutional investors and foreign institutional investors. It is used to test the relationship between the shareholding ratio of institutional investors and the excessive compensation of the top-level management. It is expected that there is a negative correlation between the two.

iv) Shareholding ratio of directors and supervisors (DIRECT)

In this paper, the shareholding ratio of directors and supervisors is measured by the proportion of the number of directors and supervisors' shares to the number of outstanding shares of the company. It is used to test the relationship between the shareholding ratio of directors and supervisors and the excessive compensation of the top-level management. It is expected that there is a negative correlation between the two.

v) Degree of ownership deviation from earnings (difference between shareholdings and earnings) (VC)

In this paper, the degree of deviation of the company's ownership from earnings is measured by the shareholding control rights, the earnings distribution rights of the company's ultimate controlling shareholders. It is used to test the relationship between the degree of ownership deviation from earnings and the excessive compensation of the top-level management is tested. It is expected that there is a positive correlation between the two.

**b) Board characteristics**

i) Board size (B\_SIZE)

In this study, the natural logarithm of the number of directors of the board was used to measure the board size of the company. It was used to test the effect of the board size on the excessive compensation of the top-level management. The direction of the effect is not expected, and it is only expected that there is correlation between the two.

ii) The chairperson concurrently acts as the general manager (DUAL)

This variable is set as a dummy variable in this study. If the chairperson of the company concurrently acts as the general manager, the value of it is 1; otherwise, it is 0. It is used to test whether the chairperson concurrently acts as the general manager affects the excessive compensation of the high-level management. The direction of the effect is not expected, and it is only expected that there is correlation between the two.

iii) Proportion of independent directors (ID)

When the proportion of independent directors in a company is high, the board of directors is more independent and objective in its stance and more effective in monitoring the management of the company. In this study, the number of independent directors is divided by the number of directors in the board to measure the independence of the board of directors. It is used to test the relationship between the proportion of independent directors and the excessive compensation of the top-level management. It is expected that there is a negative

correlation between the two.

iv) Business degree of independent directors (BUSYDIRECT)

According to the *Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies*, an independent director of a public company shall not concurrently serve as an independent director in more than three other public companies. Referring to the measurement method of independent directors' busyness degree proposed by [40], in this study, the busyness degree of independent directors is measured by the average number of companies in which independent directors concurrently serve as directors. It is used to test the relationship between the busyness degree of independent directors and the excessive compensation of the top-level management. It is expected that there is a positive correlation between the two.

v) Compensation Committee

With reference to the availability of literature and information on the Compensation Committee in the past, in this paper, the characteristics of the Compensation Committee are examined in terms of the frequency and average attendance rate of Compensation Committee Meetings:

v.1) Frequency of Compensation Committee Meetings (CCQ1)

In this study, the frequency of Compensation Committee Meetings in the current year is used to test the relationship between the frequency of Compensation Committee Meetings and the excessive compensation of the top-level management. It is expected that there is a negative correlation between the two.

v.2) Average attendance rate of Compensation Committee Meetings (CCQ2)

In this study, the number of committee members attending Compensation Committee Meetings in the current year divided by the total number of committee members is used to test the relationship between the average attendance rate of Compensation Committee Meetings and the excessive compensation of the top-level management. It is expected that there is a negative correlation between the two.

**c) Control variables**

In this study, with reference to other relevant literature, the following four variables are taken as control variables to control other factors affecting the excessive compensation of the management level, including growth opportunity (GROWTH), company size (SIZE), industry (INDUSTRY) and year (YEAR).

i) Growth opportunity (GROWTH)

[41] pointed out that when the company has high growth opportunity, the compensation of the top-level management is higher. Therefore, in this study, Tobin's Q is used to measure the company's growth opportunities. Tobin's Q = (market value of common stocks + market value of special stocks + current liabilities + long-term liabilities) at the end of the period/the total assets at the end of the period. Moreover, it is expected that there is a positive correlation between the growth opportunity of the company and the excessive compensation of the top-level management.

ii) Company size (SIZE)

A larger company involves more complex decision making of managers. [42] pointed out that company size may affect the compensation of the top-level management. [43] proposed that a large company has a more independent board, thus its monitoring effect is stronger. Therefore, when the company size is large, the board of directors is more independent, and the excessive compensation of the top management is lower. In this study, company size is measured by the natural logarithm of the company's total assets, and it is expected that there is a negative correlation between company size and the excessive compensation of the top-level management.

iii) Industry (INDUSTRY)

