



Research on High-quality Development of Guangdong Listed Companies

—Model Construction of an Indicator System Based on High-quality Evaluation

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Abstract. Constructing an evaluation index system for high-quality economic development is an important part of China's macro strategic goals for economic development. As an important growth stage of China's economic development, Guangdong continues to promote supply-side structural reform, continuously improve the economic benefits of Guangdong listed companies, and promote high-quality development of Guangdong listed companies, which is the only way for Guangdong to achieve high-quality regional economic development. In order to evaluate the external social responsibility, this article selects two indicators: tax payment of listed companies (government-side) and employment of listed companies (employee-side) to construct a social responsibility evaluation index system. This system analyzes social responsibility evaluation indicators from eight dimensions which are shareholders, creditors, employees, consumers, business partners, the general public, social environment and the government; Regarding the internal performance comprehensive evaluation index system, this article mainly analyzes four aspects which are debt-paying ability, operating ability, profitability, development ability. It is hoped to provide reference for the construction of high-quality indicator system for Guangdong listed companies through this model construction.

Keywords: Listed company; High-quality development; Self-generating ability; Developing ecology; Operational performance

1 INTRODUCTION

Listed companies have a unique position in the capital market, which is the foundation for the sustainable and healthy development of China's capital market. At the same time, they are also leaders and representatives in their respective industries. Since 2019, General Secretary Xi Jinping has repeatedly put forward measures and instructions on improving the quality of listed companies, enhancing the ability of the real economy,

deepening the reform of the capital market at the meeting. Therefore, improving the development of Guangdong listed companies is of great importance.

2 ECOLOGICAL ANALYSIS OF HIGH-QUALITY DEVELOPMENT OF LISTED COMPANIES

2.1 Correlation Analysis Between High-Quality Development of Listed Companies and Healthy and Sustainable Securities Market

The securities market is a place that includes the issuance and trading of securities. This market not only provides feedback on the dynamics of monetary funds, but also has a significant impact on the development and operation of the economic market^[1].

The high-quality development of listed companies is the core content of the top-level design of the securities market. It is also an important issue that needs continuous researching and exploring in the development process of the securities market, and is an important foundation for the healthy and sustainable development of the securities market^[2].

2.2 Key Links to Improve the Quality of Listed Companies

The improvement of the quality of listed companies is a long-term and complex process that requires continuous efforts in its development process to promote the continuous improvement of the high-quality development ecosystem^[3]. The improvement can be reflected in the following four aspects:

Firstly, on the one hand, it should be fully realized that the overall average quality level of Chinese listed companies is mainly determined by several leading enterprises in various industries. Therefore, only by firmly grasping the high-quality development of several leading enterprises in various industries can the overall development quality of listed companies be effectively improved^[4]. It is necessary to comprehensively cultivate the top listed companies in order to enhance their market activity and resilience, and better improve the core competitiveness of listed companies. On the other hand, it is important to focus on tail-end listed companies with poor quality, implement targeted management of problems for different tail-end listed companies, and implement centralized regulatory resources to improve the quality of listed companies^[4].

Secondly, it is necessary to effectively promote the gradual reform of the stock market and focus on promoting the ecological construction of the stock market. In order to deepen the registration system, it is necessary to comprehensively promote the reform of capital market access. On the one hand, it is necessary to take the registration system as an opportunity for reform, and gradually relax administrative control over the stock issuance of emerging enterprises with different forms of risks entering the capital market; On the other hand, it is important to strictly control source quality, further promote information disclosure by registered enterprises and strengthen intermediary agency responsibilities^[4].

Thirdly, it is necessary to improve the trading system of the stock market, expand the expectation orientation, gradually reduce the activities of tail companies, and transform these stocks from shell stocks with rampant speculation to zombie stocks with light trading and achieve a "soft delisting"^[4].

Finally, it is of great importance to strengthen the crackdown and punishment on illegal and irregular behaviors of listed companies, gradually strengthen supervision and create a legal and compliant business environment^{[3][4]}.

