

THE INFLUENCE OF MANAGEMENT COMPENSATION ON DIVERSIFICATION STRATEGY

Tzu-Ching Weng, Feng Chia University
Chieh-Wen Kuo Chen, Feng Chia University
Pei-Jung Lee, Feng Chia University

ABSTRACT

The main purpose of this study is to examine the effects of managerial compensation on corporate diversification strategy. Managerial compensation is not only related to personal income but also closely linked to the firm's equity and long-term development strategies. In the pursuit of self-interest by the principal and the agent, both parties seek to maximize their benefits. Previous studies have indicated that related diversification is better for resource sharing and synergy, leading to a category economy. This study uses valid sample observations to analyze narrative statistics, and then uses ordinary least square linear regression analysis. This leads to the following conclusions: First, the compensation system for manager rights and interests is positively correlated with the overall degree of diversification. Second, the system of cash compensation for managers is relatively irrelevant to the overall degree of diversification. Third, the size of the company is positively correlated with the degree of overall diversification.

JEL: G32, G34, M41

KEYWORDS: Management Compensation, Corporate Diversification Strategy

INTRODUCTION

The main purpose of this study is to examine the impact of managerial compensation characteristics (in-kind and cash) on corporate diversification. Managerial compensation is not only related to personal income, but also closely related to equity and strategies for the long-term development of the firm. The agency theory proposed by Jensen and Meckling (1976) shows that when decision-making and risk-taking are separated, agents tend to pursue self-interest rather than maximize firm value. When the principal and the agent pursue self-interest, both parties seek to maximize their utility. So, how can the principal design a compensation system and balance the goals of maximizing the interests of both parties through effective incentive and control mechanisms? This has become a system design to which companies attach great importance. In 2010, Microsoft Corporation's compensation system was primarily focused on providing equitable compensations and designing total compensations that are commensurate with performance. A competitive compensation system is about considering the best interests of shareholders to motivate managers to execute their business. For example, Apple Inc.'s compensation system used restricted stock units as a payment method for long-term incentives and Apple Inc.'s compensation system used restricted stock units, cash bonuses, and three compensation instruments for base compensation. As business models and environments change, companies often shift their compensation to equity-based compensation. Frederic W. Cook and Co, Inc. conducted a survey of Standard and Poor's 250 long-term compensation instruments and found that the Standard and Poor's 250 most common long-term compensation instruments are stock options (stock options), stock appreciation rights (stock appreciation rights, SAR), restricted stock, performance shares (performance shares), and performance units (performance units).

With internationalization, globalization and rapid technological innovation in Taiwan, the business environment of enterprises has changed drastically. In order to create more benefits, a diversification strategy has been developed. Companies use various methods to expand their assets and production capacity and integrate resources, capital and technology. Therefore, more and more companies are choosing to implement diversification strategies. Anderson, Bates, Bizjak, and Lemmon (1998) found that CEOs of diversified firms have, on average, lower stock ownership, higher income, and a lower link between compensations and performance. The different characteristics of compensations lead managers to develop a business strategy that is related to the long-term development direction of the company. Hence, this study will investigate how the different compensation characteristics affect the diversified business strategy of firms. The main purpose of this research is to explore how companies should formulate a compensation system for managers and use compensations as incentives to align the interests of managers and investors and devote themselves to pursuing business strategies to maximize the company's benefits.

This research focuses on whether different incentives lead managers to pursue different strategies to diversify the firm. Research on corporate diversification strategies shows that from a resource-based view of the firm (resource-based view of the firm), the synergy that firms achieve by sharing internal resources and transferring capabilities among themselves improves the overall profitability of the Group. Shared resources within the group include: Tangible, intangible, and financial resources (Chatterjee and Wernerfelt, 1991). Lang and Stulz (1994) found that the value of diversified companies is lower than that of single-division companies. Diversification could reduce the firms' value, and the nature of diversification is more moderate (Berger and Ofek, 1995), which shows that diversification of firms could reduce shareholder value. However, Palia (1999) highlighted that the phenomenon of diversification is absent when the design of the corporate manager's compensation system is highly correlated with performance or the size of the board of directors is small. Carpenter and Sanders (2004) used Standard and Poor's 500 as a sample of 224 U.S. multinationals that meet Stopford's (1992) definition of multinationals and have complete data. They found that the compensation of high-level management teams and the subsequent development of multinational corporations. Their research also showed that the focus of high-level management team compensation has shifted from cash compensation system to the long-term incentive compensation system, and that long-term incentive compensation also positively influences the subsequent corporate performance of multinational corporations. As for the characteristics of compensation, stock compensation is long-term incentives. Based on agency theory (Jensen, 1986), which assumes that managers seek personal gains or more control, personal compensations, and personal prestige this study empirically shows that stock compensation has a positive effect on firms' diversification strategies, while cash compensation has a smaller effect on firms' diversification strategies. The reason may be that the synergy of corporate diversification strategies is the long-term accumulation effect and the cash compensation system cannot be used. Encourage managers to focus on formulating long-term corporate strategies.

Our findings can serve as a benchmark for investors (principals) and regulators to determine whether the compensation system is consistent with the most appropriate configuration of the company's strategy, and it can also serve as a reference for companies when designing compensation systems. If you want to diversify, you should believe that long-term equity compensations are the main compensation system that motivates managers to conduct operational planning for corporate diversification strategies, achieve long-term operational synergies, and diversify operational risks. This study can also be used as a reference by the current compensation committee for corporate compensation system planning related to operational strategy, so the research contribution of this study is to enable corporate investors and compensation committees and other corporate governance institutions to formulate or review the rationality of the compensation system and the relevance to operational strategy. This study is organized as follows: Section 2 introduces the literature and reviews. Section 3 describes the testing models and variables. Section 4 empirically tests the predictions and reports the results. Section 5 presents the conclusions and suggestions for future research.

LITERATURE REVIEW

Theoretical Basis of Manager's Compensation Characteristics

Jensen and Meckling (1976) posited agency theory and defined the agency relationship as “a principal commissioned and empowered by an agent to represent the principal to perform certain acts within the scope of the principal's authority. The contractual relationship between them is called agency relationship.” According to agency theory, the way to solve the agency problem between the agent (agent) and the principal (principal) is the compensation system. The principal determines the agent's incentives and contract structure based on agency costs and the most appropriate contract design, and encourages the agent to make decisions that maximize the principal's value. However, if ownership of the firm is separated from management rights, then the manager has no residual claim (residual claim) and does not have to bear the risk of bad decisions (Fama and Jensen, 1983). Thus, the manager no longer pursues the goal of maximizing the firm's profit. It is the pursuit of maximizing his own utility. In this structure, if the principal and the agent pursue different goals, there may be potential conflicts of interest that lead to agency problems. Therefore, the question of how to formulate the most appropriate compensation contract has always been an issue in modern academia and industry.

Compensations could motivate managers to make and implement decisions related to the best possible performance of the company. By increasing their equity exposure (Jensen and Meckling, 1976) and increasing dividend payments (Easterbrook, 1984) to solve the agency problem, the manager's compensation should be appropriately related to output to induce the manager to exert the greatest effort (Holmstrom, 1979); moreover, managers (shareholders) should be able to measure their level of effort against output. Lambert, Lance, and Larcker (1989) pointed out that companies' implementation of stock option policy encourages managers to engage in high-return and high-risk investments, as this can enhance corporate performance and relatively increase the value of managers' stock options. Larcker (1983) believes that the performance-based pay system can reduce managers' risk aversion behavior. Mehran (1995) also pointed out that the closer the relationship between managers' wealth and shareholders' wealth, the closer managers' risk appetite is to shareholders' risk appetite.

Manager compensation is often performance-based and designed to influence managerial decision-making behavior, stock options, and other long-term incentive tools so that managers are inclined to pursue the long-term interests of the firm (Shleifer and Vishny, 1997). Long-term incentive compensation is usually in the form of stock. Short-term incentive payments are in the form of cash. Incentive compensation is used to indirectly control managers' decision-making behavior and execution. Bergmann and Scarpello (2002) believe that long-term compensation can be used to create long-term incentives. Operational performance is the prerequisite for ensuring that managers' self-interested behavior does not jeopardize shareholders' interests. If the manager's compensation system is not properly designed, it is easy for managers to avoid failure of the business strategy under risk-averse conditions (Watts, 2003). If the strategy is successful but fails to verify future cash inflows, it is important to avoid the problem of cash compensation being paid up front and causing losses later. Therefore, corporate profits should not be immediately reflected in the manager's cash bonuses. Research findings on the correlation between executive compensation and corporate performance are easily influenced by the manager's business motivation and the corporate environment. Chen (2005) believes that family firms have special agency relationships because they can directly supervise senior managers. Such companies are less likely to adopt a performance-based compensation model. In general, managers prefer accounting-based performance evaluation standards because they can manipulate accounting-based performance through related-party transactions, reduction of R&D expenditures, asset replacement, etc., and then market large personal gains; and for shareholders who are not involved in the business (investors). Gormez-Mejia and Balkin (1992) believes that external market factors can better assist them in monitoring the decision-making behavior of high-level managers.

