

Empirical Study on Corporate Governance Evaluation of Listed Companies in Automobile Manufacturing Industry

Xianping Yuan ^a, Yun Gao ^b

School of xi'an university of science and technology, Xi'an 710000, China

^a yxp999@126.com, ^b1041781823@qq.com

Abstract

Corporate governance evaluation is the premise of corporate governance improvement, and corporate performance is the basis of corporate governance evaluation. In this paper, relevant data of listed companies in the automobile manufacturing industry from 2015 to 2017 were selected, and principal component analysis was used to comprehensively evaluate the company performance. Meanwhile, e-views were used to conduct a regression analysis on the relationship between corporate governance structure and corporate performance of listed companies in the automobile manufacturing industry. The results showed that the proportion of legal personnel shares, ownership concentration and the proportion of state shares were positively correlated with the comprehensive performance of the company. There is a negative correlation between the proportion of tradable shares and the company's overall performance. The scale of the board of directors and the proportion of independent directors have a significant negative effect on the overall performance of the company. There is a negative correlation between company size and comprehensive performance. There is a positive correlation between executive compensation and corporate performance. Finally, according to the empirical analysis results, the paper puts forward corresponding Suggestions on equity governance, board governance and management governance.

Keywords

The equity governance, Board governance, Management, Corporate performance.

1. Introduction

With the growth of China's automobile production and sales, the automobile manufacturing industry has become an important pillar industry of our country, and the international status of China's automobile manufacturing industry is also improving year by year. China's automobile industry has become an important part of the world automobile industry. As the leading industry in China's economic development at the present stage, the corporate performance of automobile manufacturing has a significant impact on the improvement of China's GDP. At the same time, the corporate governance structure of listed companies plays a key role in the business performance of enterprises. Corporate governance structure is a complex concept with multiple perspectives and levels, which is difficult to summarize in simple terms. Through a set of formal or informal, internal or external mechanisms to coordinate the interests between the company and all stakeholders, to ensure the scientific decision-making of the company, so as to ultimately protect the interests of all aspects of the company. Therefore, it is of great significance to study the corporate governance structure of listed companies in automobile manufacturing industry.

2. Research on Corporate Performance Evaluation System

2.1. Corporate Performance Evaluation Index System

A fair and objective performance evaluation system plays a key role in improving the company's business performance, which can not only enrich and expand the study of corporate governance structure in theory, but also has practical significance for China's corporate governance work. Principal component analysis (pca) is a statistical method aiming at transforming multiple indicators into a few comprehensive indicators by using the idea of dimensionality reduction. These comprehensive indicators can reflect most of the information of the original indicators, and are independent of each other. They are more representative than the original variables, which makes it convenient for us to find the focus of the research.

At present, we believe that the indicators of profitability, asset management ability, repayment ability, growth ability and cash flow can comprehensively reflect the company's operating status and long-term development trend. Through the cross-analysis of these five aspects, we can achieve the goal of earnings management reduction and actually reflect the company's performance. We use principal component analysis to reduce these five indicators to form several new comprehensive indicators to establish the performance evaluation system. See Table 1.

Table 1: Corporate Performance Evaluation Index System

CATEGORY	Name	Symbol
PROFITABILITY	Earnings Per Share	X1
	Return on Equity	X2
	Net Asset Value Per Share	X3
ASSETS MANAGEMENT	Total Assets Turnover	X4
	Inventory Turnover	X5
	Accounts Receivable Turnover	X6
LIQUIDITY	Current Ratio	X7
	Quick Ratio	X8
GROWTH	Asset-liability Ratio	X9
	Main Business Revenue Growth Rate	X10
CASH FLOW	Operating Cash Flow Per Share	X11

2.2. Company Performance Evaluation Method

In this paper, principal component analysis is used to reduce the above indicators and extract the comprehensive indicators that can truly reflect the performance of the company. Principal component analysis (pca) means, suppose you can use p indices $X = \{x_1, x_2, \dots, x_p\}$ to represent that the p indicators of the research object constitute a random variable of p dimension, denoted as $X = \{x_1, x_2, \dots, x_p\}^T$, then averages μ a variable X, covariance matrix of the Σ , the p index x_1, \dots, x_p linear transformation:

$$\begin{aligned}
 F_1 &= a_1^T X = a_{11}X_1 + a_{12}X_2 + \dots + a_{1p}X_p \\
 F_2 &= a_2^T X = a_{21}X_1 + a_{22}X_2 + \dots + a_{2p}X_p \\
 &\dots\dots \\
 F_p &= a_p^T X = a_{p1}X_1 + a_{p2}X_2 + \dots + a_{pp}X_p
 \end{aligned}
 \tag{1}$$

