

Factors Influencing Executive Compensation in the Automobile Industry in the US

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Abstract. In modern management, executive compensation can exert a substantial impact on the operation and profitability of an organization. This research explores the factors influencing executive compensation in the automobile industry in the United States. It aims to identify the relationship between a set of specific factors, including revenue, earnings per share and return on net assets (RONA) and compensation of executives. The data were selected based on the fiscal year 2021. With the findings and results, it is revealed that executive compensation is significantly related with revenue and earnings per share of a company without a significant relationship with return on net assets. Based on the results, several recommendations are proposed to better engage executives and improve corporate performance.

Keywords: Executive compensation; revenue; US automobile industry.

1. Introduction

Corporate governance has witnessed its growing importance in the organizations worldwide. Despite so, there are many potential issues that may hinder the smooth growth of corporates, such as the conflicts between managers and owners. Compensation is also a critical component of modern corporate governance, as it can exert a substantial influence on the productivity of executives and even the overall performance of a company. Therefore, it is important to understand the factors influencing executive compensation. This literature review takes the automobile industry in the United States as the research objective and explore the factors from different perspectives.

After sorting out the relevant literature on corporate governance mechanism and executive compensation performance sensitivity, there are three major categories of factors found. First, the assessment of the work quality or corporate performance, such as frequency of board meetings, number and shares of independent directors, revenues, etc. Existing research believes that shareholders, as company owners, should be responsible for setting restrictions on remuneration to improve the sensitivity of remuneration performance of executives [1]; second refers to the integral parameter of organization governance rating, which is used to evaluate the work quality of senior executives. Cost measures are considered as the interests of shareholders and creditors are inconsistent, conflicts of interest often arise, thereby increasing the costs of operation. Therefore, John and John (1993) emphasized that the most appropriate executive compensation contract should not only consider the agency cost of equity, but also the agency cost of liabilities [2]; third is the relationship between management power and executive compensation, and sometimes self-interested executives rely on their power to influence the formulation process of compensation. The following section will elaborate on each category in details.

1.1 Assessment of Work Quality and Corporate Performance

The shareholder as the principal provides equity capital to organizations, but cannot directly supervise the behavior of managers. At this time, shareholders (especially major shareholders) will use the power of the board of directors to restrict CEO's compensation incentives to improve the sensitivity of his compensation performance. Core, Holthausen, and Larcker (1999) find that CEOs are overpaid after controlling for economic determinants of compensation, which is significantly related to poor governance structure and CEO compensation is significantly negatively related to the

shareholding ratio of external major shareholders [3]. Cyert, Kang and Kumar (2002) tested the influence of factors such as the shareholding ratio of the largest external shareholder, company bankruptcy risk, and board structure on executive compensation from both theoretical and empirical aspects [4]. The results found that the shareholding ratio of the largest external shareholder enjoyed a significant negative relationship with CEO equity compensation. Existing literature has suggested the positive relationship between the performance and profitability of a company and the compensation of its executives. For instance, Bebchuk and Grinstein (2005) chose the revenue of firms as a measure for executive compensation [5]. However, there is very limited research on this relationship regarding the automobile industry in the US. Therefore, this study further conducts a focused investigation into how the performance of a listed vehicle company would influence the compensation of its executives. The results of these studies show that a higher shareholding concentration can effectively restrain the CEO's excessive compensation incentive problem. However, due to the difference in the nature of corporate property rights in the United States, the performance sensitivity of executive compensation is different. Therefore, it is expected that this difference can be reflected in the shareholding concentration relationship with executive compensation incentives.

1.2 Cost Measures

John, Mehran and Qian (2007) studied the performance sensitivity of executive compensation with a sample of the US banking industry, finding that the performance sensitivity of compensation decreased with the increase of debt ratio, whereas improving with the increase of supervision intensity of bank supervisors and non-deposit creditors [6]. Ortiz-Molina's (2007) research on American companies concluded that the increase in debt ratio in companies issuing direct debt would result in a decline in CEO compensation and performance sensitivity while increasing when there is an increase in debt ratio of companies issuing convertible bonds [7]. Zhang et al. (2019) research results show that the performance sensitivity of executive compensation of listed companies in many countries will decrease with the increase of debt ratio [8]. However, the low performance sensitivity of executive compensation leads to a higher degree of incentive distortion. Besides the mentioned economic metrics, this study also tests the relationship between earnings per share and executive compensation, as the former is the most common measure of economic or market metrics. Murphy (1999) adopted this variable to explore how earning per share could affect executive compensation, proving that there was a positive correlation in between [9]. This metric is also directly related to the most important responsibility of an executive that is to maximize the benefits of shareholders.