The interests of the (investors) are usually unified. The annual dividend plan, which relies solely on the financial base, is often criticized because it leads managers to focus on short-term financial returns and hinders long-term investment (Kaplan and Norton, 1992). Therefore, Fitzgerald et al. (1991) and Banker et al. (2000) advocated nonfinancial indicators that can increase the long-term impact of managers' commitment to decision-making and help companies increase competitiveness and create value investing. Bushman et al. (1996) suggested that managerial performance evaluation increases with product development, product life, and growth opportunities. Abowd (1990) examined the relationship between cash compensation and future firm performance and predicts that future firm performance will be better if managers respond more positively to the stronger link between pay. Crystal (1993) also examined the relationship between stock performance and sensitivity to future performance, and found that sensitivity to future stock performance was not correlated with the salary performance of the previous manager. Banker et al. (2000) showed that after the introduction of nonfinancial performance measures in the compensation program, the future financial and nonfinancial performance of the company is significantly improved. Compared to the financial performance base, the measurement of the nonfinancial performance base is more suitable to increase the information content of the management decisions of the relevant managers of the company (incremental information content). Patent rights (Sougiannis, 1994) and product returns (Nagar and Rajan, 2001) have all confirmed that nonfinancial performance measurement is helpful for the future profitability of companies. In summary, research shows that the managerial system is usually linked to nonfinancial fundamental measurement indicators. Shareholders expect managers' pursuit of large self-interests through long-term incentive compensation contracts to be consistent with the long-term performance of the firm and to improve future firm performance.

Enterprise Diversification Strategy

Rumelt (1974) found that the proportion of affiliated firms and unaffiliated diversified firms among the 500 largest U.S. firms increased substantially between 1949 and 1969, while the proportion of individual firms increased substantially. This tremendous decline has attracted considerable attention in strategic management scholarship. Rumelt (1974) defined diversification as entering new industries, adding new products and entering new markets, and proposed the types of diversification as vertical integration, related diversification and unrelated diversification, and his definition is the so-called related The diversification department business fields are divided into different functional areas, and the different business units that constitute diversification have a common product market combination; Non-related diversification means that there is no common product market combination between the various business entities that constitute diversification. Aaker (1984) redefines the terms "relevant diversification" and "unrelated diversification." Relevant diversification is defined as diversification that has some commonality among several business units that can generate synergies or reach through asset exchange or technology transfer. Economies of scale; non-relevant diversification means that there is no commonality between the different business units of diversification, whether it is the market, production technology, distribution channels, or special capabilities in research and development, there is no commonality, and no resources can be reallocated. Technology transfer has a broad impact. This strategy is born for financial reasons and aims to achieve the maximum profit of the company.

Gort (1962) referred to the increase in the number of product markets as diversification. The definition of products is limited to the low flexibility of mutual substitution between products, or the inability to share production and distribution resources, and prefers unrelated diversification. Motivation for diversification among different theoretical viewpoints, the resource-based view of the firm is the most prevalent, focusing on the importance of diversification. Hofer and Schendel (1978) believed that by sharing resources within the group, firms can achieve synergies and thereby increase overall group profits. Markides and Williamson (1994) also suggested transferring and sharing core competencies within the group, which creates new strategic assets more economically and improves the overall performance of the group. When the resources used in diversification production are firm-specific and unlimited (Lippman and Rumelt, 1982), a unique

competitive advantage of the firm is created, which can explain the better performance of the associated diversification. Several studies examined the rationale for diversification in terms of improving the efficiency of production factors, reducing overall operating risks and agency costs.

Leff (1978) started from the perspective of market imperfection and believed that in the case of market failure, group companies can efficiently increase production input factors while avoiding market risks and uncertainties; in this case, the group's diversified operations are distinguished by simultaneous activities. Professional managers' pursuit of diversification is not the same as that of investors. Their main objective is to reduce employment risk. Amihud and Lev (1981) showed that the degree of diversification of companies managed by professional managers is significantly higher than that of nonprofessional managers. The firm is operational and professional managers are more likely to enter new businesses through mergers and acquisitions, suggesting that professional managers are willing to take more operational risks in return for potential growth and reputation. Berger and Ofek (1995) found that corporate diversification can lead to greater market power through predatory pricing and cross-subsidization among subsidiaries; it can also make capital raising more flexible through financing and lending among subsidiaries (Meyer, Milgrom, and Roberts, 1992). Markides (1992) believed that the excess capacity of the firm's exclusive assets is not consumed when used. Through diversified resource sharing and sharing in other areas, there should be a continuous increase in profits. Therefore, he believes that the profitability of the group and diversification. The degree is proportional. However, some scholars believe that diversification should have an optimal point that is not absolutely proportional to infinite expansion. Markides and Williamson (1994) highlighted that once a company enters a highly diversified business, the sharing of resources and capabilities is limited and the benefits no longer exist. Instead profitability declines. Close cooperation among the group's subsidiaries can provide benefits to the group, but the degree of diversification is too high. When the costs of cooperation and coordination among the group's subsidiaries far exceed profits, the internal capital market becomes uneconomic (Grant, Jammine, and Thomas, 1988).

Cao, Jin, and Lu (2011) compiled previous research literature and explained that diversification can be divided into product diversification and international diversification. The benefits that product diversification brings to the firm includes: increasing the utilization rate of the remaining resources (Reed and Luffman, 1986) and diversifying the firm's investment risks (Chatterjee and Lubatkin, 1990). The benefits of international diversification of firms include: diversification of investment and management risks and use of local national resources to develop their own competitive advantages (Kogut, 1986; Deeds and Hill, 1999). Hoskisson and Hitt (1990) and Markides and Williamson (1994, 1996) believed that a firm's diversification strategy is to reflect or use the firm's special resources to create value and generate profits. The special resources include the technical resources of the company (Miller, 2004).

The Influence of Top Management's Compensation on Firm Diversification

The literature on agency theory shows that managers tend to pursue private interests rather than the motive of maximizing firm value and make diversified investments. Operational uncertainty and complexity of managers' work increase, leading to serious information asymmetry between shareholders and managers. Managers actively pursue diversified investment strategies because of their own increase in power or higher compensations (Denis et al., 1997). Managers may also diversify to reduce personal risk or increase their value in the workplace. Denis et al. (1997) showed that manager's equity ownership can affect the performance of diversified investments because higher manager's equity ownership can reduce agency costs and manager's equity ownership. There is a significant positive relationship with diversification investment performance. In family firms, managers are often held by family members. In terms of management resources, the development of business growth is slightly limited in the long-term. There is a shortage of internal management talent in the company. Family businesses often use family members as professional managers instead of appointing external professional management talents. Ahlstrom et al. (2004) suggested

that the reason for this is to maintain the family's relationship with the group company. Therefore, the large investment in family resources may limit the growth of family firm diversification strategies.

The level of managerial compensation has a significant impact on the firm's uniqueness risk, especially the higher the long-term incentive compensation, the higher the firm's uniqueness risk. It shows that managerial compensation system induces managers to take the unique risks of the firm, and it can significantly increase shareholders' wealth and firm performance. Denis, Denis, and Sarin (1997) showed that the manager's participation rate is inversely related to diversification motivation, i.e., the lower the manager's participation, the greater the loss of diversification. Jiraporn et al. (2006) sampled American corporate managers. The results of the study show that American corporate managers may pursue self-interested motives rather than the motive of maximizing corporate value, and then make diversified investments (managers tend to be self-interested). Investment in product diversification is more likely than investment in international diversification. However, if shareholders have more rights or a firm has a more concentrated shareholder structure, managers' self-interested behavior can be monitored and the loss of diversification reduced. The incentive of stock options puts managers and shareholders in the same interest position (Oviatt, 1988), and as stock ownership increases, managers' wealth lacks the function of diversification and risk spreading and becomes concentrated, so managers will demand higher compensations (Jensen and Meckling, 1976). Pavilk and Riahi-Belkaoui (1993) indicated that managers' compensations are usually determined by the firm's operational performance. The content of compensations affects the strategies formulated by the company. In order to effectively implement the diversification strategy, the different compensation strategies usually need to work together (Gomez-Mejia, 1992), which is the executive power of managers. This argument was also confirmed in Hill and Snell's (1988) study of external control, corporate strategy, and corporate performance in R&D-intensive industries. They showed that R&D-intensive industries are high-risk, and high-compensation industries, and that their managers are risk averse. However, the investment and operating strategy that is beneficial to shareholders is a limited diversification strategy, suggesting that managers are building a personal business empire or reducing personal risk. The diversification strategy will increase their own utility rather than maximize corporate profits. The entrenchment hypothesis posited by Jensen and Ruback (1983) assumes that if high-level managers have sufficient control and voting power, they can consolidate their positions and disregard other shareholders or outside controlling forces, leading to an exacerbation of agency problems.