3 ANALYSIS OF OPERATIONAL PERFORMANCE AND SELF-GENERATING ABILITY OF LISTED COMPANIES

3.1 The Status of Guangdong High-Quality Listed Companies

2021 is a crucial year for the development of China's capital market. The Chinese capital market will continue to promote comprehensive and deepening reforms centered on the registration system reform, and the construction of Guangdong's capital market has also undergone significant changes. Guangdong has formed a large-scale and distinctive reserve of listed companies with huge development potential. The development of Guangdong listed companies play important roles in Chinese capital market and Chinese economy.

3.2 Comparative Analysis of Operational Performance of Guangdong Listed Companies

The operational performance of listed companies is mainly analyzed from four indicators, namely debt-paying ability, operational ability, profitability and development ability. This article selects one indicator from each aspect as a representative, and studies the relationship between these indicators and stock prices to obtain a comparative relationship between the operational performance of Guangdong listed companies and the average performance of the listed stock market.

Table 1. Main Financial Indicators and Stock Price of BYD for Each Year from 2011 to 2020

	Debt-Paying Ability	Operational Ability	Profitability	Development Ability	
Time(Year)	Quick Ratio	Inventory Turnover	Return on Equity	Total Assets Growth Rate	Stock Price
2011	0.43	6.16	0.0698	0.74	35.55
2012	0.39	5.76	0.0038	0.68	32.7
2013	0.46	5.75	0.0258	0.68	43.66
2014	0.53	5.4	0.0184	0.61	59.29
2015	0.54	5.17	0.1022	0.69	87.65
2016	0.72	4.97	0.1291	0.71	65.55
2017	0.66	4.61	0.1776	0.59	65.65

2018	0.60	4.71	0.0496	0.67	65.88
2019	0.67	4.12	0.0262	0.65	63.14
2020	0.67	4.43	0.0743	0.78	199.85

Source: BYD Financial Reports 2011-2020

Table 2. Main Financial Indicators and Stock Prices of Changfang Group from 2011 to 2020

	Debt-Paying Ability	Operational Ability	Profitability	Development Ability	
Time(Year)	Quick Ratio	Inventory Turnover	Return on Equity	Total Assets Growth Rate	Stock Price
2011	0.89	5.27	0.404	0.65	29.2
2012	1.17	3.66	0.081	0.69	30.29
2013	0.59	3.39	0.038	0.86	38.2
2014	0.32	3.00	0.066	0.93	47.43
2015	0.45	2.92	0.086	1.01	90.91
2016	0.71	3.03	-0.039	0.85	63.58
2017	0.73	3.26	0.017	0.87	48.12
2018	0.63	3.18	-0.078	0.94	35.31
2019	0.69	3.97	-0.306	0.91	41.63
2020	0.68	4.38	-0.032	0.77	46.03

Source: Financial Reports of Changfang Group 2011-2020

Table 3. Main Financial Indicators and Stock Prices of Sofia for Each Year from 2011 to 2020

	Debt-Paying Ability	Operational Ability	Profitability	Development Ability	
Time(Year)	Quick Ratio	Inventory Turnover	Return on Equity	Total Assets Growth Rate	Stock Price
2011	7.81	13.84	0.140	0.65	96.40
2012	4.77	11.84	0.122	0.69	102.88
2013	4.33	10.35	0.151	0.86	188.64
2014	3.12	10.59	0.182	0.93	198.48
2015	1.63	11.71	0.219	1.01	389.52
2016	1.19	12.34	0.226	0.85	511.04
2017	1.16	13.72	0.220	0.87	697.60
2018	1.28	15.48	0.206	0.94	654.24
2019	1.51	15.01	0.213	0.91	472.16
2020	1.34	12.74	0.209	0.77	542.88

Source: Sofia financial reports 2011-2020

From table1 to table3, it can be seen that quick ratio, inventory turnover, return on equity and total assets growth rate have an comprehensive influence on the stock price fluctuations of the listed companies. The operational performance of listed companies plays a major role in influencing the average performance of the listed companies, but it is not the only influencing factor. The factors that affect the average performance of stocks are diverse, such as the psychological expectations of investors towards the stock market, speculative behavior of large investors, insider trading, etc., which can cause drastic fluctuations in the stock market, thereby affecting the correlation between the average performance of listed companies and their operational performance.