Standardized collection of raw index data p dimension random vector samples of $x = (X_1, X_2, \dots, X_p)^n$, $x_i = (x_{i1}, x_{i2}, \dots, x_{ip})^T$, $i = 1, 2, \dots, n, n > p$, construct the sample matrix, and transform the sample matrix

element as follows: $Z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j}$, $i = 1, 2, \dots, p$, $\bar{x}_j = \frac{\sum_{i=1}^n x_{ij}}{n}$, $s_j^2 = \frac{\sum_{i=1}^n (x_{ij} - \bar{x}_j)^2}{n-1}$, getting the normalized matrix Z.

Find the correlation coefficient matrix for the standardized matrix Z. $R = [r_{ij}]_p \times p = \frac{Z^T Z}{n-1}$,

$$r_{ij} = \frac{\sum z_{kj} \cdot z_{ki}}{n-1}, i, j = 1, 2, \dots, p$$

By interpreting the characteristic equation $|R - \lambda I_p| = 0$ of the correlation matrix R, p characteristic roots are obtained and the principal components are determined. Determine the value

of m according to $\frac{\sum_{j=1}^m \lambda_j}{\sum_{j=1}^p \lambda_j} \geq 0.7$, so that the utilization rate of information reaches more than 70%.

For each $\lambda_j, j = 1, 2, \dots, m$, solve the unit eigenvector b_j^0 of the system $Rb = \lambda_j b$.

The standardized index variables were converted into the main components. $U_{ij} = z_{ij}^T b_j^0, j = 1, 2, \dots, m$

The variance contribution rate of each principal component was calculated by comprehensive evaluation of m principal components. The weighted sum of m principal components is used to obtain the final evaluation value. The weight is the variance contribution rate of each principal component. The comprehensive evaluation index of linear weighted sum of m principal components y_1, y_2, \dots, y_k : $F = \frac{\lambda_1 y_1 + \lambda_2 y_2 + \dots + \lambda_m y_m}{\sum_{i=1}^p \lambda_i}$. Finally, the performance of listed companies in automobile

manufacturing industry is evaluated by the score of comprehensive evaluation index.

2.3. The Empirical Process

2.3.1. Suitability Test of Factor Analysis

Table 2: KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		0.555
Bartlett Test of Sphericity	Approx. Chi-Square	1959.230
	df	55
	Sig	0.000

It can be seen from table 2 that the test result value is 0.555, greater than 0.5, which basically passes the test, indicating that the sample data can be used for factor analysis. Bartlett sphericity test statistics were 1959.230 and sig was 0.000, so the correlation coefficient matrix and the identity matrix were considered to be significantly different, and the original variables were suitable for factor analysis.

2.3.2. Extraction Synthesis Factor

As shown in table 3, the cumulative contribution rate of the first five principal components reached 80.455%. Then, m=5 was taken, that is, the calculated five principal components were used to replace the original variables, which could reflect the information of the 11 original variables. We chose the first, second, third, fourth and fifth principal components.

Thus, we obtained the expression of the comprehensive performance score:

$$F = 0.2772y_1 + 0.2025y_2 + 0.1311y_3 + 0.1019y_4 + 0.0916y_5 \tag{2}$$

Table 3: Combined factor result

Element	Initial Eigenvalues			Extract the sum of the squares of the loads			Sum of the squares of the rotating loads
	Total	Percentage variance	Accumulative %	Total	Percentage variance	Accumulative %	Total
1	3.050	27.728	27.728	3.050	27.728	27.728	2.548
2	2.228	20.251	47.980	2.228	20.251	47.980	2.308
3	1.443	13.117	61.097	1.443	13.117	61.097	1.485
4	1.122	10.198	71.295	1.122	10.198	71.295	1.359
5	1.008	9.160	80.455	1.008	9.160	80.455	1.151
6	.672	6.110	86.565				
7	.605	5.497	92.062				
8	.344	3.128	95.190				
9	.318	2.891	98.081				
10	.206	1.877	99.958				
11	.005	.042	100.000				

Based on model 1, the comprehensive performance score of each listed company in the automobile manufacturing industry in 2017 can be calculated, and it is easy to rank the performance of listed companies in the automobile manufacturing industry through the score, See Table4.