To increase their compensations and enhance their own importance and power, managers often pursue self-interest through diversified business decisions, mergers and acquisitions, higher the degree of diversification of the company's implementation, and the manager's dividend share of total pay (Napier and Smith, 1987). To achieve personal benefits and reduce the particular risks of the company, managers will pursue diversification strategies (Aggarwal and Samwick, 2003), while shareholders use appropriate corporate governance mechanisms, such as the board of directors and the establishment of a managerial compensation system, to limit excessive managerial diversification. Gaver (1993, 1995) confirmed that the compensations for managers of companies with high growth opportunities are higher than those of companies with low growth opportunities, and the proportion of long-term incentive compensations for managers with high growth opportunities is higher, so the growth opportunities are higher. To pursue growth opportunities, companies choose to enter another new industry. Stimpert and Duhaime (1997) found that the higher the profitability of the industry, the lower the degree of diversification. Firms in low-profit industries tend to adopt a diversification strategy. Firms tend to shift the focus of the managerial compensation system from cash payments to long-term incentive payments in response to higher-level and complex firm-related conditions and environments (Henderson and Fredrickson, 1996; Finkelstein and Boyd, 1998; Sanders and Carpenter, 1998). Carpenter and Sanders (2004) examined how the distribution of cash and long-term incentives affects information processing and insight ability capabilities, as well as the increasing importance of compensation structures. The results also show that long-term incentive compensations are cross-national. Future firm performance is relevant.

Sanders and Carpenter (1998) pointed out that companies will pay CEOs higher salaries and increase the share of long-term incentive awards for CEOs. By adjusting the compensation structure, CEOs are encouraged to pursue international diversification strategies. The compensation system affects managers decision-making behavior in terms of environmental perceptions (Gomez-Mejia, 1994), risk-taking (Jensen and Murphy, 1990), willingness to engage in interdepartmental collaboration (Kim and Mauborgne, 1991), and teamwork among upper management (top management team) and teamwork (Hambrick, 1995), so that a compensation system will encourage managers to take the risks necessary to execute international diversified business strategies. Larker (1983) hypothesized that long-term incentives and compensation schedules increase capital investment, and capital investment tends to reflect managers' operational decisions that are long-term and beneficial to multinational companies (Prahalad, 1990; Weick and Van Orden, 1990). Sanders (2001) showed that cash and long-term incentives and compensation systems have a large impact on managers' subsequent operational behavior and decision-making; Carpenter and Sanders (2002) found that compensation predictors and CEO compensations are for high-level management teams. Carpenter and Sanders (2004) explored the correlation between the compensation structure and international diversification, and studied the impact of senior management team's compensation structure on the performance of international diversification. The results showed that the total compensation level of senior management team is positively correlated with the subsequent performance of multinationals; that is, giving managers higher compensations and increasing the proportion of their awards in the medium and long-term remuneration have better performance for the firm's international diversification.

The above study examines the relationship between the compensation system and diversification, but there is limited literature on the direction of the effect of the cash and stock compensation system on firm diversification. Jensen and Meckling (1976) stated that increasing managers' share of stock could solve the agency problem and induce managers to do their best and bear the unique risks of corporate activities. Companies usually choose to enter new businesses and pursue diversification strategies. Extend the life of the business and diversify operational risks. The CEO's personal investment in the enterprise is relatively high, and he will be more inclined to implement the enterprise diversification strategy (May, 1995). Cao, Jin and Lu (2011) investigated the relationship between ownership structure and diversification, and the empirical results are consistent with Jensen and Meckling (1976) argument that higher managerial involvement can reduce agency costs. They found that managerial participation is associated with diversification. The performance of diversified investment shows a significant positive relationship. Sanders and Carpenter (1998) showed that a higher CEO salary and a higher proportion of long-term incentives in his compensation system effectively motivate the CEO who pursues an international diversification strategy. Carpenter and Sanders (2004) also found that in the compensation structure of CEOs and senior management teams, long-term incentives have a high proportion of compensation, which can motivate the management team more to conduct long-term operational planning over several periods and help to improve the follow-up of multinational companies. The problem leads the manager and the principal to pursue the goal of profit in the same direction, and the manager is willing to pay more complex information processing capabilities for the expected returns on equity in the future to realize the diversified business strategy of the company. Therefore, the first hypothesis is as follows:

Hypothesis 1: The compensation system for managers' rights and interests will positively influence the diversification strategy.

Jensen and Meckling (1976) pointed to the agency problem and argued that low managerial stock ownership exacerbates the equity agency problem. Bebchuk and Fried (2003) believed that the salary of high-level managers is part of the agency problem and managers tend to avoid risk. Chen, Wang, and Lin (2011) showed that cash compensations are not significantly associated with uniqueness risks. The results show that the higher the manager's cash compensation and base salary, it has no influence on inducing managers to take on uniqueness risks. On the contrary, it can actually reduce the uniqueness risk of the company. Therefore, cash compensations cannot motivate managers to work hard for the company's long-term

strategy, nor can it make managers take unique risks, such as business diversification strategies, so that managers do not follow the company’s long-term business concept. Cash compensations make managers short-sighted and seek personal gains. They seek only current surplus, track financial performance indicators, or manipulate accounting gains and losses. Therefore, the second hypothesis is as follows:

Hypothesis 2: The managerial cash compensation system does not affect the company’s diversification strategy.

DATA AND METHODOLOGY

In this study, the degree of diversification is used as the contingency number, the managerial compensation characteristics are used as the independent variable, and other related control variables are added as follows:

Dependent Variable

The entropy index mentioned above is more objective and can calculate the direction of diversification (whether the diversification carried out by the company is contiguous or unrelated) and the degree (the extent of relevant or non-contiguous diversification of the company). The diversification calculation indicates whether a company’s product line spans several different industries. This research uses the classification of “Taiwan Institute of Economic Research” to define the industry category the company has entered; the sub-category confirms the product category the company has entered; and calculates the overall diversification degree of the company according to the following formula.

A company’s total diversification index (PDT) is the sum of the company’s relevant diversification (PDR) and non- relevant diversification (PDU). The PDR is used to calculate the degree of relevant diversification of a company in an industry. Since the company operates in n industries, the weighted average of the company’s relevant diversification in all industries is calculated to obtain the company’s product- relevant diversification (PDR); and the company’s non- relevant diversification (PDU) is the weighted average of the company’s total sales revenue, which is used to measure the extent to which the company’s products have entered different industries. The corresponding formula is as follows:

$$PDR_s = \sum_{r=1}^m P_r^s \ln (1/P_r^s) \tag{1}$$

$$PDR = \sum_{s=1}^n PDR_s P^s \tag{2}$$

$$PDU = \sum_{s=1}^n P^s \ln (1/P^s) \tag{3}$$

$$PDT = PDR + PDU \tag{4}$$

s = Industry category, “Industry Classification” of Taiwan Economic Research Institute’s Industrial Economics Database.

m = The number of products that the company has stepped into in the s industry.

r = “Sub-category” product sales revenue

$$P_r^s = \frac{r \text{ product sales revenue}}{r \text{ Total sales revenue of the s industry to which the product belongs}}$$

Independent Variables

Independent variables: Cash compensation system for managers (C_COMP), managerial rights and interest compensation system (S_COMP) The independent variable in this study is the characteristics of managerial compensations, based on the research of Henderson and Fredrickson (1996) and Duru and Reeb (2002), which divide compensations into cash compensations and equity compensations. The corresponding models and formulas are as follows:

1-The manager's cash compensation system (C_COMP) refers to the current year's manager's cash dividend deflation of total assets.

$$C_COMP = \frac{\text{Manager cash dividend for the year}}{\text{Total assets}}$$

2-The manager's equity compensation system (S_COMP) refers to the current year's manager's dividend allotment to flatten the total assets.

