Analysis of Financial Strategy and Operation Strategy of BYD, Changan Automobile, and Great Wall Motor

Yufan Duan[1, *,†], Zhijie Lin[2,†], and Kailan Mo[3,†]

[1]Department of International Economic and Trade, Jinan University, Guangzhou, China

[2]School of Finance & Investment, Guangdong University of Finance, Guangzhou, China

[3]Department of Financial Engineering, Guangdong University of Technology, Guangzhou, China

*Corresponding author: gjw396211094@stu2022.jnu.edu.cn

[†]These authors contributed equally.

Abstract. With the increasing emphasis on environmental protection energy in global development, new energy vehicles have attracted the attention of automobile manufacturers. At present, the market has a great development prospect and there is no obvious oligopoly. Therefore, taking China's domestic automobile market as the target, this paper selects three representative automobile enterprises with different development priorities to conduct financial analysis, industry analysis, and SWOT analysis on the three companies. Based on the data of these three companies, the overall domestic automobile market in China is roughly evaluated, and the future development of China's new energy automobile market is speculated. This study found that the influence of new energy automobile enterprises in the automobile manufacturing industry has gradually increased, but it still cannot affect the position of traditional automobile manufacturing companies. At present, there is no oligopoly in China's domestic new energy market. Even BYD, which already has the first-mover advantage, does not fully grasp the majority of the domestic market, and it is still possible to be surpassed by later companies (such as Changan Automobile and Great Wall Automobile).

Keywords: Financial Strategy; operation strategy; SWOT analysis.

1. Introduction

The automobile sector is one of China's key economic pillars and has a significant impact on both the country's economy and social development. In 2022, China's remaining proved technical recoverable reserves of oil resources will be 3.689 billion tons, accounting for only 1.53% of the world's oil resources [1], while the population will account for 17.88% of the world's total. The demand for autos will increase for a very long time to come due to China's economy's rapid and continuous growth as well as the acceleration of urbanization. However, China's environmental protection has come under intense pressure as a result of the growth of the vehicle sector. The urban environment is always impacted by noise and exhaust emissions. In recent years, global oil supplies are becoming scarcer, the price has consistently reached new highs, and major atmospheric pollution and the global greenhouse impact are intensifying. The reliance on conventional oil sources has been supplanted by new energy sources. New energy cars will be the primary development direction of future autos, especially with the ongoing development and enhancement of science and technology and electric power driving technology. To effectively ease the strain on the environment and the energy supply, as well as to support the vehicle industry's sustainable growth, it is imperative that the development of energy-saving and new energy vehicles be accelerated. This is also a strategic move to hasten the transformation and upgrading of the automotive industry, as well as to cultivate new economic growth points and global competitive advantages.

The development of new energy vehicles is a crucial step in the transformation and modernization of the automotive industry as well as a crucial launchpad for nations throughout the globe to address the global energy issue and slow global warming. In order to combat climate change and improve the energy structure, many nations around the world view the development of new energy vehicles as a crucial strategic step. As a result, via strategic planning, technological innovation, marketing, and application, they have helped the new energy vehicle industry expand. Major new energy vehicle-

producing nations, including Europe, America, Japan, South Korea, and China, have formulated a number of policies, encouraged automakers to compete in the new energy vehicle market, and supported the installation of charging infrastructure. These nations have also adopted various measures to speed up the electrification process. More than 20 nations have adopted gasoline vehicle bans or electrification targets as of now, while 8 nations and regions, including the European Union, South Korea and the United Kingdom, have made promises to achieve net zero emissions. In order to strongly encourage the development of the new energy automobile sector, China also published a carbon peak action plan in 2021 [2]. China's vehicle industry has outperformed the trend despite the COVID-19 epidemic's recurrence, low domestic demand, and a constrained supply chain. The new energy automotive market in China has moved from being policy-driven to being market-driven, displaying a positive development trend in terms of both size and quality. A significant innovation center and engine for the global vehicle industry's transition to electrification is China's new energy automobile sector, which has also grown quickly. Therefore, this paper will conduct a financial strategy analysis, cash holding analysis, accounting performance analysis, enterprise valuation analysis, China's new energy vehicle industry analysis, and SWOT analysis based on the three domestic new energy vehicle companies (BYD, Changan and Great Wall Motors), and based on the above analysis, put forward suggestions for the three companies and the new energy vehicle industry as well as prospects for the future.

