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Strategic Emerging Industries and Financial Clustering

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Abstract: *At present, driven by the continuous rapid growth of key industries and enterprises, the development speed of strategic emerging industries has been further improved, the policy environment has been continuously optimized, a number of major innovations have emerged, the internationalization and open development have achieved outstanding results, and the competitiveness of the industry and innovation have been further strengthened. Financial agglomeration, as a highly developed form of financial industry, is formed under the conditions of external economy, economy of scale, economy of agglomeration and transaction cost, etc. Financial agglomeration is not only an important support to promote innovation of regional financial industry and optimize the allocation of resources, but also a ballast for the regional economy to cope with the external shocks. It is found that strategic emerging industries reduce financial agglomeration, which indicates that strategic emerging industries can be used as a local economic growth point, and to a certain extent, they can replace the role of finance in local economic growth, so as to promote the orderly growth of the national economy and narrow the gap between regions.*

Keywords: *Financial Agglomeration, Strategic Emerging Industries, Financial Support, Financing*

1. Introduction

With the increasing trend of economic integration and financial globalization, the scale of financial capital has been expanding, and the role of financial resources in the regional economy has become more prominent. The convergence of large financial institutions and related talents and information flow in a specific region has formed the phenomenon of financial agglomeration on a large scale, and has promoted and integrated with the industrial development, geography and humanities in the region, broadened the financing channels of enterprises, reduced the cost of financing for enterprises, and effectively realized the function of allocating resources and serving the real economy. The modern financial market system established by perfect and stable financial agglomeration is both a decisive element and an important support for promoting regional development, and a buffer for the region to cope with external shocks.

Strategic emerging industries are characterized by high technology intensity, high potential for future development, and good comprehensive benefits. According to the Classification of Strategic Emerging Industries (2018), there are nine major industries, including new generation information technology industry, high-end equipment manufacturing industry, new material industry, biological industry, new energy automobile industry, new energy industry, energy-saving and environmental protection industry, digital creative industry, and related service industry. With the promulgation of relevant incentive policies during the 12th Five-Year Plan and the 13th Five-Year Plan, the policy system of strategic emerging industries tends to be perfected, and the overall development of strategic emerging industries in China has achieved great results, not only in terms of total output value, employment, industry and enterprise scale, but also in terms of the increase of the total output value, employment, industry and enterprise scale. However, the development of strategic emerging industries in different regions of China shows great differences and imbalance, especially for the ethnic minority border areas, the development of strategic emerging industries has just entered the initial stage, and it is crucial for the backward regions to support the strategic emerging industries to catch up quickly and realize the steady development of national industries as a whole.

At present, driven by the continuous rapid growth of key industries and enterprises, the development speed of strategic emerging industries has been further improved, the policy environment has been continuously optimized, a number of major innovative achievements have emerged, the internationalization and open development have achieved outstanding results, and the competitiveness and innovation of industries have been further enhanced. Looking ahead, despite many challenges in the internal and external environment, with the continuous release of policy dividends and the vigorous development of new technologies, new business forms and new modes, it is expected that more innovations will continue to emerge from strategic emerging industries, and the scale of the industry is expected to continue to maintain the momentum of rapid growth.

The role of financial support is of great significance to the development of strategic emerging industries, which are characterized by high technology content, low resource consumption and low pollution emission, with obvious spillover effect, and are an important force to guide the future economic and social development. In the post-financial crisis era, the development of strategic emerging industries has become a major strategy for major countries in the world to seize the commanding heights of the new round of economic and scientific and technological development. As China is in the period of transforming the mode of economic development and the key period of building a moderately prosperous society, the development of strategic emerging industries is an important focus for enhancing the core competitiveness of industries and realizing the sound and fast development of economy. Especially in the current economic situation of supply-side structural reform, the task of stabilizing growth and adjusting structure is arduous, and governments at all levels have taken strategic emerging as an important focus of transformation and development, and introduced a series of financial policies to support the development of strategic emerging industries, in order to alleviate the financial constraints faced by the development of strategic emerging industries and accelerate the development of strategic emerging industries.

Finance is the blood of the economy, and plays the role of communicating between the demand side and the supply side of funds, guiding the flow of money and rationally allocating social resources in the operation of market economy. Reviewing the global economic development in recent decades, a prominent feature is the increasing degree of financialization of the economy, the economy and finance are interpenetrating and integrating, inseparable, and becoming a whole. Compared with other industries, the financial industry connects the production and operation of various sectors, industries and units, links every member of society and thousands of households, and deeply intervenes in every aspect of industrial development, providing resources and space for industrial development.