$$S_COMP = \frac{\text{Manager bonus allotment for the year}}{\text{Total assets}}$$

Control Variables

This research refers to the diversification research of scholars in the field of corporate governance and strategy management, considers other factors that may affect the diversification strategy of the company, and lists them as control variables for control in the model. The control variables are described as follows:

(1) Family Business (Family)

Taiwan's early enterprises were mostly small and medium-sized enterprises. The family business is a common form of business organization in Taiwanese society. Barnes and Hershon (1976) assumed that the ownership of the enterprise with the ability to control the enterprise is controlled by a particular family. This business is referred to as a family business. Handler (1989) discusses the family business at four levels: multiple conditions, ownership and management rights, transfer of power between generations, and the degree of interdependence between subsystems and the depth of the family's involvement in the business. Domestic scholars define that a family holding company must meet the definition of a business group and satisfy one of the following conditions: (1) family members provide more than 50% of the seats on the main board of the company; (2) the family member or the investment company established by the family member controls more than 10% of the equity of the company and has a seat on the board of the controlling company. Sirmon and Hitt (2003) believed that the resources and capabilities of the family firm's unique value system will influence its strategic decisions in pursuing business growth. The development process of Taiwan's economy is closely related to the diversification course of large family businesses and their entry into emerging industries (Chung, 2006). If it is a family business, the variable is set to 1 and otherwise 0.

(2) Return on Total Assets Ratio (ROA)

It is generally accepted that financial statements may contain information that is not reflected in stock prices. However, accounting performance is separable, so it is often used to measure business performance indicators. ROA is used to measure the efficiency of the company's operations in order to use return on assets. It is defined as ratio of the net income before interest to average total assets. The business performance of a company affects the choice of diversification strategies and types. Therefore, in this study, ROA

is included as a proxy variable for financial performance in the control variable (Ramanujam and Varadarajan, 1989). The corresponding calculations are described below:

$$ROA = \frac{\text{Net profit before tax}}{\text{Average total assets}} \times 100\%$$

(3) Return of Investment (ROI)

RET can represent changes in the wealth of corporate shareholders. If managed effectively, corporate value will be reflected in stock prices (Coughlan and Schmidt, 1985). Therefore, in this study, RET is used as a proxy variable for market performance, and the corresponding formula calculations are described below:

$$RET = \frac{(P_t \times (1 + \alpha + \beta) + D)}{(P_{t-1} + \alpha \times C) - 1} \times 100\%$$

P_t : Closing price of period t (index)

α : Current ex-rights subscription rate

β : Current ex-rights free allotment ratio

C: Current ex-rights cash subscription price

D: Cash dividends paid in the current period

(4) Business Age (AGE)

It presents the age of the company. The longer they are established, the more competitiveness they build and also the better they can borrow and build supply chains and banking relationships. Therefore, young companies tend to be less able to enter new industries. When firms have the opportunity to enter new industries (Bernado and Chowdhry, 2002) and gain production and operational experience over time, they are more likely to engage in diversified activities. Therefore, the age of the firm and the degree of diversification should be positively correlated. In this study, the age of the company is listed as a control variable and the research year minus the year the company was founded is used as the measurement method.

(5) Firm Size (SIZE)

When resource allocation fails, the company will adopt a diversification strategy (Teece, 1980), that is, if the company has excess resources and cannot trade these resources in the market, the company can use these resources to diversify to make profits. Managers should have a high level of responsibility and must have a high level of technical competence. They are more likely to use complex operating strategies in large companies. The research results of Singh, Mathur, and Gleason (2004) indicated that larger companies have higher motivation for diversification strategies, and it is implied that companies have more industry sectors (Denis et al., 1997), so it is concluded that the size of the company also has a multilevel influence on the variables of transformation. In this study, the total sales of the company are considered as a natural logarithm and are used as a substitution variable for company size.

(6) Debt Ratio (LEV)

Financial leverage is related to systemic risk, and under the condition of high financial leverage, firms have greater pressure to pay and repay their debt contracts. Therefore, the liabilities may push companies to use their own cash flow to be more valuable. In terms of investment, it influences firms' diversification activities (Jensen, 1986; Barton, 1988). Therefore, it is also considered as a control variable in this study, which is defined as the ratio of long-term liabilities to total assets.

$$LEV = \frac{\text{Long-term liabilities}}{\text{Total assets}}$$

(7) CEO Duality (DUALITY)

The dual role of the CEO is one way to reduce information asymmetry (Anderson and Anthony, 1986; Sanders and Carpenter, 1998). CEOs who are both corporate managers and supervisors can quickly bring business information to the board. They do not have to wait for outdated information in financial statements to obtain operational information, which can speed strategy formulation. In addition, the CEO’s share ownership can align the interests of shareholders, which will also affect the diversification strategy. In a company, if the general manager is also the chairman of the board, the dummy variable (Sanders and Carpenter, 1998) must be used for measurement. If the general manager is also the chairman, the variable is 1 and otherwise 0.

Empirical Model

This research adopts the ordinary least square (OLS) equation which are designed as follows:

$$PDT_{i,t} = \alpha_0 + \alpha_1 S_COMP_{i,t-1} + \alpha_2 C_COMP_{i,t-1} + \alpha_3 FAMILY_{i,t-1} + \alpha_4 ROA_{i,t-1} + \alpha_5 RET_{i,t-1} + \alpha_6 AGE_{i,t-1} + \alpha_7 SIZE_{i,t-1} + \alpha_8 LEV_{i,t-1} + \alpha_9 DUALITY_{i,t-1} + \sum_{j=1}^4 \beta_j YEAR_j + \sum_{k=1}^{19} \beta_k IND_k + \varepsilon_{i,t} \quad (5)$$

Where *i* is the industry and *t* is the year. PDT = the overall degree of diversification of the enterprise, calculated by Entropy index

Data Selection

This study examines listed companies from Taiwan and OTC (with the exception of the financial industry with special industry characteristics). No distinction is made between the broader research aspects of the industry, and the listed and OTC companies have higher incentives to carry out diversification strategies and thus the size of the economy. The data are taken from TEJ’s basic company information, financial information, corporate governance variables, and stock prices. The original data used to calculate the diversification ratio is classified and subdivided in the “Institute of Economic Research, Taiwan Economic Research Institute.” Table 1 shows the sample selection process and present that the sample period is from 2017 to 2020, when the number of original samples obtained by this research is 5,882 companies-the annual sample and deleted the unavailable observations. The annual report provides information on the remuneration of managers, a total of 702 samples; after subtracting those who cannot obtain relevant control variables and incomplete financial information, a total of 82 samples remain. After the sample screening mentioned above process, the final effective sample number is 5,098 observations.

Table 1: Sample Selection

2017-2020 Listed Companies (Excluding Financial) Disappeared:	5,882
Unable to Obtain or Not Revealing in the Annual Report.	702
Incomplete financial information	82 (784)
Number of effective samples	<u>5,098</u>

This table shows the sample selection process.

After obtaining valid sample observations, controlling for year distribution and industry characteristics may introduce errors in the regression analysis. Therefore, control for the year and industry category, and also control for variables by industry category to obtain a clearer understanding of managerial compensation characteristics and firm diversity across industries. The annual distribution status is shown in Table 2. The number of samples in each year is evenly distributed, and there is still a slight increase from year to year. The development strategy is consistent. The annual control variables in this study cover a total of 4 years.

Table 2: Sample Distribution by Year

Year	Frequent	Percentage (%)	Cumulated Percentage (%)
2017	1,227	24.07%	24.07%
2018	1,254	24.60%	48.67%
2019	1,286	25.23%	73.89%
2020	1,331	26.11%	100.00%
Total	5,098	100.00%	

This table shows the sample distribution per year.

RESULTS

Descriptive Statistical Analysis

Table 3 shows the narrative statistics of each variable. In this study, the average value of the total diversification index (PDT) of the parent company is 0.3648, the maximum value is 1.7743, and the minimum value is 0. The higher the value of the total diversification index of the company, the more relevant or irrelevant the diversification of the company is, and there may also be a significant amount of relevant and irrelevant diversification. A value of 0 indicates that the company has not diversified. The main independent variables are the manager's cash compensation system (C_COMP) with an average value of 0.0040, where the maximum and minimum values are 0.0240 and 0.00003, respectively; the manager's equity compensation system (S_COMP) has an average value of 0.0122, where the maximum and minimum values are 0.1514 and 0, respectively, indicating that the compensations of the sample companies are very different.