2. Basic Descriptions

BYD Auto, Changan Automobile, and Great Wall Motor are three leading new energy vehicle companies in China. BYD is a conglomerate manufacturing company floated in July 2002 while Changan Automobile and Great Wall Motor are stated owned companies.

Founded in January 2003, BYD is a multinational high-tech company from China. BYD now has four industries including Auto, Electronics, New Energy, and Rail Transit. The company produces passenger cars, buses, trucks, electric bicycles, forklifts, and rechargeable batteries [3]. BYD is the biggest EV producer in China. As of 2021, BYD was at the forefront of the world in both plug-in electric vehicles and pure electric vehicles, with electric vehicles accounting for 9.1% of the global market and electric vehicles accounting for 7% [4].

Compared with the young and energetic BYD, Changan and Great Wall Motor have longer histories in China. The predecessor of Changan Automobile is a military factory established in 1862. After the founding of the People's Republic of China, Changan Automobile was transformed from a military factory into an automobile manufacturing enterprise. As the oldest automobile maker in China, Changan Automobile ranks among the top four domestic automobile manufacturers in China, which is known as the "Big Four" state-owned car manufacturers [5]. The company not only has independently developed auto brands (such as Changan, Oshan, and Kaicene) but also produces and sells cars (such as Changan-Ford, Changan-Mazda, etc.) jointly with world-famous auto brands. In 2021, the sales of joint-venture brands only account for less than 24%, while the sales of domestic brands account for more than 76% [6].

Similar to Changan Automobile, Great Wall Motor is a Chinese privately owned automobile manufacturer. Great Wall Motors was founded in 1984 and ranked among the top eight in China's automobile manufacturing market, with an amount of 1.281 million in sales in 2021 [7]. In the research by Kane, Great Wall Motor is the third largest plug-in electric vehicle manufacturer in the Chinese market, with 4% of the market share, selling under brand names such as Ora and Haval [8].

3. Balance sheet

3.1 Financial strategy analysis

Table 1. Corporate liabilities, long-term borrowings, return on capital, and return on net assets (Unit: RMB)

	BYD	Changan Automobile	Great Wall Motor
Total liabilities	191,535,938,000.00	79,538,383,535.43	97,305,817,970.13
Long term borrowings	8,743,519,000.00	600,000,000.00	5,463,523,819.40
Percentage	4.56%	0.75%	5.61%
ROIC	4.51%	3.34%	5.69%
ROE	4.01%	6.51%	11.26%

Data source: 2021 enterprise annual report of BYD, Changan Automobile and Great Wall Automobile

From Table 1, it can be clearly seen that the ratio of long-term loans to total liabilities of Chang an Automobile is lower than that of BYD and Great Wall Motors. It can be seen that Chang an Automobile has lower financing risk and fewer restrictive clauses compared with the other two companies. In this paper, ROIC (return on capital) and ROE (return on net assets) are used as two reference indicators for investment strategy analysis and operation strategy analysis. From Table 1's data, it can be seen that the return on capital of the three companies is a little different. Great Wall Motors has the highest rate of return and Chang a Motors has the lowest rate of return. After adding ROE to the comparison, it can be found that BYD's ROE and ROIC indicators are not significantly different, while Chang a Motors and Great Wall Motors have about twice the ROIC, it can be seen from this that BYD did not improve the ROE of the company through excessive borrowing leverage.

3.2 Financial strategy analysis

Table 2. Cash flow and current liabilities (Unit: RMB)

	BYD	Changan Automobile	Great Wall Motor
Net cash flow from operating activities	65,466,682,000.00	22,971,723,210.84	35,315,673,246.13
current liabilities	13,903,909,000.00	76,106,707,717.85	85,236,713,479.85
Percentage	470.85%	30.18%	41.43%

Data source: 2021 enterprise annual report of BYD, Changan Automobile, and Great Wall Automobile

In the analysis of cash holdings, this paper uses the ratio of net cash flows from operating activities to current liabilities to judge the ability of enterprises to repay short-term debts with cash obtained from operating activities. From Table 2, it can be clearly seen that BYD Company has strong solvency, while Changan Motor and Great Wall Motor have relatively weak solvency.