1.3 Management Power

Bebchuk and Fried (2005) believe that executives employ power to get higher compensation when the governance structure is chaotic and regulatory environment is weak, resulting in high pay and low performance (Pay without Performance) [10]. Cheng and Indjejikian (2009) studied the impact of the implementation of the Anti-Takeover Laws (Anti-Takeover Laws) in the United States on CEO compensation and successors in the 1980s, finding that after the pass of the Laws, executives were entitled to greater power regarding performance appraisal and incentive contract arrangement [11]. Ataay (2018) studied the impact of executive power on the performance sensitivity of executive compensation, and the results showed that the greater the management power, the higher the executive compensation [12]. Despite so, the overall performance has yet to be enhanced. Fang and Minghua (2016) used 2004 to 2006 listed companies in Shanghai and Shenzhen stock markets as samples and found that under the vigilant board of directors, there is a significant positive relationship between the incentives of CEO compensation of listed companies in China and corporate performance [13]. It can be seen that the greater the executive power or the weaker the supervision of the board of directors, the lower the performance sensitivity of compensation and the higher the degree of incentive distortion. Agrawal et al. (2000) once pointed out that the law of diminishing marginal efficiency of a single governance mechanism reveals between various governance mechanisms lies

the mutual promotion or mutual substitution effect and the combining different governance mechanisms constitute the most effective governance mechanism [14].

Based on the above literature review, it is found that studies on executive compensation are focused on the general industries without a specific investigation into the automobile industry. In addition, the mentioned factors are explored from a broad perspective without a detained evaluation about the relationship between corporate-specific factors and executive compensation. Therefore, this study has chosen US automobile industry as the research target to explore how corporate-specific factors, such as corporate revenue, earnings per share and return on net assets may influence executive compensation to bridge the existing gap. Three specific hypotheses are proposed in accordance:

2. Data Collection and Analysis

2.1 Data

Based on the literature review and models stated above, it is projected that specific factors such as accounted-based factor of company revenue and market-based factors of share prices and market-value added would affect the compensation of executives. Since a single group of factors may not be enough to fully explain the compensation of an executive, the combination of different proxies is adopted.

Based on the literature review, three hypotheses are put forward for further investigation as listed below:

- H1. The higher is the revenue of the company, the greater is the compensation of executives;
- H2. The higher are earnings per share, the greater is the compensation of executives;
- H3. The higher the RONA, the greater the compensation of executives.

This study aims to further test if this correlation also exists in the US automobile sector. RONA is calculated based on the formula below:

$$RONA_t = (\text{Operation Income } t) / (\text{Net Assets } t-1) \quad (1)$$

The constructed model is as follows:

$$\text{LogCompi},t = \beta_0 + \beta_1 \text{LogRevi},t-1 + \beta_2 \text{Log}(1 + \text{Rei},t-1) + \beta_3 \text{LogRONAi},t-1 + \varepsilon_{i,t} \quad (2)$$

2.2 Data

This study chooses data from New York Stock Exchange on the 2021 data of listed companies from the automobile sector. The biggest 10 auto-makers by revenue 2021 were chosen as the research targets. All the collected data were re-edited into an excel sheet. The year 2012 was considered the basic year. The collected data were analyzed based on regression analysis. The chosen dependent variable is executive compensation, while independent variables include total revenue, earnings per share for year t-1 (2021) and return on operation and assets (RONA). Return on operation and assets (RONA) is considered an important indicator for executive compensation and is also suitable for the research to explore the relationship between ROA and executive compensation. It is assumed that RONA could influence the compensation of executives and may constitute a positive correlation. Can lead to cost and also exert a large influence on pay-performance relationship.

3. Results and Discussion

This section presents the results of the study. It shows the descriptive results and regression results of the 10 automobile companies listed on New York Stock Exchange and the chosen year for research is 2021. The purpose of this study is to explore the relationship between corporate revenue, earnings per share and return on operation and assets (RONA) and executive compensation.

3.1 Descriptive Results

This study has chosen the 10 biggest car manufacturers by revenue (2021), including Stellantis, SAIC Motor, BMW Group, Honda Motor, General Motors, Ford Motor, Daimler, Toyota Motor and Volkswagen Group. Based on the disclosed statement of each corporation, the descriptive results are shown below in Table 1.

Table 1. Descriptive Results.