[44] pointed out that the electronics industry is the most competitive industry in Taiwan. In order to avoid the influence of differences in the characteristics of different industries on the research results, in this study, the obtained sample industries are divided into the electronics industry and the non-electronics industry based on the classification data of Taiwan Economic News (TEJ) database, and the dummy variable of industry is established. The value of it is set to 1 for electronics companies and 0 for the rest. Moreover, the direction of its effect on the excessive compensation of the top-level management is not expected.

iv) Year (YEAR)

The severe COVID-19, which began in 2020, has affected Taiwan's economy across industries and the compensation of top managers. In order to avoid the influence of the above annual differences on the research results, an annual dummy variable is set up in this study. For samples after 2020 (including 2020), the dummy variable for the control year is 1, and 0 for samples before 2020. Moreover, the direction of its effect on the excessive compensation of the top-level management is not expected.

The above variables are listed in **Table 3**.

## 4. Empirical Results and Analysis

### 4.1. Descriptive Statistical Analysis

**Table 4** shows descriptive statistics. Over the sample period from 2012 to 2021, there are a total of 7005 observations. Through the analysis of the variables of all samples, as well as the average, maximum, minimum, standard deviation and median, the basic characteristics and distribution of the sample variables in this study are available.

In terms of excessive compensation (EXCOMP) of the top-level management, the average is 0.0003 and the median is  $-0.3001$ . It means that excessive compensation is very common among the top-level management of listed/OTC companies in Taiwan, and the distribution of received excessive compensation is also uneven. Secondly, in terms of the related variable of ownership structure, the average shareholding ratio of managers (MANAGER) is 1.0292 and the median is 0.2700. The average shareholding ratio of large shareholders (BLOCK) is

**Table 3.** Variable definition table.

Variable name	Variable definition
Dependent variable	
Excessive compensation of the top-level management (EXCOMP)	The estimated excessive compensation of the top-level management is calculated according to Model (2) and (3), that is, the result is obtained by deducting the reasonable compensation from the actual total compensation
Independent variable	
(1) Ownership structure	
1. Shareholding ratio of managers (MANAGER)	The proportion of managers' shareholding in the total issued shares of the company
2. Shareholding ratio of large shareholders (BLOCK)	The shareholding proportion of shareholders holding more than 10% shares of the company but not acting as directors and supervisors in the total issued shares of the company
3. Shareholding ratio of institutional investors (INST)	The proportion of institutional investors' shareholding in the total issued shares of the company
4. Shareholding ratio of directors and supervisors (DIRECT)	The proportion of directors' and supervisors' shareholding in the total issued shares of the company
5. Degree of ownership deviation from earnings (difference between shareholdings and earnings) (VC)	Shareholding control rights - earnings distribution rights of the company's ultimate controlling shareholders
(2) Board characteristics	
1. Board size (B_SIZE)	Ln (Number of directors in the board)
2. The chairperson concurrently acts as the general manager (DUAL)	It is a dummy variable. If the chairperson concurrently acts as the general manager of Company <i>i</i> in Year <i>t</i> , the value of it is 1; otherwise, it is 0
3. Proportion of independent directors (ID)	The proportion of independent directors in the board of directors
4. Business degree of independent directors (BUSYDIRECT)	The average number of companies in which independent directors concurrently serve as directors
5. Frequency of Compensation Committee Meetings (CCQ1)	The frequency of Compensation Committee Meetings during the year
6. Average attendance rate of Compensation Committee Meetings (CCQ2)	The number of committee members attending the meeting/the total number of the members of the Compensation Committee in that year
Control variables	
1. Growth opportunity (GROWTH)	It is measured by Tobin's Q. Tobin's Q = (market value of common stocks + market value of special stocks + current liabilities + long-term liabilities) at the end of the period/the total assets at the end of the period
2. Company size (SIZE)	The natural logarithm of the company's total assets.
Variable name	
3. Industry (INDUSTRY)	It is a dummy variable. If it is an electronics company, the value of it is 1; otherwise, it is 0
4. Year (YEAR)	It is a dummy variable. If the sample is after 2020 (including 2020), the dummy variable of its control year is 1. If the sample is before 2020, the dummy variable of its control year is 0