3.3 Accounting performance analysis

Table 3. Corporate operating cost and operating leverage (Unit: RMB)

	BYD	Changan Automobile	Great Wall Motor
Operating revenue	216,142,395,000.00	105,141,877,237.05	136,404,663,038.67
Operating cost	212,602,339,000.00	87,648,705,534.14	131,878,091,797.32
Net profit	3,967,266,000.00	3,604,218,189.98	6,725,014,517.95
DSO	7.74	6.62	12.35
DIO	5.44	26.69	33.87
DPO	25.34	184.56	178.95
CCC	-12.16	-151.24	-132.73

Data source: 2021 enterprise annual report of BYD, Changan Automobile, and Great Wall Automobile

Table 3, it is clear to see the accounting performance of the three companies in 2021. In addition to the traditional operating income, operating cost, and net profit, this paper also uses DSO, DIO, and DPO as the reference indicators for the analysis of the company's profitability, solvency and development capacity.

Among them, the operating income of BYD is much higher than that of Chang a Motor and Great Wall Motor, while the operating cost of BYD is also higher than that of the other two companies. However, in the net profit, BYD and Changan Automobile are lower than Great Wall Motor. In DSO, Chang an Automobile has the lowest index, which means that Changan Automobile has the highest efficiency in the use of working capital, and the company's operating ability is strong. The DIO index of BYD is far lower than that of Changan Automobile and Great Wall Motor, which shows that BYD needs fewer days to convert inventory into sales, and the company's sales capacity is stronger. In the DPO index, BYD is far lower than the other two enterprises, which indicates that although BYD has certain first-mover advantages in the field of new energy vehicles, it still cannot affect the position of Chang an Automobile and Great Wall Automobile in the traditional automobile manufacturing industry in a short time.

4. Marketing

4.1 Research on enterprise valuation

Table 4. Enterprise WACC estimation

	BYD	Changan Automobile	Great Wall Motor
Market value of equity	104,244,209,000	55,866,239,944	90,252,064,338.63
Market value of debt	191,535,938,000	79,538,383,535	97,305,817,970.13
Leverage	64.76%	58.74%	51.88%
debt-to-equity ratio	183.74%	142.37%	187.45%
Marginal corporate tax rate	15.0%	5.7%	19.9%

Equity beta	0.55	0.93	1.3
Expected cost of equity capital(rE)	3.66%	6.54%	5.16%
Expected cost of debt capital(rD)	4.22%	3.18%	2.38%
All equity expected return on assets(rA)	3.08%	3.39%	3.70%
business risk	0.21	0.3969	0.69
WACC	3.72%	3.54%	3.31%

In Table 4, according to the financial statements and public information on the stock market, this paper uses WACC formula and CAPM model to calculate the cost of debt Rd, the cost of equity Re, business risk beta (A), and respective WACC of BYD, Changan and Great Wall. It can be seen from the table that BYD has the highest company value, the Great Wall ranks second, and Changan has the lowest company value. In terms of the leverage ratio, BYD has surpassed the other two, which means that its solvency is stronger than that of Changan and Great Wall. In terms of debt-equity ratio, the ratio of BYD and Great Wall is higher than that of Changan, which means that BYD and Great Wall have strong long-term solvency. Risk-free interest rate in this paper uses the interest rate of China's five-year treasury bonds and calculates the respective Rd and Re in three companies. In the following commercial risk beta (A), this paper calculates that the business risk beta (A) of the Great Wall is the highest, reaching 0.69, and BYD is the lowest, reaching 0.21. This means that compared with Great Wall, BYD has less business risk, and customers prefer to buy BYD's cars rather than Great Wall's cars. However, the WACC of BYD calculated in this paper is the largest among the three companies, which means that the overall cost of capital in Biya is high and the financing cost of enterprises is high.