Variable	Mean	St. Dev.	Minimum Value	Maximum Value
Revenue (Billion USD)	145.72	60.5	88.1	254.1
Earnings per share in year t-1, %	18.86	8.2	3.5	25.44
Average Executive Compensation	233,762	4784.4	223,930	240,438
Return on Operation & Assets (RONA)	0.061	0.027	0.027	0.103

Table 1 shows the descriptive results for the chosen research sample. It is clearly seen that the range of the 10 companies varied from \$88.1 billion to 254.1 billion. This difference could be explained by the difference in their size and presence in the existing market and also proportionately reflect the volume of their revenues. It is likely that there is positive correlation between the size of a company and difficulty in its operation and management. Therefore, the larger the size, the higher the compensation of executives. The average compensation of the company ranged from \$223,930 to \$240,438 and earnings per share in 2021 was from \$3.5 to \$25.44. Return on operation and assets ranges from 0.027 to 0.103. All these values are closely related to the differences in executive compensation.

3.2 Results of Regression Analysis

Based on the formula presented in the previous section, regression results are presented as follows in Table 2. This research is carried out following the mentioned procedures in Methodology. The following tables show the results of regression analysis and the constructed model resulted from the regression analysis. Detailed descriptive analysis is provided below.

Table 2. Regression Analysis Results.

Regression Statistics					
Multiple R	0.337484				
	104				
R Square	0.823895				
	521				
Adjusted R Square	-				
	0.139277				
	188				
Standard Error	5382.911				
	477				
Observations	10				
ANOVA					
	df	SS	MS	F	Significance F
Regression	2	26070792.2	1.3E+07	0.45	0.654934
Residual	7	20283015.8	2.9E+07		

Total	9	22890094 4						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	229210.355	5102.395803	44.9221	7E-10	217145.1	241275.6	217145.11	241275.6039
Revenue	23.87201856	29.65026181	1.20512	0.047	-46.2397	93.98375	-46.23971	93.9837467
Earning Per Share	98.78608356	207.6537047	1.47573	0.149	-392.237	589.8091	-392.2369	589.8090696
RONA	4236.51944	6778.91783	0.62496	0.576	-17337	25810.06	-17337.02	25810.0614
LOGIntercept	5.360234234							
LogRev	1.377889143							
LogEPS	1.994695768							
LOGRONA	3.627009204							

Based on the results, the final regression equation is constructed as:

$$\text{LogCompi}, t = 5.4 + 1.38\text{LogRevi}, t - 1 + 1.99\text{Log}(1 + \text{Rei}, t - 1) + 3.63\text{LogRONA} + \varepsilon_i, t \quad (3)$$

The coefficient of determination R square is considered so as to determine the extent to which the outcomes of regression analysis can predict the model constructed above. In light of the results shown in Table 2, R square is 0.92, which means that this model can be adopted to explain the executive compensation. The value of R square can be interpreted as that 82% of changes in executive compensation can be explained by revenue, earnings per share and return on operation and asset while the remaining 18% cannot be explained by the model.

Based on the results of regression analysis, two factors, including LogRevi (1.38) and Log1Rei (1.99) are considered as fixed-effects significant factors based on their p values, which are lower than 0.05. In addition, when t-values are considered as well, LogRev and LogRevi are seen as relevant, cause their t values are higher than 1. It can be said that revenues and earnings per share can certainly affect executive compensation, as these two factors seemed to be quite relevant and significant while return on assets and operation (RONA) appeared to be irrelevant. In light of this, executive compensation can be explained partly by accounting measures and partly by marketing measures. This result is aligned with the previous review of literature, for instance McGuire, Dow and Argheyd (2003).; Murphy (1985) and Roberts and Dowling (2002) [15-16]. It turns out that corporate revenue is positively related with executive compensation, so it is the same with earnings per share. In this regard, the first two hypotheses are verified. However, one possible reason beyond earnings per share and its relationship with executive compensation could be the size of shares issued by a company. Usually, executives working in a large corporation are more likely to be granted a large sum of stock and options. As pointed out by Garen (1994), shares and options account for as much as 76% of the total executive compensation and those offered by large employers are certainly greater than those by smaller ones [17].

Return on equity or return on operation and assets appears to be irrelevant based on the results shown above. It could be the reason that market measures are used more as indicators to evaluate corporate success and performance than accounting measures¹. Even RONA-based incentives are also predicated on market measures, such as increase in market revenues, or market capitalization. It can also be assumed that executive compensation is a positive motivational instrument for companies and can be adopted to incentivize achievements. Regarding this, Hypothesis 3 that there is a positive correlation between executive compensation and return on operation and asset is rejected. The summary of the three mentioned hypotheses is presented below in Table 3.