Regarding the control variables, family firms (FAMILY) accounted for about 61.61% of the firms in the sample, suggesting that family firms accounted for the majority of the observations in the sample. This may be closely related to the history of Taiwan's economic development. In Taiwan's early days, most of them were family businesses. Therefore, small and medium-sized enterprises, have become a widespread enterprise form in Taiwan's economic development in the course of long-term development. Therefore, the family enterprise form is the normal state of Taiwanese enterprises in the sample.

As for the control variables for the financial information of the companies, the debt ratio (LEV) is about 6.5542% on average, that is, the medium- and long-term debt of the sample companies accounts for 6.5542% of total assets; the return on assets of the sample companies (ROA) is the average net income before taxes before interest. The ratio of total assets is 1.5061% on average; and the average ROA of sample companies (RET) is 32.4729%. As for the control variables of the basic characteristics of enterprises, the agency variable of enterprise size (SIZE) is the natural logarithm of sales revenue, with a standard deviation of 1.5492; the number of years of establishment of sample enterprises (AGE) is 24 years on average, and the oldest enterprises are in 57 years, the youngest enterprise is four years old; moreover, approximately 34% of the sample companies have the CEO and the chairman of the board (DUALITY), which reveals that managers hold two positions simultaneously in the listed companies.

Table 3: Descriptive Statistics of Key Variables

Variable	Mean	Median	Std. Dev	Min	Max
PDT	0.3648	0.0000	0.5959	0.0000	1.7743
C_COMP	0.0040	0.0025	0.0044	0.0000	0.0240
S_COMP	0.0122	0.0030	0.0243	0.0000	0.1514
FAMILY	06161	1.0000	0.4864	0.0000	1.0000
LEV	6.5542	2.3700	8.8135	0.0000	38.4200
ROA	1.5061	1.2200	2.5385	-6.6200	9.3200
RET	32.4749	2.2665	99.7324	-78.8884	465.0978
SIZE	14.9560	14.8310	1.5492	11.0059	19.4876
AGE	24.4859	22.0000	12.2788	4.0000	57.0000
DUALITY	0.3427	0.0000	0.4747	0.0000	1.0000

This table shows the descriptive statistics of all testing variables. PDT represents the overall degree of diversification of the enterprise; C_COMP represents cash compensations for managers; S_COMP represents equity compensations for managers; FAMILY represents a family business, 1 if the business is a family business, 0 otherwise; LEV stands for corporate debt ratio, long-term debt divided by total assets; ROA represents the return on assets of the company; RET represents the return on stock of the company; SIZE represents the scale of the enterprise, which is the natural logarithm of the sales revenue of the enterprise; AGE represents the number of years of establishment of the enterprise, which is the research year minus the establishment year; DUALITY represents the general manager and concurrently serves as the chairman, and the concurrent position is 1, otherwise it is 0.

Regression Analysis

The main regression results of the relationship between managerial compensation characteristics and corporate diversification are presented in Table 4, which provides the empirical basis for this study. The empirical evidence from Table 4 shows that the R-squared is 8.06% and the F-value is 20.62 (p-value is 0.000), which means that the model fits well.

Table 4 presents a significant positive correlation between the manager’s equity compensation system (S_COMP) and the company’s overall diversification strategy (PDT), and confirmed the hypothesis 1. This shows that this research is supported by Hypothesis 1. That is, if managers’ compensation design tends to be a long-term incentive in the form of rights and compensations system, managers’ pursuit of private interests and corporate profits will be promoted. The goal is largely consistent with the direction, and the agency problem is reduced. Managers are more willing to pay a higher level of processing power for the predictable equity compensations in the future, and seek the long-term business success of the firm and the business strategy of diversified operations. This is consistent with the findings of Sanders and Carpenter (1998, 2002 and 2004) and Zhao (2002) and other domestic scholars.

The manager’s cash compensation system (C_COMP) has no significant effect on the firm’s overall diversification strategy. The coefficient is 5.8403 and the t-statistic is 1.51. This means that if the manager's compensation is the short-term visible cash compensation system, the manager will pursue his own personal gain, rather than take operational risks and will not engage in the diversification strategy of complex information processing. Similar to Chen et al. (2011), the empirical results show that the higher the manager’s base salary and the higher the cash compensation, the higher the manager’s base salary and the higher the cash compensation. The results are consistent with managers’ inability to take unique risks.

The empirical results of the control variables show that the family business (FAMILY) has a negative impact on the overall diversification index of the business, suggesting that the family business may be less inclined to diversify or diversify its strategy. The strategy should be based on consideration of the family as a whole. Discuss the diversification strategy in terms of resources. The family business is based on family interests

that take precedence over business interests in decision-making and operational direction. If the family's private resources are limited exclusively to a particular industry or are valuable strategic resources, the family business will be diversified. The strategy will also tend to be conservative, so the degree of diversification may be less than for non-family businesses (Carney, 1998). In terms of financing, a family business that wants to maintain operational control will use its own funds conservatively. Therefore, family businesses are also less inclined to vary their operating strategies due to limited financial resources.

Return on assets (ROA) has a negative impact on the company's overall diversification strategy, which means that the higher the ROA, the less the company tends to diversify. Higher efficiency may indicate good resource allocation, as there is no need to reorganize resources and utilize idle assets through diversification. Higher ROA may also indicate better profitability, which is consistent with Stimpert and Duhaime (1997). The results of the study are consistent. The empirical results show that the higher the profitability of the industry, the lower the degree of diversification, and that companies in industries with low profitability tend to adopt diversification strategies; the larger the company (SIZE), the more positive the company's overall diversification strategy Directional influence, that is, the larger the company, the higher the motivation for diversification strategy, which is consistent with the research findings of Denis et al. (1997) and Singh, Mathur and Gleason (2004).

The empirical results of the other control variables debt ratio (LEV), firm market performance (RET), firm age (AGE), and CEO duality (DUALITY) have no significant correlation with firm's diversification strategies. The effect of CEO duality on diversification has been assessed differently in the literature in the past. It is concluded that CEO duality contributes to diversification strategy. Research suggests that the simultaneous exercise of both powers facilitates the formulation of corporate and goals, and can also be effective. Diversification through resolutions: Research concluding that the dual role of the CEO is detrimental to diversification strategy draws on agency theory, which suggests that the board of directors should have independent oversight and control to avoid management self-interest. Therefore, the chairman should not also be the chief executive officer and should not have the decision-making authority. Management and control rights (Fama and Jensen, 1983). Zheng (2013) investigated the influence of board characteristics on diversification in Taiwan's listed electronics industry. He concluded that the board chairman and chief executive officer can easily control and manage the board's agenda, and they can also effectively utilize resources based on their understanding of business operations.

The empirical evidence shows that CEO duality has a positive relationship with product diversification. CEO duality in this study is positive for diversification coefficient, but there is no significant correlation. Perhaps it is because the National Council of the Republic of China amended the "Code of Practice for the Governance of Listed Companies" in 1991 to flexibly regulate the board of directors of listed and unlisted companies. It is not appropriate for the CEO to serve as the general manager at the same time in order to strengthen the function of the board of directors and implement the corporate governance mechanism. Therefore, the ratio of duality between listed and counter CEOs is not high. Moreover, we use the VIF to determine if there is a serious collinearity problem between each variable. The VIF value of each variable in the model of this study ranges from 1.06 to 2.13, so there is no obvious collinearity problem between the independent variables.

Table 4: Impact of Manager Compensation on Corporate Diversification

Independent Variable	Coefficient	t Statistic	VIF
CONS	-0.6333	-3.23	
C_COMP	5.8403	1.51	1.50
S_COMP	1.2187**	2.29	1.15
FAMILY	-0.0817**	-2.50	1.11
LEV	0.0005	0.31	1.17
ROV	-0.0123**	-2.22	1.27
RET	-0.0001	-0.27	2.13
SIZE	0.0403***	3.49	1.66
AGE	0.0004	0.28	1.68
DUALITY	0.0175	0.55	1.03
R-squared	0.0806		
F statistic	20.620		
N	5,098		

*This table shows the results of the impact of managers' compensation on corporate diversification. *** means reaching the 1% significant level; ** means reaching the 5% significant level; * means reaching the 10% significant level. In this study, the explanatory variables with extreme values were winsorized in the two-tailed 1% sample. In order to control the impact of extreme values on the analysis conclusions. Each variable is defined as follows: PDT represents the overall degree of diversification of the enterprise; C_COMP represents cash compensations for managers; S_COMP represents equity compensations for managers; FAMILY represents a family business, 1 if the business is a family business, 0 otherwise; LEV stands for corporate debt ratio, long-term debt divided by total assets; ROA represents the return on assets of the company; RET represents the return on stock of the company; SIZE represents the scale of the enterprise, which is the natural logarithm of the sales revenue of the enterprise; AGE represents the number of years of establishment of the enterprise, which is the research year minus the establishment year; DUALITY represents the general manager and concurrently serves as the chairman, and the concurrent position is 1, otherwise it is 0.*

Robustness Tests

The Influence of Managerial Compensations in Electronic Industry on the Diversification of Firms

Based on the distribution of industries in the sample, which is based on the observed values of the valid samples, it can be seen that 2,948 companies in the electronic industry account for 57.83% of the total number of companies in the sample. The electronics industry is the most important industry the most important and is closely related to economic development. In addition, the electronic industry is concerned about cost reduction and has a high motivation to implement diversification strategies. Therefore, this study focuses on the effects of the characteristics of the compensation of managers in electronic industry on the diversification of enterprises. The annual distribution of the sample for the electronics industry only is shown in Table 5 below. Table 5 shows that it is consistent with the total sample and the number of samples in each year is evenly distributed, which also means a slight increase from year to year.