**Table 4.** Descriptive statistical scale.

Variable Name	Average	Maximum	Minimum	Standard Deviation	Median
EXCOMP	0.0003	1.6498	-1.9125	0.7489	-0.3001
MANAGER	1.0292	9.7100	0.0000	1.8136	0.2700
BLOCK	22.8125	61.4900	3.9100	11.9880	20.7100
INST	43.5825	91.3300	3.1900	22.2260	43.0100
DIRECT	20.6452	67.9300	2.4400	13.9450	17.1000
VC	20.6503	72.8200	-32.1700	21.5796	20.5500
B_SIZE	2.0286	2.7081	1.6094	0.2688	1.9459
DUAL	0.3090	1.0000	0.0000	0.4621	0.0000
ID	0.2744	0.6000	0.0000	0.1542	0.2857
BUSYDIRECT	1.3538	9.3300	0.0000	1.7904	0.6700
CCQ1	2.9637	8.0000	1.0000	1.2771	3.0000
CCQ2	95.0995	100.0000	58.3300	9.1567	100.0000
GROWTH	1.0862	4.2400	0.3500	0.6575	0.8900
SIZE	16.1591	20.1528	13.6227	1.3963	15.9654
INDUSTRY	0.4077	1.0000	0.0000	0.4914	0.0000
YEAR	0.2117	1.0000	0.0000	0.4085	0.0000

Note: Please refer to **Table 3** for detailed variable definitions.

22.8125 and the median is 20.7100. The average shareholding ratio of institutional investors (INST) is 43.5825 and the median is 43.0100. The average shareholding ratio of directors and supervisors (DIRECT) is 20.6452 and the median is 17.1000. It can be seen that in terms of ownership structure, institutional investors take the most shareholding in listed/OTC companies of Taiwan. The average of ownership deviation from earnings (VC) is 20.6503, and the median is 20.5500, which indicates that it is common in listed/OTC companies of Taiwan that shareholding control rights are greater than earnings distribution rights.

In addition, in terms of the variables related to board characteristics, the average board size (B\_SIZE) is 2.0286 and the median is 1.9459. The average of the chairperson concurrently acting as the general manager (DUAL) is 0.3090 and the median is 0.0000. In the samples, about 31% chairpersons concurrently acting as general managers, indicating that in many companies, the chairperson concurrently acts as the general manager. The average proportion of independent directors (ID) is 0.2744, and the median is 0.2857. It shows that independent directors account for 27.44% of all directors in the sample companies. It is a relatively low proportion, and it also means that some companies have independent directors simply to comply with the regulations. The average business degree of independent directors (BUSYDIRECT) is 1.3538, and the median is

0.6700. It means that in the sample companies, each independent director holds positions in more than one company on average. The average frequency of Compensation Committee Meetings (CCQ1) is 2.9637, and the median is 3.0000, which shows that most Compensation Committees in the sample companies hold three meetings in one year. The average attendance rate of Compensation Committee Meetings (CCQ2) is 95.0995, and the median is 100.0000, indicating very good attendance of the Compensation Committee members in the sample companies.

In terms of control variables, the average growth opportunity (GROWTH) is 1.0862, and the median is 0.8900. The standard deviation of company size (SIZE) is 1.3963, which indicates that the size of the sample companies is relatively concentrated. The average of industry (INDUSTRY) is 0.4077, which shows that 40.77% of the listed/OTC companies in the samples are in the electronics industry. The average of year (YEAR) is 0.2117, and the median is 0.0000.

## 4.2. Collinearity

In this study, the Variance Inflation Factor (VIF) test is used to determine whether there are serious collinearity problems in the independent variables. All the independent variables listed in **Table 5** have VIF well below 10. Therefore, there is no serious collinearity problem in the independent variables.

**Table 5.** Table of variance inflation factors.

Variable name	VIF	1/VIF
MANAGER	1.11	0.90
BLOCK	2.19	0.46
INST	2.95	0.34
DIRECT	2.38	0.42
VC	1.92	0.52
B_SIZE	1.33	0.75
DUAL	1.06	0.95
ID	1.18	0.63
BUSYDIRECT	1.24	0.81
CCQ1	1.05	0.96
CCQ2	1.05	0.98
GROWTH	1.15	0.87
SIZE	2.06	0.48
INDUSTRY	1.18	0.84
YEAR	1.16	0.86

Note: Please refer to **Table 3** for detailed variable definitions.

### 4.3. Correlation Coefficient Analysis

**Table 6** shows the correlation coefficients in this study. Using this table, the correlation between different variables can be reviewed. As seen, Pearson correlation coefficient analysis shows that there is no high correlation between the independent variables in this study, and the independent variables satisfy the assumption of independence.