3. Empirical Analysis

3.1. Variation Selector

(1)Dependent Variable.In this paper, the dependent variable is represented by the score of the company's comprehensive performance evaluation index calculated by the principal component method above.

(2)Independent Variable.The independent variables selected in this paper are selected in accordance with the main influencing factors in different corporate governance structures, among which the independent variables selected are the proportion of state shares, proportion of legal personnel shares, proportion of tradable shares, ownership concentration, board size, proportion of independent directors and executive compensation.

(3)Control variable.The selection of control variables avoids the deviation caused by the cross-influences in the research. In order to ensure the unbiasedness of the estimated results, this paper selects the company size as the control variable of the model.Specific variables are shown in table 5 :

Table 4: Comprehensive performance evaluation form

Stock code	Comprehensive performance evaluation	Stock code	Comprehensive performance evaluation	Stock code	Comprehensive performance evaluation	Stock code	Comprehensive performance evaluation	Stock code	Comprehensive performance evaluation
000800	25.87744	000338	1.94204	600148	1.06862	002239	0.85323	600139	-0.07383
601633	18.98576	603997	1.87572	603009	1.06509	002662	0.85168	600213	-0.10888
000927	15.55139	300176	1.75068	002715	1.06103	002708	0.80605	600166	-0.20534
601238	8.61341	600742	1.67569	002703	1.04149	000700	0.79797	600081	-0.34507
002625	7.25603	002448	1.66853	002355	1.03948	300100	0.79606	600609	-0.38357
000625	7.22444	002725	1.57695	603166	1.01981	601777	0.78811	000957	-0.69958
600104	4.07332	002363	1.38359	603006	1.01228	000030	0.77431	000868	-2.79121
603306	3.75562	603158	1.33697	002454	0.99920	002283	0.76907		
300304	3.11450	000760	1.31569	002284	0.99146	600741	0.74011		
002213	2.82240	600960	1.27957	002590	0.98551	600698	0.65561		
002406	2.52595	600480	1.26979	002536	0.98256	600418	0.63208		
603788	2.50518	000572	1.23810	300258	0.97502	002101	0.62738		
002328	2.46492	002265	1.22456	000980	0.96293	600303	0.59264		
601965	2.44116	002602	1.18558	600699	0.95979	002126	0.57173		
601799	2.41224	002048	1.16453	000559	0.94533	600375	0.43011		
002592	2.32554	600523	1.13228	601689	0.92824	600006	0.40825		
000951	2.21531	002434	1.12525	002510	0.90725	002594	0.40038		
000581	2.18679	002593	1.12268	300432	0.90284	600066	0.37540		
002488	2.16318	002765	1.10961	002085	0.89511	600178	0.34015		
000550	2.12813	002664	1.08122	600501	0.86944	600686	0.17517		

Table 5: List of variables

Category	Element	Symbol	Name	Implication
Independent Variable	equity structure	GJG	Statep	Number of state shares/total number of shares
		FRG	LHSR	Number of legal shares/total number of shares
		LTG	Free Float Ratio	Number of shares outstanding/total number of shares
	Board	GQJ	Ownership Concentration	Equity concentration is represented by the Herfindahl-5 index
		DSH	Board Size	The size of the board of directors is expressed by the number of directors
		DLD	Proportion of Independent Directors	Number of independent directors/total number of directors
Management	JLC	Executive Compensation	Executive compensation is expressed as the total compensation of the top three executives	
Control variable		SIZE	Company Size	LN (Total Assets)
Dependent Variable		F	Corporate Performance	A composite index for a weighted sum

3.2. Research Hypothesis

3.2.1. Equity Governance and Corporate Performance

H1: The proportion of state shares is negatively correlated with corporate performance.

As the representative of national shareholders, the government has serious agency problems when it exercises the rights of relevant shareholders. On the one hand, government agencies will interfere too much in the supervision process if there is a certain political color. On the other hand, the non-standard principal-agent relationship between government agencies and companies easily leads to the phenomenon of "unclear property rights" and "separation of government and enterprise". Therefore, the first hypothesis is obtained in this paper.

H2: The proportion of legal personnel shares is positively correlated with corporate performance.