Table 5: Sample Distribution in Electronic Industry by Year

Year	Freq.	Percent (%)	Cum. (%)
2017	706	23.95%	23.95%
2018	724	24.56%	48.51%
2019	745	25.27%	73.78%
2020	773	26.22%	100.00%
Total	2,948	100.00%	

This table shows the sample distribution in electronics industry per year.

The main regression results for the relationship between managers' compensation characteristics and firm diversification are presented in Table 6. The manager's equity compensation system (S_COMP) has a

positive correlation with the company’s overall diversification strategy, while the manager’s cash compensation system (C_COMP) has no effect on the company’s overall diversification strategy (PDT). As for the control variables, with the exception of the diversification strategy "PDT" of the family business "FAMILY", the remaining control variables range from a negative correlation to no correlation with the empirical results of the entire industry.

Table 6: The Impact of Manager Compensation on Corporate Diversification in Electronic Industry

Independent Variables	Coefficient	t Statistics	VIF
CON	-0.1617	-0.6	
C_COMP	5.6926	1.22	1.46
S_COMP	1.3087**	2.05	1.15
FAMILY	-0.0499	-1.19	1.07
LEV	-0.0026	-1.15	1.11
ROA	-0.0139**	-2.04	1.28
RET	-0.0002	-1.25	2.54
SIZE	0.0385**	2.29	1.58
AGE	0.0020	0.83	1.12
DUALITY	0.0124	0.28	1.04
R-squared	0.0139		
F statistic	2.750		
N	2,948		

*This table shows the results of the impact of managers’ compensation on corporate diversification in electronic industry. *** means reaching the 1% significant level; ** means reaching the 5% significant level; * means reaching the 10% significant level. In this study, the explanatory variables with extreme values were winsorized in the two-tailed 1% sample. In order to control the impact of extreme values on the analysis conclusions. Each variable is defined as follows: PDT represents the overall degree of diversification of the enterprise; C_COMP represents cash compensations for managers; S_COMP represents equity compensations for managers; FAMILY represents a family business, 1 if the business is a family business, 0 otherwise; LEV stands for corporate debt ratio, long-term debt divided by total assets; ROA represents the return on assets of the company; RET represents the return on stock of the company; SIZE represents the scale of the enterprise, which is the natural logarithm of the sales revenue of the enterprise; AGE represents the number of years of establishment of the enterprise, which is the research year minus the establishment year; DUALITY represents the general manager and concurrently serves as the chairman, and the concurrent position is 1, otherwise it is 0.*

The Impact of Managers’ Compensations on the Related Diversification of Enterprises

The exploration of diversification strategy can be divided into related diversification and unrelated diversification (Palich, Cardinal, and Miller, 2000). Enterprises that implement related diversification strategies can effectively activate and strengthen the utilization of unused assets by restructuring resources to form a composite economy, so that different companies or departments in the group can share resources, thereby improving enterprise performance. If the enterprise implements unrelated diversification strategies, the resource allocation will exceed the core capacity of the group, resulting in additional communication and coordination costs beyond the optimal point, so that enterprises can benefit far less than the cost of cooperation and coordination between enterprises. On the contrary, the internal market becomes inefficient as a result and operating performance declines.

Hill and Snell (1988) also pointed out that R&D-intensive industries are high-risk, high-compensation industries. In this situation, risk-averse managers may choose unrelated diversification strategies to generate agency behavior, but it is beneficial to shareholders. It is a limited related diversification strategy. Whether different compensations can motivate managers to engage in future firm growth and performance, should matter in the discussion of relevant diversification strategies, according to this study. Therefore, the

sensitivity analysis is conducted using with the relevant diversification strategy (PDR) of the firm as the contingency number. The main regression results of the relationship between managers' compensation characteristics and the associated diversification of the firm are presented in Table 7.

Table 7 shows that the main variable manager's equity compensation system (S_COMP) is positively correlated with corporate-related diversification strategies (PDR). The use of company-based diversification indicators for sensitivity testing was also supported. This result is also consistent with the convergence of interest hypothesis proposed by Jensen and Meckling (1976). This hypothesis states that the higher the concentration of the manager's equity, if the manager's excessive investment in non-value maximization and privileged spending preferences cause the value of the firm. Most of the losses will be borne by the managers themselves. Therefore, an increase in managerial equity ownership will cause managers' interests to be more aligned with those of, to make prudent decisions, and to seek to maximize the value of the firm. Therefore, they are more likely to adopt relevant diversification strategies that can exercise synergies and enhance shareholders' interests.

The manager's cash compensation system (C_COMP) does not affect the firm-specific diversification strategy. The coefficient is 3.8524 and the t statistics is 1.29. Taking the relevant diversification index of the company as the contingency number, the empirical result H2 of the sensitivity test is also supported. Cash compensation may not align managers' pursuit of personal gains with shareholders' interests and can easily lead to agency problems and lead managers to pursue only personal gains. This is consistent with Hill and Snell (1988), who believed that risk-averse managers may choose irrelevant actions. The diversification strategy pursues personal gains and is usually inconsistent with the outcomes of related diversification strategies that are consistent with the interests of the firm.

Regarding control variables, the family business (FAMILY) has a negative impact on the company's overall diversification index (the coefficient is -0.07, and the p-value is 0.004); the higher the ROA, the more negative the impact on the company's overall diversification strategy (the coefficient is -0.01, the p-value is 0.021); the larger the size of the enterprise (SIZE), the positive influence on the overall diversification strategy of the enterprise (the coefficient is 0.03, the p-value is 0.001), both of which are consistent with this research based on the overall diversification of the enterprise. The result of the index (PDT) will be the strain number that is similar, and the other control variables are insignificant.

The empirical results confirm that the manager's compensation system is different, which affects the manager's willingness to commit to the future of the company. If managers are offered long-term incentive compensations, managers will be willing to take higher risks and information processing capacity, and commit to the overall business strategy and diversified development of the company to ensure the sustainable survival of the company and huge profits; and compensations. If the design of the system emphasizes cash compensations, it will be less able to induce managers to bear the unique risks of the enterprise, and it will be impossible to observe clearly whether the cash compensation system induces managers to engage in business diversification strategies.

Table 7: The Impact of Manager Compensation on Related Diversification

Independent Variables	Coefficient	t Statistics	VIF
CON	-0.4196	-2.95	
C_COMP	3.8524	1.29	1.50
S_COMP	0.9647**	2.44	1.15
FAMILY	-0.0696***	-2.89	1.11
LEV	0.0004	0.35	1.17
ROA	-0.0096**	-2.31	1.27
RET	-0.0001	-0.30	2.13
SIZE	0.0286***	3.38	1.66
AGE	-0.0001	-0.06	1.68
DUALITY	0.0064	0.27	1.06
R-squared	0.0139		
F statistic	2.750		
N	2,948		

*This table shows the results of the impact of manager compensation on related diversification. *** means reaching the 1% significant level; ** means reaching the 5% significant level; * means reaching the 10% significant level. In this study, the explanatory variables with extreme values were winsorized in the two-tailed 1% sample. In order to control the impact of extreme values on the analysis conclusions. Each variable is defined as follows: PDT represents the overall degree of diversification of the enterprise; C_COMP represents cash compensations for managers; S_COMP represents equity compensations for managers; FAMILY represents a family business, 1 if the business is a family business, 0 otherwise; LEV stands for corporate debt ratio, long-term debt divided by total assets; ROA represents the return on assets of the company; RET represents the return on stock of the company; SIZE represents the scale of the enterprise, which is the natural logarithm of the sales revenue of the enterprise; AGE represents the number of years of establishment of the enterprise, which is the research year minus the establishment year; DUALITY represents the general manager and concurrently serves as the chairman, and the concurrent position is 1, otherwise it is 0.*