### 4.4. Analysis of Regression Results

#### 1) Reasonable compensation of the top-level management

Referring to [30] and [39], this paper estimates the excessive compensation of the top-level management by deducting the reasonable compensation from the actual total compensation upon the reasonable compensation of the top-level management is first determined by the model. The fitness of the estimated normal compensation model of the top-level management is summarized in **Table 7**, where the explanatory power ( $R^2$ ) of the estimated normal compensation model of the top-level management is 52.66%. In this study, all of the following eight variables have a significant positive relationship with the estimated normal compensation (COMP\*) of the top-level management: natural log of net sales (lnSALES), return on assets (ROA), growth opportunity (GROWTH), shareholding ratio of the top-level management (HOLD), standard deviation of annual stock returns (STDRET) in the previous five years, R&D expenses/book value of total assets (RD), capital expenditure/book value of total assets (INV), year (YEAR). In other words, when the sample company is a company after 2020 (inclusive), the higher the company's net sales, return on assets and growth opportunities, the higher the shareholding ratio of the top-level management, the larger the standard deviation of annual stock return in the previous five years, the higher the R&D expenses and capital expenditure accounting for the book value of total assets, and the higher the estimated normal compensation of the top-level management. However, there is a significant negative relationship between the standard deviation of annual return on assets (STDROA) and the estimated normal compensation (COMP\*) of the top-level management in the previous five years. In addition, no significant relationship was found between stock return (RET), liabilities ratio (LEV) calculated by total liabilities divided by total assets, and estimated normal compensation (COMP\*) of the top-level management in this study.

#### 2) Excessive compensation of the top-level management

**Table 8** shows the regression results of this study, in which the dependent variable is the excessive compensation of the top-level management (EXCOMP), and the results estimated by Models H1-1 to H1-5 and H2-1 to H2-2 are listed in the table.

In terms of ownership structure, **Table 8** shows that there is a significantly positive relationship between the shareholding ratio of managers (MANAGER) and the excessive compensation of the top-level management (EXCOMP), and

**Table 6.** Table of correlation coefficients.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. EXCOMP	1.000															
2. MANAGER	0.136***	1.000														
3. BLOCK	-0.118***	-0.125***	1.000													
4. INST	0.006	-0.175***	0.334***	1.000												
5. DIRECT	-0.121***	-0.052***	-0.235***	0.320***	1.000											
6. VC	0.125***	0.048***	-0.291***	-0.077***	-0.343***	1.000										
7. B_SIZE	0.085***	-0.064***	-0.141***	0.290***	0.096***	0.097***	1.000									
8. DUAL	0.019	0.016	-0.051***	-0.190***	-0.101***	-0.001	-0.138***	1.000								
9. ID	-0.086***	-0.002	-0.055***	-0.035***	0.096***	0.364***	-0.018	-0.046***	1.000							
10. BUSYDIRECT	0.125***	0.025**	-0.081***	0.159***	-0.027**	-0.009	0.196***	-0.058***	0.323***	1.000						
11. CCQ1	0.144***	0.055***	0.047***	0.044***	-0.041***	0.027**	0.106***	-0.021	0.131***	0.082***	1.000					
12. CCQ2	-0.008	-0.001	0.018	0.015	0.027**	-0.011	0.028**	-0.004	0.009	-0.052***	0.017	1.000				
13. GROWTH	0.003	0.058***	0.072***	0.196***	0.082***	-0.119***	0.053***	-0.046***	0.097***	0.003	0.046***	0.005	1.000			
14. SIZE	0.066***	-0.135***	-0.002	0.515***	-0.100***	0.248***	0.379***	-0.117***	0.018***	0.225***	0.100***	0.034***	-0.089***	1.000		
15. INDUSTRY	0.198***	0.233***	-0.158***	-0.100***	-0.115***	0.019	-0.120***	0.086***	0.172***	0.121***	0.069***	-0.024**	0.023*	-0.054***	1.000	
16. YEAR	0.089***	-0.049***	0.048***	0.054***	0.001	-0.110***	0.164***	0.007	0.291	0.103***	0.092***	0.106***	0.119***	0.046***	0.001	1.000

Note 1: \*\*\* means it reaches a significant level of 1%; \*\* means it reaches a significant level of 5%; \* means it reaches a significant level of 10%. Note 2: Please refer to **Table 3** for detailed variable definitions.