Unlike state shares, legal person share in the process of corporate governance has strong rationality and enthusiasm, supervision and motivation, because the legal person share is to maximize their own interests as the goal, the shareholders are concerned about company internal governance situation and long-term interests, and because of its stake than tradable shares, can play to subjective initiative in the decision-making, play a positive role to improve corporate performance. Therefore, this paper makes the second hypothesis.

H3: The proportion of outstanding shares is negatively correlated with corporate performance.

For China's market, the shareholders of tradable shares, because the shares they hold are a very small part, basically have no effect on the decision-making of the company's internal governance. Second, they usually pursue short-term profits as the goal, short-term operation, and do not care about the company's long-term operation. Tradable shares tend to marketize listed companies to a certain extent, but the larger the proportion in China's market, the greater the negative impact on performance. Therefore, this paper assumes that the proportion of outstanding shares is negatively correlated with corporate performance.

H4: Ownership concentration is negatively correlated with corporate performance.

Due to the special economic system, the ownership concentration of China's listed companies is very high. On the one hand, the controlling shareholders who are in the absolute control position are highly monitored, but they are prone to "one word for one story", which weakens the enthusiasm of other shareholders. On the other hand, it is difficult for companies with highly concentrated equity to form an effective internal monitoring mechanism, which damages the interests of minority shareholders. In view of the situation in China, some domestic scholars have pointed out that equity concentration is negatively correlated with corporate performance, so we have made the fourth hypothesis. e

3.2.2. Board Governance and Corporate Governance

H5: The scale of the board of directors is negatively correlated with corporate performance.

The size of the board of directors from the perspective of actual operation, the number of directors in the board of directors has a great impact on the work efficiency of the board of directors. Too many members of the board of directors will lead to the phenomenon of slow action, easy to have differences, forming small gangs, affecting the formation of the common will, thus affecting the performance of the enterprise. Therefore, this paper assumes that the size of the board of directors is negatively correlated with corporate performance.

H6: The proportion of independent directors is positively correlated with corporate performance.

On the one hand, a certain proportion of independent directors can give full play to their role in decision-making consultation. Domestic scholars have also found a positive correlation between the proportion of independent directors and corporate performance in their research on China's state-owned holding companies. Therefore, this paper assumes that the proportion of independent directors is positively correlated with corporate performance.

3.2.3. Management Governance and Corporate Performance

H7: Executive compensation is positively correlated with corporate performance.

Executive compensation is an incentive problem. We generally believe that in the case of information asymmetry between managers and shareholders, high salary can give managers sufficient motivation to improve the company's performance, so as to try to improve their own salary and form a virtuous circle. Therefore, this paper assumes that executive compensation is positively correlated with corporate performance.

3.3. Sample Selection and Data Sources

Considering the availability of data, this paper selects all listed companies in China's a-share automobile manufacturing industry from 2015 to 2017 as research samples. ST company and companies with incomplete data were deleted, and the final sample included 87 listed companies in the automobile manufacturing industry. The financial performance data and corporate governance structure data of the study samples were all from CSMAR.

3.4. Empirical Analysis and Conclusions

3.4.1. Descriptive Statistical Analysis

Table 6: Descriptive statistics

Variable	Year	average	Median	standard deviation	Min	Max
GJG	2015	0.02708	0.00000	0.07758	0.00000	0.41298
	2016	0.02643	0.00000	0.07053	0.00000	0.33895
	2017	0.02549	0.00000	0.06005	0.00000	0.26567
FRG	2015	0.11155	0.00000	0.21775	0.00000	0.85714
	2016	0.09227	0.00000	0.18233	0.00000	0.73702
	2017	0.08181	0.00000	0.18592	0.00000	0.76283
LTG	2015	0.76181	0.86180	0.26574	0.13184	1.00000
	2016	0.78973	0.85821	0.23543	0.25315	1.00000
	2017	0.82423	0.91818	0.21776	0.19818	1.00000
GQJ	2015	0.18949	0.15793	0.12953	0.01233	0.55522
	2016	0.17907	0.15095	0.12727	0.01114	0.55467
	2017	0.17333	0.15071	0.11860	0.00818	0.51062
DSH	2015	8.83908	9.00000	2.06788	5.00000	17.00000
	2016	8.91954	9.00000	2.05855	4.00000	17.00000
	2017	8.93103	9.00000	2.17701	5.00000	19.00000
DLD	2015	0.36804	0.33333	0.04896	0.33333	0.60000
	2016	0.36424	0.33333	0.04686	0.33333	0.50000
	2017	0.36669	0.33333	0.04810	0.33333	0.53846
JLC	2015	2386077.199	1778400.0	2266515.949	488000.0	13690400.0
	2016	2524276.980	1844000.0	2371884.441	488000.0	15950000.0
	2017	2676727.839	1906100.0	2560082.844	539300.0	18790000.0

