



The Impact of Fiscal and Tax Policies on the Performance of New Energy Industries under the Dual Carbon Goal

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Abstract. The development of renewable energy sources contributes to energy and environmental security, the development of new energy industries under the guidance of the dual-carbon goal is the key to reshape China's energy structure, and promote the transformation and upgrading of the economy and industry. However, at present, due to the limitations of financial and technical factors, the development of new energy industry is not strong, which seriously affects China's "30-60" "dual-carbon" development strategy, and as the country's two major means of macro-control, financial subsidies and tax incentives. can help the new energy industry to break through the development barriers. Therefore, by analysing the effect of tax incentives on the new energy industry, it will help the development of China's new energy industry and promote the transformation and upgrading of economy and industry.

Keywords: Dual-Carbon, New Energy, Industrial Performance.

1 Introduction

Worldwide, the new energy industry, as an emerging industry, is not only a major addition to our country in the coming years, but also an important means of achieving "double carbon". Legislative support for the development of new energy can promote the use of new energy, promote the development of the new energy industry and point the way for the development of new energy.

2 The Need to Strengthen China's New Energy Legal System Under the Dual Carbon Goal

2.1 Low-carbon Energy Transition and New Energy Technology Innovation Need Legal System Support

Fossil energy has been much debated in energy security, energy access, environmental protection, etc.[1] China is the world's largest developing country, in its carbon dioxide

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emissions ranked first in the world, only 10 years behind the developed countries to complete carbon neutrality by 2060, which is a major issue of technological innovation and development of China's new energy industry. Under the general environment of China's energy structure transformation, cost reduction and efficiency improvement are the inevitable choice for development, the development of new technologies cannot be separated from a perfect energy regulatory system, and the integration and coordination of energy policies must be further strengthened.

2.2 China Should Strengthen the Voice of its Legislature in the International Management of New Energy Resources

China's transition from a "big country" to a "strong country" in the development of new energy sources in the world is of great significance to the construction of a new world order and the enhancement of international prestige. In international energy management, the words of the legislature can be interpreted as a guide to the development and construction of the international legal system, rules and standards. [2]China is relatively late in the development of new energy, but in only 10 years it has surpassed Germany and the United States and is among the most advanced in the world. To gain a say in the legal system in the field of global new energy, it is necessary to establish a more specialised and systematic legal system, and to carry out international collaboration within the framework of this system, so as to form a new international collaborative mechanism and rules.

3 Empirical analysis of the impact of fiscal and taxation policies on the performance of new energy industry

3.1 Sample Selection and Data Sources

This study is based on the financial indicators of 174 listed companies in the new energy industry from 2012-2022, and their financial data in the Oriental Wealth Network are used as sample observations.

3.2 Variable Selection and Modelling

1. Variable Selection

(1) Explained Variables

The article selected the company performance of new energy industry as the research object. Usually, the academic evaluation of company performance is mainly measured by solvency, profitability and so on. After collating the relevant research results at home and abroad, this paper concludes that the current academic community generally believes that the company performance is represented by financial performance. There are usually three methods to measure financial performance. The first main method is to use ROA and ROE as measures; the second category is based on stock price index,

stock price index and stock price index, as well as stock price index calculated by using factor analysis method. The one used in this thesis is Tobin Q which is the second type of market index.

(2) Explanatory Variables

Fiscal subsidy refers to a kind of economic and social compensation of economic benefits to individuals or companies by the government for some political, economic or social purposes. For example, price subsidy, employee living cost subsidy, etc., all belong to the scope of financial subsidy. As far as the company is concerned, the financial subsidies received by the company this year are based on the items of financial subsidies announced in the company's annual report.

(3) Control Variables

Usually, some control factors are introduced into the modelling so that the modelling accuracy and precision can be improved. In this paper, based on the relevant theories about taxation and company performance at home and abroad, other factors that have some effect on company performance are adjusted.

① The size of a company, expressed in terms of its total capital at the end of the interim period of the financial statements, is commonly held to be the case that the larger the company, the better it will be able to raise finance and operate, and the better it will be able to withstand the elements. However, depending on factors such as the industry in which the company is located and the viability of the company, the growth of the company is detrimental to its performance.