CONCLUSION COMMENTS

This study examines the effects of managerial compensation characteristics on firm diversification and conducts an empirical study of whether the different compensation characteristics that firms offer their managers induce managers to pursue diversified operating strategies. In this study, manager’s cash compensation and manager’s equity compensation are used as independent variables and firm’s total diversification index is used as a contingency number. After the empirical regression analysis, the main conclusions, we find the managerial rights and interests compensation system is positively correlated with the overall diversification of the company. First, we find that the more company’s managerial compensation system focuses on long-term incentives, such as stock ownership, the higher the degree of diversification of the firm. The sensitivity analysis for the electronics industry as a sample also leads to the same result. It shows that an equity- based compensation system aligns managers’ interests with the goal of maximizing corporate profits, reduces the problems of capital intermediaries, and supports the firm’s overall strategy and future development performance. The empirical results are consistent with previous literature (Jensen and Meckling, 1976; Carpenter and Sanders, 2004; Zhao, 2002; Cao, Jin and Lu, 2011). Moreover, the results of the sensitivity test also show that the corporate equity compensation system will make managers more inclined to corporate-related diversification strategies. Second, the empirical results show that when the managerial compensation system tends to pay cash bonuses, managers are less willing to engage in complex information processing and decision-making, so they are less able to motivate managers to engage in enterprise diversification, etc., which requires higher risks.

As for the operation strategy, the sensitivity of the electronics industry and the characteristics of compensations to the relevant diversification of the company was tested separately, and the second hypothesis was also supported. The empirical investigation of this study is consistent with previous literature (Jensen and

Meckling, 1976; Chen, Wang, and Lin, 2011). This study shows that cash compensation has no effect on managers to take on unique risks and pursue diversified corporate strategies. Third, the empirical investigation of this study shows that the higher the ROA, the less inclined firms are to implement diversification strategies. The higher the efficiency of the firm's ROA, the better the capitalization of firm's assets. Stimpert and Duhaime (1997) found that the higher the firm's profit, the lower the firm's degree of diversification level. The longer the firm has been in existence, the higher the probability of diversification.

The empirical results also show that companies that have good profitability in their industry focus more on their own businesses and do not to spend additional costs or resources on diversified businesses to avoid profit dilution. The contributions are shown as follows: First, the findings can serve as a benchmark for investors and regulators to determine whether the compensation system is consistent with the most appropriate configuration of the company's strategy, and it can also serve as a reference for companies when designing compensation systems. Second, this study can also be used as a reference by the current compensation committee for corporate compensation system planning related to operational strategy, so it enables corporate investors and compensation committees and other corporate governance institutions to formulate or review the rationality of the compensation system and the relevance to operational strategy. Third, previous studies have different views on the relationship between family business and business diversification strategies. This study finds that family characteristics are an important factor for firms that do not tend to diversify, indicating that family firms take into account the combination of personal wealth and business interests and therefore focus on lower-risk industries, so there is no need to spread business risks through diversification strategies. Another avenue for future research is to extend the analysis by studying the link between different modes of diversification (i.e., internal, acquisition, and cooperation) and firm strategies, such as financial and internationalization strategies. It can also provide direct evidence on the investigation of non-pecuniary decision-making drivers in companies, especially for second-generation family firms.

REFERENCES

- Abowd, J. 1990. Does Performance-Based Managerial Compensation Affect Corporate Performance? *Industrial and Labor Relations Review* 43 (3): 52-73.
- Aggarwal, R.K. and A. A. Samwick. 2003. Why Do Managers Diversify Their Firms? Agency Reconsidered. *The Journal of Finance* 58 (1): 71-118.
- Ahlstrom, D., M.N. Young, E.S. Chan and G.D. Bruton. 2004. Facing Constraints to Growth? Overseas Chinese Entrepreneurs and Traditional Business Practices in East Asia. *Asia Pacific Journal of Management* 21: 263-285.
- Amihud, Y. and B. Lev. 1981. Risk Reduction as a Managerial Motive for Conglomerate Mergers. *The Bell Journal of economics* 12 (2): 605-617.
- Anderson, R.C., T.W. Bates, J.M. Bizjak and M.L. Lemmon. 1998. *Corporate Governance and Firm Diversification*. Washington and Lee University Unpublished Manuscript.
- Aaker, D.A. 1984. *Strategic Market Management (1st edition)*. New York: Wiley.
- Banker, R.D., G. Potter and D. Srinivasan. 2000. An Empirical Investigation of an Incentive Plan that Includes nonfinancial Performance Measures. *The Accounting Review* 75 (1): 65-92.
- Barnes, L.B. and S.A. Hershon. 1976. Transferring Power in the Family Business. *Harvard Business Review* 54: 105-114.

- Berger, P.G. and E. Ofek. 1995. Diversification's Effect on Firm Value. *Journal of Financial Economics* 37 (1): 39-65.
- Bernado, A.E. and B. Chowdhry. 2002. Resources, Real Options, and Corporate Strategy. *Journal of Financial Economics* 63(2): 211-234.
- Bizjak, J.M., J.A. Brickley and J.L. Coles. 1993. Stock-Based Incentive Compensation and Investment Behaviour. *Journal of Accounting Economics* 16 (1-3): 349-372.
- Bushman, R., R. Indjejikian and A. Smith. 1996. CEO compensation: The Role of Individual Performance Evaluation. *Journal of Accounting and Economics* 21 (2): 161-193.
- Carney, M. 1998. A Management Capacity Constraint? Obstacles to The Development of Overseas Chinese Family business. *Asia-Pacific Journal of Management* 15 (2): 137-162.
- Carpenter, M.A. and W.G. Sanders. 2002. Top Management Team Compensation: The Missing Link between CEO Pay and Firm Performance. *Strategic Management Journal* 23 (4): 367-375.
- Carpenter M.A. and W.G. Sanders. 2004. The Effects of Top Management Team Pay and Firm Internationalization on MNC Performance. *Journal of Management* 30 (4): 509-528.
- Chatterjee, S. and M. Lubatkin. 1990. Corporate mergers, stockholder diversification, and changes in systematic risk. *Strategic Management Journal* 11 (4): 255-268.
- Chatterjee, S. and B. Wernerfelt. 1991. The Link between Resources and Type of Diversification: Theory and Evidence. *Strategic Management Journal* 12 (1): 33-48.
- Chung, H.M. 2006. Managerial Ties, Control and Deregulation: An Investigation of Business Groups Entering the Deregulated Banking Industry in Taiwan. *Asia Pacific Journal of Management* 23: 505-520.
- Coughlan, A.T. and R.M. Schmidt. 1985. Executive Compensation, Management Turnover, and Firm Performance. *Journal of Accounting and Economics* 7 (1-3): 43-66.
- Crystal, G.S. 1993. Does Increased Pay Sensitivity Really Spark an Increase in Performance? *The Crystal Report* 5: 1-4.
- Deeds, D.L. and C.W.L. Hill. 1999. An Examination of Opportunistic Action within Research Alliances : Evidence from the Biotechnology Industry. *Journal of Business Venturing* 14 (2): 141-163.
- Denis, D.J., D.K. Denis and A. Sarin. 1997. Agency Problems, Equity Ownership and Corporate Diversification. *The Journal of Finance* 52 (1): 135-160.
- Duru, A. and D.M. Reeb. 2002. Geographic and Industrial Corporate Diversification: The Level and Structure of Executive Compensation. *Journal of Accounting, Auditing and Finance* 17: 1-24.
- Easterbrook, F. 1984. Two Agency-Cost Explanations of Dividends. *American Economic Review* 74 (4) : 650-659.
- Fama, E.F. and M.C. Jensen. 1983. Separation of Ownership and Control. *Journal of Law and Economics* 26 (2): 301-325.
- Finkelstein, S. and B. Boyd. 1998. How Much Does the CEO Matter? The Role of Managerial Discretion in the Setting of CEO Compensation. *Academy of Management Journal* 41 (2): 179-199.