3.3 Overview of Analysis of Self-generating Ability of Listed Companies

Professor Lin Yifu (2002) points out that the self-generating ability of listed companies refers to the fact that, in the context of free, competitive, and developed markets, listed companies generally achieve profits through effective operations and management^[5]. In the current environment of a free competitive market economy, listed companies can operate and manage without external support, If the expected profit is equal to and higher than the normal income accepted by society, it can be clear that the listed company has its own capabilities. The theoretical researches on the self-generating ability of listed companies are based on practical researches. The self-generating ability of listed companies is also related to different economic development conditions and social environments in each period. Professor Lin Yifu points out that the definition of the self-generating ability of listed companies is related to the actual situation of state-owned enterprises and the national reform environment^[5]. The self-generating ability of companies is also affected by the economic development, as well as the theory and innovation of the times and certain institutional environments ^{[5][6]}.

4 EMPIRICAL ANALYSIS

4.1 Indicator Selection and Research Hypotheses

The high-quality development indicator system of listed companies constructed in this article includes external social responsibility evaluation indicators and internal performance comprehensive evaluation indicators. There are eight stakeholders in the external social responsibility evaluation index system, namely: shareholders, creditors, employees, consumers, business partners, the general public, the social environment and the government^[7]. In this article, This article selects two indicators: the tax amount of listed companies (government-side) and the number of employees of listed companies (employee-side) to analyze and construct the social responsibility evaluation index system^[7]. It is necessary to explain that the tax contributions of listed companies can significantly promote social development, and what's more, the employee numbers of listed companies can also provide important support for social employment. Therefore, this paper uses these as key indicators in the evaluation system for external social responsibility.

The internal performance comprehensive evaluation index system includes: debt-paying ability, operating ability, profitability, development ability, etc^[7]. This article selects two indicators: the total annual revenue of listed companies and the net earnings per share of listed companies (in terms of profitability) to analyze and construct the performance comprehensive evaluation index system^[7]. This article establishes the following research hypotheses based on the above indicators and descriptions^[8].

Assumption 1: There is a positive correlation between the total annual revenue Y of a listed company and its total annual tax payment X1;

Assumption 2: There is a positive correlation between the total annual turnover Y of a listed company and its total annual employment X2;

Assumption 3: The total annual revenue Y of a listed company is positively correlated with its annual net earnings per share X3.

4.2 Model Construction

This article establishes the following regression model to test the above hypothesis.

$$Y=A X1+B X2+C X3+\mu$$

Among them, Y is the total annual revenue, X1 is the total annual tax payment, X2 is the total annual employment, and X3 is the annual net earnings per share.

4.3 Comparative Analysis of Scatter Plot Correlation and Correlation Coefficient

4.3.1 Scatter Plot Correlation.

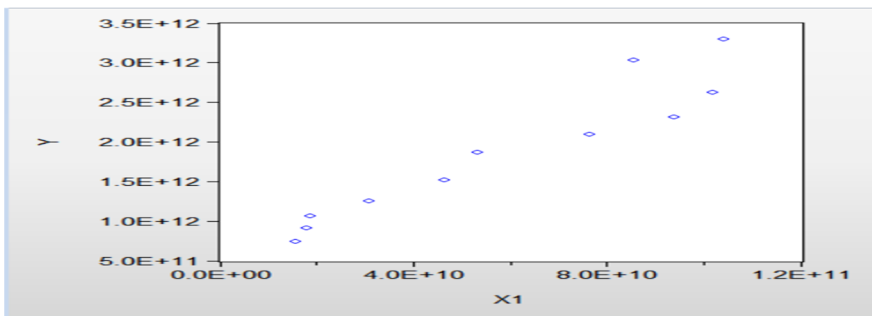


Fig. 1. Scatter Plot of Total Annual Revenue and Total Annual Tax Payment X1 for 30 Listed Companies in Eastern Guangdong Province