4.2 Industry analysis

From Fig.1, the number of new energy vehicles is rising with the increase in new energy vehicle sales. In 2018, there were 2.61 million new energy vehicles in China, of which pure electric vehicles accounted for 81.06%, totaling 2.11 million. By the end of June 2022, in just five years, the total number of new energy vehicles has increased to 10.01 million, including 8.104 million pure electric vehicles, accounting for 80.93% of the total number of new energy vehicles. However, according to China's latest subsidy policy for new energy vehicles [9], The particular subsidy amount will alter as follows, and the subsidy standard will be 30% lower in 2022 than it was in 2021: (3) The subsidy for plug-in hybrid vehicles is 4800 yuan. (1) 9100 yuan (13000 yuan in 2021) for pure electric passenger vehicles with a pure electric range of 300–400 kilometers. (2) 12600 yuan (18000 yuan in 2021) for pure electric passenger vehicles with a pure electric endurance mileage of more than or equal to 400 kilometers (6800 yuan in 2021). After December 31, 2022, it will be fully canceled. The decrease in subsidies for new energy vehicles is mainly due to the fact that the market share of new energy vehicles has already accounted for a large proportion. It is expected to reduce the financial subsidies. Although China has reduced subsidies for new energy vehicles, this has not affected the rapid growth of new energy vehicle ownership.

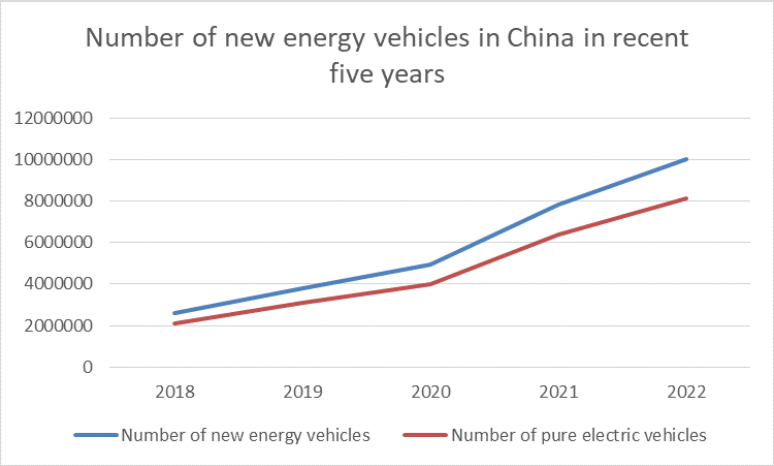

Fig. 1 Number of new energy vehicles in China in recent five years (Photo credit: Original)

In recent five years, the number of public charging piles in China has increased rapidly, and the infrastructure has tended to be improved. As shown in Fig.2 below, China has 777000 charging piles in 2018, and by 2022, the total number of charging piles will reach 4949000, showing exponential growth. The rapid increase in the number of charging posts will simultaneously drive the rapid increase of new energy vehicles. According to China's current policies on stabilizing the economy [10], the government will further strengthen the construction of charging infrastructure in combination with the development of new energy vehicles.

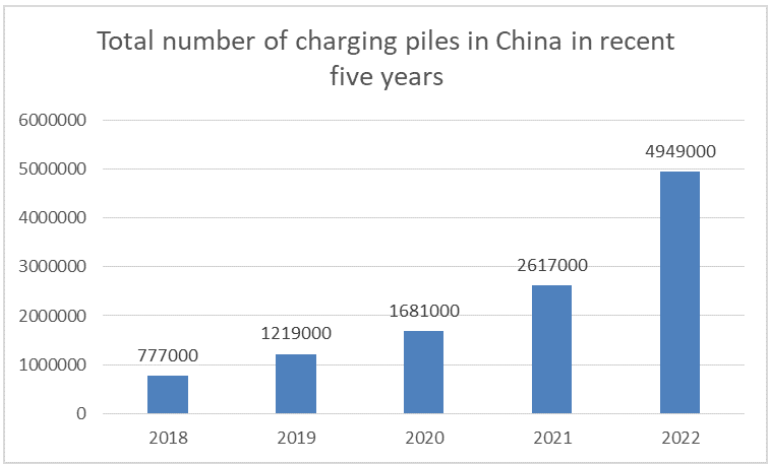

Fig. 2 Total number of charging piles in China in recent five years (Photo credit: Original)

4.3 SWOT analysis

SWOT analysis is one of the basic analysis methods of marketing. This method is to conduct a comprehensive, systematic and accurate study of one company by evaluating its own strengths, weaknesses, opportunities and threats in external competition. Therefore, the corresponding development strategy is formulated according to the result. What's more SWOT analysis has a strong structure, which is generally manifested as a SWOT matrix, and gives different meanings to different areas of the matrix, as shown in Table 5-8.