- Fitzgerald, L., R. Johnston, S. Brignall, R. Silvestro and C. Voss. 1991. *Performance Measurement in Service Businesses*. Cambridge, MA: The Chartered Institute of Management Accountants.
- Gaver, J.J. and K.M. Gaver. 1993. Additional Evidence on the Association between the Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies. *Journal of Accounting and Economics* 16 (1-3): 125-160.
- Gaver, J.J. and K.M. Gaver. 1995. Compensation Policy and the Investment Opportunity Set. *Financial Management* 24 (1): 19-32.
- Gomez-Mejia, L.R. and D.B. Balkin. 1992. *Compensation Organizational Strategy and Firm Performance*. Cincinnati: Southwestern.
- Gomez-Mejia, L.R. 1994. Executive Compensation: A Reassessment and a Future Research Agenda. in G. Ferris (Ed.). *Research in Personnel and Human Resources Management* 12: 161-222.
- Gort, M. 1962. *Diversification and Integration in American Industry*. Princeton, NJ: Princeton University Press.
- Grant, R.M., A.P. Jammine and H. Thomas. 1988. Diversity Diversification and Profitability among British Manufacturing Companies. *Academy of Management Journal* 31 (4): 771-801.
- Hambrick, D. 1995. Fragmentation and the Other Problems CEOs Have with Their Top Management Teams. *California Management Review* 37 (3): 110-127.
- Handler, W.C. 1989. Methodological Issues and Considerations in Studying Family Business. *Family Business Review* 2 (3): 72-80.
- Henderson, A. and J. Fredrickson. 1996. Information Processing Demands as a Determinant of CEO Compensation. *Academy of Management Journal* 39 (3): 575-606.
- Hill, C.W.L. and S.A. Snell. 1988. External Control, Corporate Strategy, and Firm Performance in Research-Intensive Industries. *Strategic Management Journal* 9 (6): 577-590.
- Hofer, C.W. and D.E. Schendel. 1978. *Strategy Formulation: Analytical concepts*. St. Paul, Minnesota: West Publishing Co..
- Holmstrom, B. 1979. Moral Hazard and Observability. *The Bell Journal of Economics* 10 (1): 74-91.
- Hoskisson, R.E. and M.A. Hitt. 1990. Antecedents and Performance Outcomes of Diversification: A Review and Critique of Theoretical Perspectives. *Journal of Management* 16 (2): 461-509.
- Jensen, M.C., and W.H. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics* 3: 305-360.
- Jensen, M.C. 1986. Agency Costs of Free Cash Flow, Corporate Finance and Takeovers. *American Economic Review* 76 (2): 323-329.
- Jensen, M. and K. Murphy. 1990. Performance Pay and Top Management Incentives. *Journal of Political Economy* 98 (2): 225-264.
- Jensen, M.C. and R. Ruback. 1983. The Market for Corporate Control: The Scientific Evidence. *Journal of Financial Economics* 11 (1): 5-50.

Jiraporn, P., Y.S. Kim, W.N. Davidson and M. Singh. 2006. Corporate Governance, Shareholder Rights and Firm Diversification: An Empirical Analysis. *Journal of Banking and Finance* 30 (3): 947-963.

Kaplan, R. and D. Norton. 1992. The Balance Scorecard-Measures that Drive Performance. *Harvard Business Review* 70 (1): 71-79.

Kim, W. and R. Mauborgne. 1991. Implementing Global Strategies: The Role of Procedural Justice. *Strategic Management Journal* 12 (1): 125-143.

Kogut, B. 1986. Designing Global Strategies: Profiting from Operational Flexibility. *Sloan Management Review* 28 (1): 27-38.

Lang, H.P. Larry and R.M. Stulz. 1994. Tobin's Q, Corporate Diversification, and Firm Performance. *Journal of Political Economy* 102 (6): 1248-1280.

Larcker, D.F. 1983. The Association between Performance Plan Adoption and Corporate Capital Investment. *Journal of Accounting and Economics* 5: 3-30.

Lev, B. and G.B. Mandelker. 1972. The Micro-Economic Consequences of Corporate Mergers. *Journal of Business* 45 (1): 85-104.

Markides, C.C. 1992. Consequence of Corporate Refocusing: Ex Ante Evidence. *Academy of Management Journal* 35 (2): 398-412.

Markides, C.C. and P.J. Williamson. 1994. Related Diversification, Core Competencies and Corporate Performance. *Strategic Management Journal* 15 (2): 149-165.

May, D.O. 1995. Do Managerial Motives Influence Firm Risk Reduction Strategies. *Journal of Finance* 50 (4): 1291-1308.

Mehran, H. 1995. Executive Compensation Structure, Ownership, and Firm Performance. *Journal of Financial Economics* 38 (2): 163-184.

Miller, D.J. 2004. Firms' Technological Resources and the Performance Effects on Diversification: A Longitudinal Study. *Strategic Management Journal* 25 (11): 1097-1119.

Nagar, V. and V.R. Madhav. 2001. The Revenue Implications of Financial and Operational Measures of Product Quality. *The Accounting Review* 76 (4): 495-513.

Napier, N.K. and M. Smith. 1987. Product Diversification Performance Criteria and Compensation at the Corporate Manager Level. *Strategic Management Journal* 8 (2): 195-201.

Oviatt, B.M. 1988. Agency and Transaction Cost Perspectives on the Manager-Shareholder Relationship: Incentive for Congruent Interests. *Academy of Management Review* 13 (2): 214-225.

Palia, D. 1999. *Corporate Governance and the Diversification Discount: Evidence from Panel Data*. University of Chicago, Chicago, IL, Unpublished Manuscript.

Palich, L.E., L.B. Cardinal and C.C. Miller. 2000. Curvilinearity in The Diversification-Performance Linkage: An Examination of Over Three Decades of Research. *Strategic Management Journal* 21 (2): 155-174.

Pitts, R.A. and H.D. Hopkins. 1982. Firm Diversity: Conceptualization and Measurement. *Academy of Management Review* 7 (4): 620-629.

Prahalad, C. 1990. Globalization-The Intellectual and Managerial Challenges. *Human Resource Management* 29 (1): 27-38.

Ramanujam, R. and P. Varadarajan. 1989. Research on Corporate Diversification: A Synthesis. *Strategic Management Journal* 10 (6): 523-551.

Reed, R. and G.A. Luffman. 1986. Diversification: The Growing Confusion. *Strategy Management Journal* 7 (1): 29-35.

Rumelt, R.P. 1974. *Strategy, Structure and Economic Performance*. Boston: Harvard Business School, Division of Research.

Sanders, W.G. and M.A. Carpenter. 1998. Internationalization and Firm Governance: The Roles of CEO Compensation, Top Term Composition, and Board Structure. *Academy of Management Journal* 41 (2): 158-178.

Sanders, W.G. 2001. Behavioral Responses of CEOs to Stock Ownership and Stock Option Pay. *Academy of Management Journal* 44 (3): 477-492.

Shleifer, A. and R. Vishny. 1997. The Survey of Corporate Governance. *The Journal of Finance* 52 (2): 737-783.

Sirmon, D.G. and M.A. Hitt. 2003. Managing Resources: Linking Unique Resource, Management, and Wealth Creation in Family Firms. *Entrepreneurship Theory and Practice* 27 (4): 339-358.

Smith, K.V. and J.C. Schreiner. 1969. A Portfolio analysis of Conglomerate Diversification. *The Journal of Finance* 24 (3): 413-427.

Sougiannis, T. 1994. The Accounting Based Valuation of Corporate R&D. *The Accounting Review* 69 (1): 44-68.

Teece, D.J. 1980. Economies of Scope and the Scope of the Enterprise. *Journal of Economic Behavior and Organization* 1 (3): 223-247.

Watts, R.L. 2003. Conservatism in Accounting Part I: Evidence and Research Opportunities. *Accounting Horizons* 17 (4): 207-221.

Weick, K. and P. Van Orden. 1990. Organizing on a Global Scale. *Human Resource Management* 29 (1): 49-62.

Wiersma, E. 2008. An Exploratory Study of Relative and Incremental Information Content of Two Non-Financial Performance Measures: Field Study Evidence on Absence Frequency and On-Time Delivery. *Accounting, Organizations and Society* 33 (2-3): 249-265.

BIOGRAPHY

Tzu-Ching Weng, Ph. D., is Professor of the Department of Accounting, Feng Chia University. She focuses on financial accounting and publishes in *Journal of Business Research*, *International Review of Economics and Finance*, *Pacific-Basin Financial Journal*, *Investment Management and Financial Innovations*, and other publications. Dr. Weng also serves as a Chair of Ph. D. Program of Business for Feng Chai University.

Chieh-Wen Kuo Chen, Doctoral Student, Ph. D. program of Business, Feng Chia University. He is the general manager of a company, specialization by risk management and corporate governance is.

Yu-Ling Peng is a Master in the Department of Accounting, Feng Chia University. She works for Taichung Government and specializes in financial accounting, risk management and corporate governance.