② The gearing ratio, which is a composite of a firm's use of debt to produce and operate at a profit. In numerical terms, it is equal to the total amount of final debt. This value will have some impact on the evaluation of the company's performance. At the same time, the capital structure and capital structure of the company are gradually rising.

③ Capital intensity, this paper uses general financial instruments to measure the capital intensity of a firm. The degree of capitalisation is the ratio of the value of a firm's total assets in a given period to the operating earnings it achieves in that period. In particular, the capital intensity ratio represents what a firm has to pay to produce one dollar of earnings. It is often used to compare firms in the same industry. The common view is that the more capital-intensive a firm is, the higher the risk it is exposed to and the higher the cost of capital it requires.

④ The age of the company, generally the age of the company = the current year - the year of the company's founding, in general, the older the company is, the more it is able to withstand risks and the better it performs.

These variables are shown in Table 1:

Table 1. Descriptive statistics

Nature of the variable	variable name	variable symbol	calculation method
explanatory variable	Corporate performance	TQ	Market value of the company/replacement cost of the asset
	financial subsidy	lsub	Logarithm of the amount of financial subsidies in the company's annual report
explanatory variable	Tax incentives	tp	Tax reimbursement/(tax reimbursement + all taxes paid)
	Enterprise size	size	Closing balance of total enterprise assets
control variable	gearing	level	Total liabilities at end of period/total assets at end of period
	capital intensity	capint	Total assets/operating income
	Age of business	age	Current year - date of establishment

2. Model Construction

In order to test the impact of financial subsidies and tax incentives on the performance of enterprises in new energy industry, this paper uses the OLS method to establish the following regression equation:

$$TQ_{i,t} = \beta_0 + \beta_1 lsnb_{i,t} + \beta_2 tp_{i,t} + \beta_3 size_{i,t} + \beta_4 level_{i,t} + \beta_5 capint_{i,t} + \beta_6 age_{i,t} + \theta_{i,t} \quad (1)$$

3. Baseline Regression Analysis

(1) Descriptive Statistics of Variables

Before conducting the formal regression of the model, we first conducted descriptive statistics on the variables involved in the sample with respect to their maximum, minimum, mean and standard deviation, etc., and Table 2 below shows their specific statistical results:

Table 2. Descriptive statistics

variable	N	mean	median	sd	min	max
TQ	1192	1.661	1.372	0.938	0.771	11.461
lsub	1192	16.179	16.353	1.984	4.912	21.603
tp	1192	0.151	0.076	0.190	0	0.921
size	1192	1.727	0.616	3.777	0.028	32.348
level	1192	0.526	0.534	0.233	0.048	3.262
capint	1192	2.642	2.073	2.010	0.337	17.556
age	1192	17.168	17.000	5.660	2.000	35.000

As can be seen in Table 2, there are a total of 1192 valid observations between 2012 and 2022. According to the descriptive statistics of Tobin's Q, the average scores of the

model are 1.661, 11.461 and 0.771. The average performance of the new energy industry is 1.661, which indicates that the performance of the companies in the new energy industry is higher and differs from the maximum value, which shows that the new energy industry, although all of them belong to the new energy industry, there is a great difference in their development due to the reason of the industry itself.

The average level of financial subsidy is 16.179 and the medium level is 16.353, which are very similar, illustrating the wide range of state subsidies to the new energy sector. This large difference illustrates that there is also a wide variation in the extent of government subsidies to the new energy industry.

The average tax rate (tp) is 0.151, with a high of 0.921 and a low of 0. This suggests that there is little difference in the tax burden enjoyed by major companies in the new energy industry, and that there are very few tax breaks in general, indicating that the new energy industry needs state support.

It shows that the overall debt level of the new energy industry is high, and the level of debt varies greatly from company to company, and some companies will even borrow money to support their normal operations, thus, the financial risks and economic pressures they face in their operations are high.

Significant differences between firm size, capital intensity, and the age of the firms indicate significant differences between firms in the new energy industry.

(2) Relationship Between Factors

If there is a correlation between the various explanatory variables, it will bias the prediction of the forecast and the accuracy of the prediction. In order to prevent this phenomenon, this paper provides correlation analyses and empirical analyses of the described models. In these three areas, the trend of government grants and company performance is inverse, while the trend of tax incentives and company performance is consistent, both of them are around 1 per cent, while the other factors are around 1 per cent.