4.3.1 strengths

Table 5. Strengths Analysis of BYD, Changan Automobile and Great Wall Motor

BYD	Changan Automobile	Great Wall Motor
BYD released a new blade battery in 2020, which greatly improved the safety and battery service life, reduced the production process and production costs, and most importantly, doubled the endurance mileage. BYD battery occupies nearly 10% of the global market, ranking second in the world.	Since 2021, Chang an Automobile has adopted a new high-frequency pulse heating system to improve the low-temperature performance of the battery and the efficiency of the motor. Having a self-developed battery is an important asset for a company.	Great Wall Motor adopts Dayu battery technology and introduces an automatic fire extinguishing system to further improve battery safety. Safety is an important issue for the public in the face of new energy vehicles.

4.3.2 weaknesses

Table 6. Weaknesses Analysis of BYD, Changan Automobile, and Great Wall Motor

BYD	Changan Automobile	Great Wall Motor
BYD's brand image is difficult to recover in a short time due to its heavy imitation of other brands in the early stage. And BYD's current production system is not yet strong enough to enter the high-end market.	Chang an Automobile's current exterior design and interior collocation have not been accepted by the public, And some models also have the problem that the power is too weak.	Only selling a single model of vehicle is very unfavorable for an enterprise, especially for pickups. As the saying goes, do not put all your eggs in one basket. Great Wall Motor's approach will leave it vulnerable to risk.

4.3.3 opportunities

Table 7. Opportunities Analysis of BYD, Changan Automobile, and Great Wall Motor

BYD	Changan Automobile	Great Wall Motor
The blade battery was a breakthrough in BYD's slump, and it taught the company that technology is king. So when BYD's technology breaks through again, the opportunity will follow to appear.	Chang an Automobile focuses on the research and development of gasoline engines for traditional cars. And when it entered the new energy vehicle market in 2017, most of the market share has been occupied by BYD, Tesla, and other new energy vehicle companies. So we think policy support will be its future opportunity.	Great Wall Motor will launch its all-electric pickup truck in the next two years, and if this kind of pickup can make a splash, that could be Great Wall's chance.

4.3.4 threats

Table 8. Threats Analysis of BYD, Changan Automobile, and Great Wall Motor

BYD	Changan Automobile	Great Wall Motor
As a pioneer in new energy vehicles area, the threat naturally comes from up-rising stars. If BYD does not make progress, its position is likely to be usurped by other hands.	The threat of Chang an Automobile should come from the loss of customers because the satisfaction of its model is not high. If the appearance design can not be adjusted in time, the phenomenon of customer loss is likely to occur.	Great Wall Motor's threat comes from its own single model. If pickup trucks remain less popular in China, Great Wall will struggle in this market.

5. Suggestion

Based on the above research, we have some suggestions. For BYD, as a company with the lowest business risk, battery development of it has highly competitive so BYD can squeeze down the price of the same amount of battery power. As a pioneer in the area of new energy vehicles, we suggest that it continue to maintain its research enthusiasm and stabilize its first-mover advantage. Under the current situation that BYD leads the development of the Chinese new energy vehicle industry, we believe that it is also a very important enterprise goal to understand the needs of customers and then adjust its strategic direction. For Changan Automobile, since it started to contact new energy fields later than BYD, it is suggested to stick to the basics of publicity and independent research. If it is difficult for Chang an Automobile to surpass BYD in price advantage, maybe it can choose to gain an advantage in comfort or other aspects. In addition, Changan Automobile can learn the technology of foreign automobile manufacturing brands in cooperation with foreign companies, so as to bring more high-quality vehicle choices to Chinese people. As for the Great Wall automobile, after our investigation, we found that it is currently selling only pickup trucks. Only selling a single model of vehicle is very unfavorable for an enterprise, especially for pickups. There are few audiences for pickup trucks in China, because of the scarcity of parking spaces that are large enough. We have to admit that the mainstream today is SUVs and MPV. So our suggestion to Great Wall Automobile is to launch other types of cars, maybe pickups are popular in the international market but the main market in China shouldn't be given up. Besides, we believe that the essential reason for the highest business risk of Great Wall Automobile is that it does not have a good understanding of consumer groups, so what it should do is understand the preference of consumers, in order to improve its product. Every company should understand that the consumer is the foundation on which the company depends to exist.