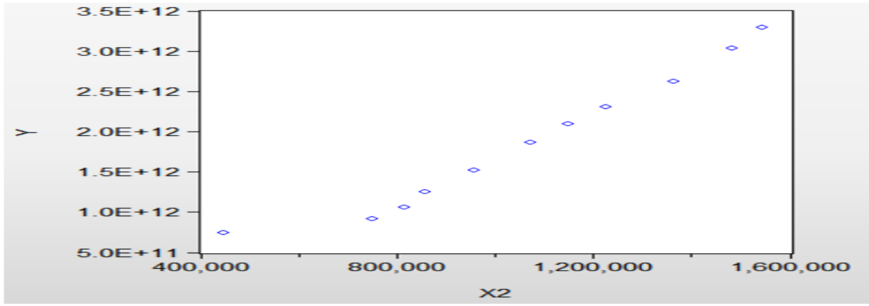


Fig. 2. Scatter Plot of Total Annual Revenue and Total Annual Employment X2 of 30 Listed Companies in Eastern Guangdong Province

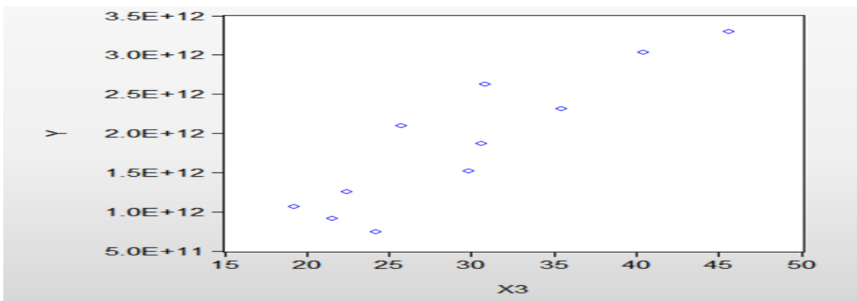


Fig. 3. Scatter Plot of Total Annual Revenue and Annual Net Earnings Per Share X3 of 30 Listed Companies in Eastern Guangdong Province

As is shown in figure1 to figure3, using Eviews7 econometric software, this article analyzes and studies the correlation between explanatory variables X1, X2, X3 and Y, respectively. The specific analysis shows that:

The explanatory variables *X1*, *X2*, *X3* show a linear positive correlation with *Y*.

From the above analysis, it can be seen that the total annual revenue of a listed company is positively correlated with its total annual tax expense, total annual employment, and annual net earnings per share.

4.3.2 Correlation Coefficient Analysis.

In order to accurately demonstrate the correlation between various indicators and total annual revenue, this article uses Excel office software to calculate the correlation coefficients between each indicator and total annual revenue, as is shown in table 4 below:

Table 4. Correlation Coefficient Between Total Annual Revenue and Indicators

Correlation Coefficient	<i>X1</i>	<i>X2</i>	<i>X3</i>
<i>Y</i>	0.95106	0.97870	0.90255

As is shown in table 4, we conduct a correlation analysis between the explanatory variables $X1$, $X2$, $X3$ and Y using Excel. In order to obtain a clearer understanding of the strength of the correlation between them, this paper uses the correlation coefficient to represent them. Specific analysis shows that:

The correlation coefficient values between explanatory variables $X1$, $X2$, $X3$ and Y are 0.95106, 0.97870, and 0.90255, respectively, indicating a high correlation between explanatory variables $X1$, $X2$, $X3$ and Y .