**Table 7.** Regression results of the estimated normal compensation model of the top-level management.

Variable name	COMP*	
	Coefficient	P-value
lnSALES	0.461***	0.000
ROA	0.012***	0.000
RET	-0.002	0.367
GROWTH	0.415**	0.018
HOLD	0.004*	0.053
LEV	-0.001	0.398
STDROA	-0.008**	0.025
STDRET	0.001**	0.043
RD	0.062***	0.000
INV	1.185***	0.000
YEAR	0.182***	0.000
Intercept term	9.139***	0.000
N		7007
Adj.R <sup>2</sup>		0.5266
F-value		707.28***

Note 1: \*\*\* means it reaches a significant level of 1%; \*\* means it reaches a significant level of 5%; \* means it reaches a significant level of 10%. Note 2: Please refer to **Table 3** for detailed variable definitions.

the research results support H1-1. It means company managers abuse their own power to increase their wealth and receive excessive compensation based on self-serving motives. The shareholding ratio of large shareholders (BLOCK) and the shareholding ratio of directors and supervisors (DIRECT) have a significant negative relationship with the excessive compensation of the top-level management (EXCOMP). It means that when the shareholding ratio of large shareholders and the shareholding ratio of directors and supervisors are high, their supervisory power on the enterprise is stronger, and it can better restrain the excessive compensation received by the top-level management, thus supporting H1-2 and H1-4. The shareholding ratio of institutional investors (INST) has a significant positive relationship with the excessive compensation of the top-level management (EXCOMP), which is opposite to the expected direction of H1-3. When the shareholding ratio of institutional investors is high, the excessive compensation of the top-level management is higher. This paper infers that the main reason may be that institutional investors of the company have a more comprehensive evaluation of the enterprise, pay attention to the long-term interests of the enterprise, and tend to increase the compensation of the enterprise's management to motivate the top-level management. In addition, the empirical results

show that there is a significant positive relationship between the degree of ownership deviation from earnings (VC) and the excessive compensation of the top-level management (EXCOMP), which also supports H1-5. It means that when the degree of the company's ownership deviation from earnings is high, the shares are more concentrated in a small number of controlling shareholders, resulting in more serious agency problems. It means that at this time, controlling shareholders are more inclined to increase the excessive compensation of the top-level management to increase their own interests.

In terms of board characteristics, **Table 8** shows that there is a significant positive relationship between board size (B\_SIZE) and the excessive compensation of the top-level management (EXCOMP). It is consistent with the conclusion obtained by [25] and [26], and it supports H2-1. The proportion of independent directors (ID) is negatively correlated with the excessive compensation of the top-level management, but it has no significant effect. In this study, it is inferred

**Table 8.** Regression results analysis.

Variable name	Expected direction	EXCOMP	
		Coefficient	P-value
MANAGER	+	0.038***	0.000
BLOCK	-	-0.009***	0.000
INST	-	0.005***	0.000
DIRECT	-	-0.008***	0.000
VC	+	0.002***	0.001
B_SIZE	?	0.138***	0.000
DUAL	?	0.017	0.353
ID	-	-0.098	0.157
BUSYDIRECT	+	0.021***	0.000
CCQ1	-	0.057***	0.000
CCQ2	-	-0.001	0.657
GROWTH	+	-0.032**	0.021
SIZE	-	-0.358***	0.000
INDUSTRY	?	0.204***	0.000
YEAR	?	0.141***	0.000
Intercept term		0.122	0.483
N			7005
Adj.R <sup>2</sup>			0.112
F-value			58.85***

Note 1: \*\*\* means it reaches a significant level of 1%; \*\* means it reaches a significant level of 5%; \* means it reaches a significant level of 10%. Note 2: Please refer to **Table 3** for detailed variable definitions.

that the main reason is that the relatively low proportion of independent directors in most companies indicates that independent directors are only set up to comply with the provisions of laws and regulations, and the supervision effect of them is limited. As a result, independent directors may lack sufficient power to effectively monitor the behavior of top-level managers and the excessive compensation of them. Both the business degree of independent directors (BUSYDIRECT) and the frequency of Compensation Committee Meetings (CCQ1) have a significant positive relationship with the excessive compensation of the top-level management (EXCOMP). The effect of the busyness degree of independent directors is in the same direction as expected, supporting H2-4. It means that the busier the independent directors are, the more difficult it is for them to spend efforts to monitor the company, resulting in poor corporate governance, and the more the top-level management can increase their own excessive compensation based on self-serving motives. However, the effect of the frequency of Compensation Committee Meetings is in the opposite direction as expected. The reason may be that when the Compensation Committee Meetings are more frequent, the committee members are more active towards the company, the monitoring effectiveness is better, and the company's operating performance is improved [36], thus enabling the top-level management to receive more excessive compensation. In addition, the average attendance rate of the Compensation Committee (CCQ2) and the chairperson concurrently acting as the general manager (DUAL) has no significant effect on the excessive compensation of the top-level management (EXCOMP).