Table 3. Summary of Hypotheses Test.

Summary of Hypotheses Test		
Hypothesis	Formulation	Result
1	The higher the company's revenue, the greater the executive compensation.	Verified
2	The higher the company's earnings per share, the greater the compensation of executives.	Verified
3	The higher the company's return on assets, the greater the executive compensation.	Rejected

4. Conclusion

It is found in the above research that among the three examined factors, namely corporate revenues, earnings per share and return on operation and assets, only two factors of corporate revenues and earnings per share are positively and significantly related with executive compensation while return on operation and assets is irrelevant with executive compensation in the US automobile industry. Therefore, Hypothesis 1 and Hypothesis 2 are verified while Hypothesis 3 is rejected.

On the basis of aforementioned results and discussion, several recommendations can be put forward to better enable companies to improve its governance mechanism and managerial process. As revealed by regression analysis, executive compensation in the chosen listed companies from the US automobile industry are revenues and earnings per share. Therefore, it is necessary to highlight the policy implications and significance of these two factors.

It is revealed that both marketing and accounting measures can play a part in executive compensation, whereas marketing measure is taken as the primary factor. The automobile industry has already entered into the stage of maturity with limited growth momentum. In order to increase the revenues in the industry, there are two possible ways out. One is to reduce the price and the costs. Suggestions to achieve so include i) complete cost transparency, which will allow automobile producers to explore, prioritize and improve saving methods; ii) outsourcing, which can allow companies to decrease costs by outsourcing or sub-contracting to service providers certain productions, operations and maintenance and iii) sharing of network, which enables companies to save costs by reducing capital spending, sharing assets, stuff or even operations.

In addition, costs and price can be reduced by introducing new offers. In case of this, automobile manufacturers can be suggested to construct new pricing mechanisms, which allow them to attract new consumers and result in other revenues streams for companies. Another solution to high price could be reducing tariffs, especially for luxury cars. However, this can be adopted only for short-term purpose, as it may involve companies in tariffs wars or even suspend investment in new technologies, service quality and customer relationship management. Besides reducing cost, another way to increase revenue is to improve sales volumes. The essence is to ensure the stability of customer base in a specific company. How to retain existing customers and attract potential customers have become a challenge to most of the automobile manufacturers, as otherwise a customer may switch to a new brand or new producer easily.

In addition to the accounting measure, another way to increase executive compensation is the marketing measure of earnings per share. Since earning per share is based directly on the aggregate value of net income, it can be concluded that a company should increase its revenues or reduce the number of shares by buying out from shareholders so as to improve earnings per share. Besides revenues, financial leverage can also be considered, which can increase net income and returns on operation. It is worth mentioning that financial leverages also go along with great risks, especially the situation when a company is unable to cover its debt. Therefore, automobile manufactures should be aware of risks evaluation and effective management of financial leverages, which will eventually lead to the growth in executive compensation and reduction in agency problems.

Besides what has been mentioned above, another important factor that should be taken into consideration is perceptions and returns on compensation. Compensation incentives essentially depend on a series of perceptions and trade-offs between labor effort and compensation returns (Wilkins et al. 2015; Zhao and Liu, 2015). That is, the determinants of compensation incentives first affect individual perceptions, and then can generate incentives effect. With the verification of the indirect influence path based on compensation perception, it not only reveals that executives are in a state of incomplete rationality in the process of salary incentives; it also proves that improving executives' perception of compensation is an important way to give full play to the role of determinants of salary incentives. In particular, the determinants of compensation incentives involving the personal attributes of executives mainly play an incentive role through indirect effects. For example, setting incentives for executives' talents and monetary compensation preferences usually cannot directly improve work enthusiasm. Only after the perception of rationality can the indirect incentive effect be produced. In addition, in terms of suppressing agency costs, the role of incentive determinants is also mainly achieved through indirect effects. Executive talent, company profitability, and workload cannot directly affect agency costs, but can have indirect effects through compensation perception. This phenomenon shows that whether incentives such as overtime pay, performance-based wages, equity incentives, talent allowances and other incentives can achieve constraints on agency costs depends entirely on executives' perceptions of compensation. Only when executives believe that the compensation system is fair and reasonable, to function. However, current companies usually pay more attention to the exploration of executive compensation level and structure, ignoring the construction of compensation explanation and communication. In the future, executives should enhance their understanding and perception of compensation fairness and rationality, and improve the effect of executive compensation incentive determinants.

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