From 2015 to 2017, the average proportion of state shares in listed companies in the automobile manufacturing industry was 2.70%, 2.64% and 2.54%, with the proportion of state shares being not high, and the average proportion of tradable shares was 76.18%, 78.97% and 82.42%, respectively, accounting for a large proportion. Obviously, with the implementation of the reform of non-tradable shares in 2015, the proportion of state shares was gradually reduced and the ratio of tradable shares was increasing year by year. The sample mean of the proportion of state-owned shares and the proportion of legal person shares is greater than the corresponding median, indicating that the proportion of legal person shares is less than the sample mean of the majority of listed companies, indicating that China's share reform is necessary to continue to deepen.

In this paper, ownership concentration is represented by the herfindahl-5 index. The higher the value of the index is, the higher the ownership concentration is. It can be seen from the above table that the average equity concentration ratio decreased year by year from 2015 to 2017, indicating that the policy of the reform of non-tradable shares had a significant effect on listed companies in the automobile manufacturing industry. The equity concentration ratio of listed companies in China gradually decreased with the stock reform. And the median of ownership concentration in these three years is less than the mean, indicating that there are more companies with ownership concentration less than the mean and more and more shares in circulation in the market.

The scale of the board of directors is determined by the number of board members. In 2015 and 2017, the minimum number of board members increased by one person compared with that in 2016, and the maximum number basically remained at 17, indicating that the scale of board of directors of listed companies in the automobile manufacturing industry was stable. But for the

industry as a whole, its board of 17 is a bit bloated. From 2015 to 2017, the minimum value and maximum value of the proportion of independent directors were basically maintained between 0.5 and 0.6, indicating that the proportion of independent directors in the superior companies of automobile manufacturing industry was relatively stable. The mean value of the proportion of independent directors has been relatively stable in the past three years, and its value is all higher than the median of the same year, indicating that there are more companies with the proportion of independent directors lower than the mean value. On the other hand, it also indicates that increasing the proportion of independent directors is an effective way to improve the performance of companies. The average of total executive compensation rose from 2.38 million in 2015 to 2.67 million in 2017, which is related to the maximum increase of total executive compensation in automobile manufacturing industry. The sample mean of total executive compensation from 2015 to 2017 is greater than the median of the same year, indicating that the majority of companies whose total compensation is less than the mean value.

3.4.2. Correlation Analysis

In this paper, e-views are used to analyze the correlation among the selected dependent variables, independent variables and control variables. Through observation, the correlation coefficient between the independent variables, between the independent variables and the control variables and between the control variables in this paper does not appear to be more than 0.8, which is significant. Therefore, it can be preliminarily judged that there is no multicollinearity between the variables in this paper, which will not have an adverse impact on the regression analysis results below.

Table 7: Correlation analysis table

Variable	F	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
F Pearson Relativity	1								
X ₁ Pearson Relativity	.117	1							
X ₂ Pearson Relativity	-.071	-.079	1						
X ₃ Pearson Relativity	.093	-.115	.769**	1					
X ₄ Pearson Relativity	.218-	-.172	.278*	-.040	1				
X ₅ Pearson Relativity	.007	.133*	-.072	.160**	.005	1			
X ₆ Pearson Relativity	.147	.030	-.027	.063	-.015	.407	1		
X ₇ Pearson Relativity	.162**	.029	-.010	.024	.114	.001	.282**	1	
X ₈ Pearson Relativity	.263**	.227**	-.212	.318*	.198*	.309**	.111	.540**	1

Note: ** and * represent statistical significance at the confidence level of 1% and 5% respectively.

3.4.3. Empirical Analysis and Conclusions

In this paper, the relationship between the comprehensive performance F and the structure variable X of different companies is studied. The regression method is adopted for analysis, and the multiple linear regression model for different structures is constructed as follows:

(1) Relationship model of equity governance and performance

$$F = \alpha_1 \times GJG + \alpha_2 \times FRG + \alpha_3 \times LTG + \alpha_4 \times GQJ + \alpha_5 \times SIZE + \varepsilon \tag{3}$$

(2) Relationship model between board governance and performance

$$F = \beta_1 \times DSH + \beta_2 \times DLD + \beta_3 \times SIZE + \varepsilon \tag{4}$$

(3) The relationship model between management governance and performance

$$F = \gamma_1 \times JLC + \gamma_2 \times SIZE + \varepsilon \tag{5}$$

$\alpha_i(i=1,2,\dots,5)$ and $\beta_i(i=1,2,3)$ and $\gamma_i(i=1,2)$ represent the coefficients of each variable; ε is the random disturbance term.