And to the whole automobile manufacturing industry, aiming at the fact that the policy dividend is due next year, companies should take measures to cope with the decrease in sales. We think cost performance is the best way to resist the risk because people will not significantly reduce the demand for cars, people just choose other better brands than they think. What's more, the whole new energy vehicle industry has excess capacity. Therefore, how to guide the public to accept the transformation of fuel vehicles to new energy vehicles is also the policy of each enterprise. In addition, the government also encourages enterprises with independent innovation to connect with the countries along "the Belt and Road Initiative", so as to open up the international market and complete the dual circulation domestic and international market layout. Most importantly, enterprises should insist on research, development, and innovation, only then they will not be eliminated from the industry.

6. Conclusion

Through the research on the annual reports of three enterprises, this study has a general understanding of China's domestic automobile manufacturing industry. This paper screens the data in the financial statements of the three enterprises' annual reports and analyzes their financial strategies, cash holdings, and accounting performance. The data analysis shows that although BYD has achieved a leading position in the domestic new energy automobile manufacturing industry, it is still not enough to affect the position of traditional automobile manufacturers such as Changan Automobile and Great Wall Automobile. After the industry analysis, it is believed that China's domestic new energy vehicle development market still has a lot of room for development, and BYD has a great first-mover advantage. Finally, a SWOT analysis is carried out for the three companies, specifically analyzing the opportunities and challenges that the three companies (also three representative Chinese automobile manufacturing companies) will face when the new energy vehicle market becomes larger in the future. As stated in the analysis and summary of this paper, the new energy vehicle market will become a new development field of the domestic automobile manufacturing industry. I hope that the analysis of the Chinese automobile market in this paper can provide some references for the industry.

References

[1] Ministry of Natural Resources of China. (2022). China Mineral Resources Report (2022). Retrieved from http://www.gov.cn/xinwen/2022-09/22/content_5710995.htm

[2] The State Council of China. (2021). the Circular of the State Council on Printing and Distributing the Action Plan for Carbon Peak by 2030. Retrieved from http://www.gov.cn/zhengce/content/2021-10/26/content_5644984.htm Fangfang. Research on power load forecasting based on Improved BP neural network. Harbin Institute of Technology, 2011.

[3] BYD Discontinues Gas-only Auto Line to focus on PHEV and Pure Electric Tech. (2022). Retrieved from https://en.byd.com/news/byd-discontinues-gas-only-auto-line-to-focus-on-phev-and-pure-electric-tech/Ma Kunlong. Short term distributed load forecasting method based on big data. Changsha: Hunan University, 2014.

[4] Kane, M. (2022). World's Top 5 EV Automotive Groups Ranked By Sales: 2021. InsideEVs. https://insideevs.com/news/564800/world-top-oem-sales-2021/.Fangfang. Research on power load forecasting based on Improved BP neural network. Harbin Institute of Technology, 2011.

[5] Narasimhan, T. E. (2016). China's Changan revs up for India entry. Business Standard. https://www.business-standard.com/article/companies/china-s-oldest-automobile-company-and-state-owned-changan-automobile-eyes-tamil-nadu-ap-116070800328_1.html.Ma Kunlong. Short term distributed load forecasting method based on big data. Changsha: Hunan University, 2014.

[6] Brew, T. (2022). Changan launches Tesla-inspired electric car at just AED96,000. TheBrew.ae. https://thebrew.ae/changan-launches-tesla-inspired-electric-car-at-just-aed96000/.Fangfang. Research on power load forecasting based on Improved BP neural network. Harbin Institute of Technology, 2011.

[7] McLachlan, J. (n.d.). Great Wall Motors Design | Cars. Car Design News. https://www.cardesignnews.com/cars/great-wall-motors-design.

[8] Kane, M. (2022). China Sets Massive Record: 500,000 Plug-In Cars Sold In December 2021. InsideEVs. https://insideevs.com/news/563375/china-plugin-car-sales-december2021/.

[9] The State Council of China. (2022). the Notice on Printing and Distributing a Package of Policies and Measures to Stabilize the Economy. Retrieved from http://www.gov.cn/zhengce/content/2022-05/31/content_5693159.htm

[10] Ministry of Finance of China. (2022). the Notice on the Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles in 2022. Retrieved from http://www.gov.cn/zhengce/zhengceku/2021-12/31/content_5665857.htm