The regression results of control variables, such as growth opportunity (GROWTH) and the excessive compensation of the top-level management (EXCOMP), show that there is a significant negative relationship between them, which is in the opposite direction as expected. The reason may be that companies are in a stage of rapid growth and need a large amount of funds to invest in the projects they operate, so they are more inclined to give compensation to the top-level management of the company in the form of future rewards such as stocks. The regression results show that there is a significant negative relationship between company size (SIZE) and the excessive compensation of the top-level management (EXCOMP), which is consistent with the expected direction of this paper. There is a significant positive relationship between industry (INDUSTRY) and year (YEAR) and the excessive compensation of the top-level management (EXCOMP). The reason may be that in 2020 and 2021, due to the effect of the COVID-19 epidemic, the "Stay-at-home Economy" of Taiwan has led to the development and prosperity of the technology and electronics industry. The electronics industry is a relatively competitive industry in Taiwan [44], so the willing to pay excessive compensation to the top-level management is high.

## 5. Conclusions and Suggestions

The relationship between the compensation and performance of the top-level

management has attracted the attention of governments in many countries. Moreover, enterprises also expect to establish a more reasonable compensation mechanism through the operation of internal governance mechanism. Therefore, this paper discussed the effect of ownership structure and board characteristics on the excessive compensation of the top-level management. The study period is from 2012 to 2021, and the research samples are listed/OTC companies in Taiwan. The results of this study are as follows:

In terms of ownership structure, 1) There is a significant positive relationship between the shareholding ratio of managers and the excessive compensation of the top-level management. It confirms that managers may control great power of the company through shareholding, thus influencing the decision-making of the company, and thereby improving their own wealth and earning excessive compensation. 2) There is a significant positive relationship between the shareholding ratio of institutional investors and the excessive compensation of the top-level management. In other words, companies with higher shareholding ratio of institutional investors tend to provide higher compensation to the top-level management, so as to motivate the top-level management to improve the long-term interests of the enterprise. 3) There is a significant positive relationship between the degree of ownership deviation from earnings and the excessive compensation of the top-level management. When the company's equity is concentrated in a small number of controlling shareholders, the agency problem may be more serious, which will make the top-level management earn excessive compensation. 4) There is a significant negative relationship between the shareholding ratio of large shareholders and the shareholding ratio of directors and supervisors and the excessive compensation of the top-level management. It can be seen that the higher shareholding ratio of large shareholders and directors and supervisors makes it more conducive for them to control the company's decision-making and direction, and to protect the interests of shareholders by limiting the compensation level of the top-level management. In summary, when the internal governance mechanism of the company is relatively ineffective, the top-level management can obtain higher excessive compensation.

In terms of board characteristics, 1) there is a significant positive relationship between board size and the excessive compensation of the top-level management. It means that the larger the board size, the more complicated the decision-making process, so the board of directors is not easy to be controlled by the management and it can ensure the effectiveness of supervision. 2) There is a significant positive relationship between the busyness degree of independent directors and the excessive compensation of the top-level management. It means that the busier the independent directors are, the more difficult it is for them to spend efforts to monitor the company, which may lead to poor corporate governance, and the more likely the top-level management is to increase their own excessive compensation based on self-serving motives. 3) There is a significant positive relationship between the frequency of Compensation Committee Meet-

ings and the excessive compensation of the top-level management. It means that the higher the frequency of Compensation Committee Meetings, the higher the active degree of the committee members towards the company, the better the quality of supervision, and the better the company's operating performance, so that the top-level management can receive more excessive compensation. To sum up, the board of directors plays an important role in corporate governance. If the board of directors can give full play to its supervision mechanism, it can effectively control the excessive compensation of the top-level management. Therefore, if the company can properly increase the time invested by independent directors, strengthen the management of the board size, and increase the frequency of Compensation Committee Meetings, the supervision effect of the board of directors can be strengthened to ensure the long-term development of the company.

This paper suggests that future research could move toward considering possible geographic differences and industry characteristics simultaneously to increase the external validity of the study.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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