3.4.4. Empirical Analysis and Conclusions

(1) Regression analysis of equity structure and corporate performance

Table 8: Regression analysis table of ownership structure and corporate performance

Variable	Coefficient	standard deviation	T-statistic	probability
F	33.2904	2.4024	13.8570	0.0000
GJG	1.5612	1.4155	1.1030	0.2716
FRG	3.2439	1.0288	3.1531	0.0019
LTG	-0.0662	0.8561	-0.0774	0.9384
GQJ	1.8832	1.7779	1.0592	0.2910
SIZE	-1.3827	0.1058	-13.0689	0.0000
Weighted statistical				
R-squared	0.7371	Mean dependent var		7.5760
Adjusted R-squared	0.5955	S.D. dependent var		7.8218
S.E. of regression	2.7663	Sum squared resid		1293.2990
F-statistic	5.2065	Durbin-Watson stat		2.4043
Prob(F-statistic)	0.0000			
Unweighted statistics				
R-squared	0.6852	Mean dependent var		2.7260
Sum squared resid	1370.4160	Durbin-Watson stat		2.8597

It can be seen from the regression analysis results in table 8 that the significant performance of the overall model has passed the F test, and its significance is less than 0.05, so the regression model has statistical significance. In addition, from the coefficients of the regression equation, the p-values of the five indicators and the regression equation are relatively significant, indicating that the explanatory variables are related to the performance of the company.

The regression results show that there is a quantitative relationship between equity governance and corporate performance in the governance structure of listed companies in automobile manufacturing industry. There is a significant positive effect between the proportion of legal person shares and the company's overall performance, which well supports hypothesis 2. the degree of ownership concentration and the proportion of state shares are positively correlated with the comprehensive performance of the company in the regression model. The ratio of tradable shares has a significant negative effect, which supports hypothesis 1 and hypothesis 3, and the significance probability of the change is $0.9384 > 0.05$, indicating that the regression result is not significant, and hypothesis 4 of this paper is not supported. At the same time, it can be seen from the above results that there is also a negative correlation between company size and comprehensive performance in the automotive industry, indicating that the stronger the company's assets are, the more adverse it is to the company's competition in the market, bringing negative effects.

(2) Regression analysis of board of directors and corporate performance

Table 9: Regression analysis of board of directors and corporate performance

Variable	Coefficient	standard deviation	T-statistic	probability
F	34.53072	3.682525	9.376915	0.00
DSH	-0.311862	0.113914	-2.737708	0.01
DLD	-12.22531	2.217688	-5.512637	0.00
SIZE	-1.088	0.142536	-7.633166	0.00
Weighted statistical				
R-squared	0.77273	Mean dependent var		8.01
Adjusted R-squared	0.654443	S.D. dependent var		10.92
S.E. of regression	2.791527	Sum squared resid		1332.54
F-statistic	6.532684	Durbin-Watson stat		2.35
Prob(F-statistic)	0			
Unweighted statistics				
R-squared	0.681788	Mean dependent var		2.73
Sum squared resid	1385.377	Durbin-Watson stat		2.80

It can be seen from the regression analysis results in table 9. The significance of the whole model passed the test, and its significance was less than 0.05, so the regression model had statistical significance. In addition, from the coefficients of the regression equation, the p-values of the five indicators and the regression equation are relatively significant, indicating that the explanatory variables are related to the performance of the company.

The regression results show that there is a certain relationship between the board governance and the comprehensive performance of listed companies in the automotive industry. The proportion of independent directors has a significant negative effect on corporate performance, while the size of the board of directors has a negative effect on corporate performance. Hypothesis 5 and hypothesis 6 in this paper are supported. In this model, the size of the company is negatively correlated with the performance of the company, indicating that the larger the total assets of the company, the worse the development of the company.