4. Analysis of Empirical Results

The analysis of the data shows that among the main factors, financial subsidies have the greatest impact on the performance of the company, which is -0.098 at around 1 per cent, respectively. From a statistical point of view, in the sampling period, there is a 99% probability that financial subsidies will lead to a decline in the performance of the sample company; economically, when all other conditions are equal, the company's performance will be reduced by 0.098. The study found that with the increase of financial subsidies, the operating performance of new energy companies will gradually decline. This is due to the fact that the state has increased financial subsidies to the new energy industry under the "double carbon" policy, which makes it overly dependent on state subsidies and neglects its own core competence. The impact factor of tax incentives (tp) on firm performance is 0.584, which is significant in the range of 1%. From a statistical point of view, there is a 99 per cent chance that tax incentives will improve the performance of the sample firms in the sampling period; from an economic point of view, when all other factors are equal, the performance of the firms changes by 0.584 percentage points as a result. The results of the study show that under the "dual-carbon"

policy, new energy companies will gradually improve with the implementation of the policy when they enjoy tax breaks. The results show that financial subsidies and tax incentives have a significant effect on the performance growth of the new energy industry, which is mainly reflected in the fact that the more financial subsidies, the lower the performance of the company, and the more tax policies, the better the performance of the company. Therefore, in the key stage of China's dual-carbonisation development, it is necessary to strengthen the incentive role of local governments, to regulate in a timely and rational manner, and to change the repressive role of financial subsidies into an incentive role.

Among the control variables, the size of the company has a negative 0.079 effect on the performance of the company, which indicates that the changes in the size of the company and the operating performance are exactly the opposite. That is to say, as the size of the company gets bigger and bigger, the performance of the company gets worse and worse, which is why the new energy industry has to implement the "dual-carbon" strategy instead of just expanding.

4 Suggestions for Improving the Fiscal and Taxation Legal System to Promote the Development of the New Energy Industry

4.1 Improvement of the Legal System to Safeguard New Energy Generation

To strengthen the supply of new energy and build a new power system, innovative legal construction must be carried out in order to achieve administration of energy management in accordance with the law. [3]The promulgation of the Energy Law should be vigorously pursued, the Renewable Energy Law and the Electricity Law should be appropriately amended, and basic laws and regulations should be formulated to safeguard the supply of electricity and power trading, so as to promote the normal operation of the electricity market.

4.2 Exploring New Coal, Photovoltaic, Wind and other New Development Approaches at the Legal System Level

The Renewable Energy Law has made new energy sources a priority for China's energy supply, while the relevant statutes are more stringent in their provisions and the relevant judicial interpretations have not been formulated. New energy sources such as wind energy and solar energy have developed rapidly, but due to the weather, wind energy and solar energy cannot provide electricity continuously, while large-capacity storage technology has not been fully developed. At present, the support and guarantee function of coal should not be underestimated, coal power is the "ballast", it is not contradictory with the new energy-based new energy power generation system, should focus on the complementary between the two, a reasonable combination.[4]

4.3 Strengthening Government Responsibilities and Incentives in the Use of New Energy Sources

State support is necessary for the effective use of new energy. At present, the country is still in the development stage of marketisation, and the reform of the electricity market and green power trading are in a steady process, so the incentive role of the state cannot be ignored. In order to make full use of the function of the electricity market, it is necessary to form a new, long-term, unified electricity market system through the synergy of a variety of means. First of all, the tax system as the most direct means of stimulation, should vigorously implement a comprehensive and coordinated new energy tax support. The new energy industry chain is relatively long, the government support policy should not be limited to power generation, but through the integration of upstream and downstream, so that all aspects of the entire industry chain are favourable, the upstream project investment, downstream power transport and terminal consumers should be given tax incentives.

5 Concluding Remarks

For the new energy industry to develop sustainably, it is necessary to formulate appropriate policies and regulations. Whether from a domestic or foreign perspective, the policy and regulatory system for the new energy industry is fragmented, which is not conducive to promoting the development of the new energy industry.[5] To solve the problems of new energy laws, systems and management, it is necessary to make full use of the existing laws, systems and management mechanisms, and to shift from purely administrative management to a combination of guidance and incentives, so that the coordinated management and legal systems between countries and regions are fully supported.

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