4.4 Regression Analysis

In order to further study the correlation between the various indicators and the total annual revenue, Eviews 7 was used to conduct regression analysis on the various indicator data of 30 listed companies in Guangdong from 2010 to 2020. The calculation results are shown in the table below:

Table 5 Regression Analysis of Dependent Variable Y

Dependent Variable: Y					
Method: Least Squares					
Date: 04/09/22					
Time: 23:20					
Sample: 2010 2020					
Included observations: 11					
Variable	Coefficient	Std. Error	t-Statistics	Pro.	
X3	2.60E+10	8.47E+09	3.075479	0.0179	
X1	5.246512	3.016491	1.739277	0.1255	
X2	1481916	326071.6	4.544756	0.0027	
C	-7.69E+11	2.05E+11	-3.759568	0.0071	
R-squared	0.986986	Mean dependent var		1.88E+12	
Adjusted R-squared	0.981409	S.D.dependent var		8.67E+11	
S.E. of regression	1.18E+11	Akaike info criterion		54.1053	
Sum squared resid	9.79E+22	Schwarz criterion		54.24999	
Log likelihood	-293.5791	Hannan-Quinn criter.		54.01409	
F-statistic	176.9631	Durbin-Watson stat		2.300743	
Prob(F-statistic)	0.000001				

From table 5, it can be seen that R^2 equals 0.9869 in the model, a high coefficient of determination, and F-statistic is 176.96, which is very significant. When the significance level is 5%, the P value for X1 is 0.1255, which is greater than 0.05 and is not significant. From an economic perspective, the sign of the estimated value of $X1$'s parameters does not match expectations. On the surface, the total tax expense of 30 listed

companies is not correlated with total revenue. However, in general, the higher the total revenue of listed companies, the higher the corresponding tax payable is. This indicates that the model may have severe multicollinearity. From the correlation coefficient analysis in the previous section, we also conclude that the explanatory variables $X1$, $X2$, $X3$ and Y do have a high correlation. To avoid errors in the results caused by removing important explanatory variables, it is necessary not to remove the original explanatory variables. Perform logarithmic processing on each variable and estimate the following model:

$$LNY=ALNX1+BLNX2+CLNX3+LN \mu$$

Perform regression analysis on the logarithmic processed variable data again, and the calculation results are shown in table 6 below:

Table 6 Regression Analysis of Dependent Variable LNY

Dependent Variable:LNY				
Method: Least Squares				
Date: 04/09/22 Time:20:07				
Sample: 2010 2020				
Included observations:11				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNX2	0.647335	0.142225	4.551480	0.0026
LNX1	0.261529	0.083576	3.129236	0.0166
LNX3	0.344122	0.136062	2.529157	0.0393
C	11.62745	0.946814	12.28061	0.0000
R-squared	0.988359	Mean dependent var	28.15753	
Adjusted R-squared	0.983370	S.D. dependent var	0.499501	
S.E. of regression	0.064414	Akaike info criterion	-2.371671	
Sum squared resid	0.029045	Schwarz criterion	-2.226981	
Log likelihood	17.04419	Hannan-Quinn criter.	-2.462877	
F-statistic	198.1071	Durbin-Watson stat	2.556943	
Prob(F-statistic)	0.000000			

As is shown in table 6, R^2 equals 0.9883, a high coefficient of determination, and an F-statistic is 198.10, which is very significant. When the significance level is 5%, the P values of explanatory variables $X1$, $X2$, and $X3$ are all less than 0.05, which is very significant. Therefore, the final model is:

$$LNY=0.261529LNX1+0.647335LNX2+0.344122LNX3+11.62745$$

4.5 Analysis of Economic Significance of the Model

The estimation results of the model indicate that, assuming other variables remain unchanged, for every unit increase in the annual tax expense of a listed company, its total annual revenue increases by 11.888979 units; For every unit increase in the total annual employment of a listed company, its total annual revenue increases by 12.274785 units;

For every unit increase in the annual net earnings per share of a listed company, its total annual revenue increases by 11.971572 units. The coefficient of the explanatory variable is consistent with expectations. Therefore, there is a positive correlation between the total annual revenue of a listed company and its annual tax payment, employment as well as net earnings per share.