(3) Regression analysis of management and corporate performance

Table 10: Regression analysis of management and corporate performance

Variable	Coefficient	standard deviation	T-statistic	probability
F	27.59802	4.148618	6.652342	0.00
JLC	0.166839	0.216902	0.769188	0.44
SIZE	-1.209292	0.195278	-6.192686	0.00
Weighted statistical				
R-squared	0.659557	Mean dependent var		6.70
Adjusted R-squared	0.485377	S.D. dependent var		4.81
S.E. of regression	2.820074	Sum squared resid		1367.89
F-statistic	3.786638	Durbin-Watson stat		2.25
Prob(F-statistic)	0			
Unweighted statistics				
R-squared	0.677742	Mean dependent var		2.73
Sum squared resid	1402.989	Durbin-Watson stat		2.84

It can be seen from the regression analysis results in table 10. The significance of the whole model passed the test, and its significance was less than 0.05, so the regression model had statistical significance. In addition, from the coefficients of the regression equation, the p-values of the five indicators and the regression equation are relatively significant, indicating that the explanatory variables are related to the performance of the company.

The regression results show that there is a quantitative relationship between executive compensation and corporate performance in the governance structure of listed companies in the automobile industry. There is a significant positive correlation between executive compensation and corporate performance, which well supports hypothesis 7.

4. Conclusion

Through empirical analysis and regression results of indicators related to various factors in the comprehensive performance and governance structure of listed companies in automobile manufacturing industry, it can be seen that the models established in this paper have passed the significance test, so the regression equation can play a certain role in explaining the relationship between corporate governance structure and comprehensive performance.

This article through to the auto industry on the impact of the governance structure of listed companies on corporate performance theory and empirical structure, obtained the following basic conclusions: (1) from 2015 to 2017, from establishing the regression model, it can be seen that the proportion of state-owned shares, legal person share proportion, the proportion of tradable shares, ownership concentration and the company's comprehensive performance respectively showed positive correlation, positive correlation, negative correlation relationship and positive correlation;(2) from the established regression model from 2015 to 2017, it can be seen that the size of the board of directors, the proportion of independent directors and the overall performance of the company are negatively correlated;(3) from 2015 to 2017, it can be seen from the established regression model that there is a positive correlation between executive compensation and corporate comprehensive performance, indicating that executive compensation plays a certain role in promoting corporate performance. Therefore, China's automobile manufacturing industry needs to further adjust the proportion of equity and equity concentration to adapt to market development. At the same time, the scale of the board of directors should be simplified, the employment system of independent directors should be improved, and the role of independent directors should be brought into play to improve the efficiency of management.

References

- [1] Y.Y.Xu , Q.Zhang. Financial performance evaluation of listed companies based on principal component analysis [J]. Volkswagen business,2009(14):32-33.
- [2] J.R.Yang,H.P.Zuo,X.B.Luo.Research on the evaluation of governance structure of Chinese listed companies [J]. Exploration of economic problems,2011(10):66-72.China National Standardization Management Committee. Specifications of Crane Design (China Standardization Press, China 2008), p. 16-19.
- [3] H.B.Zhang.A study on the correlation between ownership concentration and corporate performance of listed companies in China's automobile manufacturing industry [D]. Minzu university of China,2012.Q. D. Zeng, Q. E. Li: Progress in Civil Engineering, Vol. 32 (2012) No. 9, p. 3077-3080.
- [4] W.A.Li.Governance evaluation of Chinese listed companies [J]. China finance,2012(12):41-43.
- [5] M.H.Gao,R.Su,F.Fang.Board governance evaluation and effectiveness test of Chinese listed companies [J]. Economic dynamics,2014(02):24-35.

- [6] Y.Qi,K.Z.Liao.Reflections on corporate governance evaluation in the context of the new normal of China's economy [J]. Modern management science,2015(07):67-69.
- [7] Y.C.Du,R.X.Wang,et al.Evaluation system of governance capability of state-owned holding listed companies---research on the background of mixed ownership reform[J]. Economic management, 2016, 38(11):11-25.Information on <http://www.weld.labs.gov.cn>.
- [8] L.Qiu,L.J.Zhang,et al.Corporate governance structure, internal control quality and corporate financial performance [J]. Audit research,2016(02):104-112.
- [9] X.E.Zhu.Research on governance structure and corporate performance of listed companies in China [J]. Business economy,2017(04):147-149.
- [10]H.Qu,S.Z.Yang,et al.Optimize corporate governance structure and improve corporate governance efficiency[J]. Commercial economy,2018(03):28-29.