5 POLICY RECOMMENDATIONS FOR HIGH-QUALITY DEVELOPMENT OF LISTED COMPANIES IN GUANGDONG

5.1 Focusing on Financial Technology Innovation and Enhancing the Self-generating Ability of Listed Companies

Financial technology refers to the use of modern science and technology to strengthen the innovative development of financial products and services, improve their efficiency, and at the same time reduce operating costs when running a company. Currently, financial technology has become the cornerstone of the development of the financial industry and the main direction for its future development. Financial technology will lead China's financial industry into four new stages. The first is to ensure the safety of national finance, the second is to help China's financial industry to achieve curve overtaking, the third is to achieve benefits for the people, and the fourth is to promote the construction of the "One Belt and One Road". Listed companies should leverage their industry-leading advantages to help other enterprises achieve funding and technological innovation, and build more innovative, value-added, and secure industrial & supply chains. While helping to build industrial & supply chains, it is necessary to continue to strengthen the investment of listed companies in technological innovation in order to truly enhance their self-generating ability^{[9][10]}.

5.2 Strictly Improving the Scientific Principles of Indicators and Dynamically Regulating the Quality of Listed Companies

The first thing to do in improving the quality of listed companies is to establish and continuously improve the quality indicator system. The establishment of a high-quality development indicator system for listed companies is conducive to monitoring the actual situation of enterprises and industries, and accelerating the pace of transformation in dealing with practical problems of high-quality development. In the high-quality development indicator system of listed companies, development indicators play a primary role, reflecting the strategic policies of the company's operations and the performance results of the company's operations.

The construction of a high-quality development indicator system should comply with two principles: objectivity and holism. The objectivity principle is that the selection of indicator system data should be based on facts and information that has been reviewed and published by registered accountants or relevant regulatory authorities. Holistic principle is that the content of the indicator system should fully reflect the impact of

various factors on the overall operation of the company, and achieve mutual coordination among various indicators, organically linking dynamic and static indicators, and linking comprehensive indicators with individual indicators ^[11].

5.3 Effectively Increasing Penalties for Violations and Illegal Activities, Continuously Improving Supervision Efficiency

The front-line supervision of the three stock exchanges in Shanghai, Shenzhen and Beijing must focus on information disclosure. However, the punishment for illegal and irregular behavior of some listed companies is clearly insufficient, and the cost of fraudulent and false information in the securities market is still relatively low.

Therefore, in the future, it is recommended to improve law enforcement efficiency in the following ways: The first is to promote the modification of some regulations and impose appropriate penalties; The second is to establish a sound system of inspection and law enforcement standards, to strengthen the cooperation and coordination capabilities between departments, to improve the standardization level of law enforcement and to reduce law enforcement costs. The Third is to strengthen the construction of regulatory technology and continuously improve regulatory level by utilizing emerging technologies^[4].

6 CONCLUSION

Against the background of the rapid development of financial technology, based on the analysis of the high-quality development of listed companies in Guangdong Province, the following conclusions are drawn: Firstly, there is a positive correlation between the total annual turnover of listed companies and their total annual tax payment; Secondly, there is a positive correlation between the total annual turnover of listed companies and their total annual employment; Thirdly, there is a positive correlation between the total annual turnover of listed companies and their total annual net income per share.

The following countermeasures are proposed for the high-quality development of listed companies in Guangdong Province: firstly, focusing on financial technology innovation and enhancing the self-generating ability of listed companies; secondly, strictly following the scientific principle of indicators and constantly improving the high-quality indicator system; thirdly, appropriately increasing the punishment for violations and illegal activities and improving supervision efficiency from different perspectives.

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