2. Literature Review

Strategic emerging industries is a new term of industry creatively put forward in China, which mainly refers to those enterprises that have just started and have good development prospects. There are many ways to call these industries in foreign countries, such as new industry, emerging industry, new industry, etc.[1] There is no such word as strategic, and due to the difference of national conditions, the professional terminology will form differences. In the policy documents, strategic emerging industries mainly refer to those enterprises with low capacity consumption, high survival technology, and high technological content, who can lead the economy to significant development and breakthroughs.[2] With the rapid development of this industry, scholars have been paying more and more attention to this aspect, and the research has been going on whether it will become the leading force of the national economic development in the future, and whether it will promote the innovation of China's industry to a large extent. With the development of social economy, the needs of this industry will be more difficult to meet, vigorously develop new technologies, product research and development is the main direction of future development, so the industry in the core technology must have a huge advantage, and the economic development of society has a significant contribution.[3]

According to the definition of foreign countries and the research of Chinese scholars, this paper considers that strategic emerging industries are the industries with the development of high and new technology as the core, product research and development as the goal, innovation as the concept, and outstanding contribution to social development and economic growth and leading role, which don't need to consume too much social resources, have high product efficiency, good development prospect, and also have a very good innovation ability.[4]

As a knowledge and technology-intensive industry with a significant leading role, strategic emerging industries have become an important part of academic research by exploring the factors influencing their development.[5] As the potential of domestic market is gradually tapped, the focus of scholars has shifted from the supply side to the demand side. After Krugman proposed that a larger domestic market size is conducive to the realization of scale effect, domestic scholars began to test the domestic market effect in China's industrial development.[6] The rapid growth of domestic market size brings pressure for

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continuous innovation and strengthens the international competitiveness of strategic emerging industries. By comparing the effects of domestic market size and international market size on the total factor productivity of strategic emerging industries, some scholars find that the promotion effect of domestic market size is more comprehensive.[7] Compared with the expansion of consumption scale, the upgrading of consumption structure provides a new choice of power to enhance the total factor productivity of industries, which is the fundamental motive for the evolution of industrial structure. Some scholars point out that conforming to the trend of consumption upgrading not only provides an important orientation and a strong driving force for industrial upgrading, but also an endogenous driving force to force enterprises to innovate.[8] Some scholars emphasize that under the new development pattern, giving full play to the fundamental role of consumption upgrading can promote enterprise innovation through the market competition effect and investment-induced effect, and promote the high-end development of strategic emerging industries.

Financial agglomeration effectively promotes regional industrial upgrading, which in turn enhances regional economic resilience.[9] The enhancement of regional economic resilience is formally manifested as the stabilization of economic growth rate under external shocks, and connotatively, it is manifested as the industrial system relying on technological progress to realize the innovation of processing methods, product innovation, and industrial innovation in the production process. Especially in the current global supply chain and industrial chain under the background of the impact, expanding domestic demand has become an important driving force for sustainable economic growth, and the development of emerging industries is the key to transforming the regional economic operation mode and developing the "inner cycle", and the preliminaries for the development of emerging industries are the formation of effective production capacity through highly efficient investment and financing, i.e., the formation of Effective supply capacity.[10] On the one hand, through the construction of multi-level capital market and diversified financing channels, financial agglomeration effectively expands the scale of specialized investment in emerging industries, and at the same time, the professional financial services and capital supply mechanism more reasonably promotes the docking of technological innovation chain and capital chain, and effectively improves the efficiency of risk investment.[11] At the level of industrial innovation of SMEs, the deep integration of business incubation and science and technology finance in the financial cluster has enhanced the docking ability of business incubation and capital market, and helped promote the effective allocation of factors of production and the enhancement of technology level.

Financial agglomeration, under the above-mentioned economies of scale, industrial upgrading and human capital, has formed a spatial spillover effect with the help of informationization. When the key links in the regional industrial chain are subjected to external shocks, it will also fluctuate the formation of upstream and downstream industrial organization system around the region, while the development of information technology and digital finance enables financial institutions to overcome the limitations of geographic and spatial distances, accelerate the speed of cross-regional flow of capital, broaden the financial services to more business entities outside the core region, help the neighboring regions to broaden the financing channels, create customized financial products and Timely repair the capital gap of the industrial chain, so that the entire industrial organization system back to the original operation track.[12] At the same time, the financial agglomeration through the network information sharing mechanism formed by it makes the industrial technology expand to the surrounding areas more rapidly, and through big data, cloud computing, blockchain and other cutting-edge technologies to guide the financial capital to the real economy of the precise investment, drive industrial innovation to realize the low-end industrial links to the high-end climb, in the realization of the core area of the industrial upgrading at the same time, but also will drive the level of the division of labor in the neighboring regions by the low-to-high conversion, the space generated by this process.[13] The spatial externality generated by this process promotes the enhancement of the economic resilience of the neighboring regions.

Strategic emerging industries are industries that are based on major technological breakthroughs and major development demands, have a significant leading and driving role in the overall and long-term development of the economy and society, are knowledge and technology-intensive, consume few material resources, have great growth potential and have good comprehensive benefits.[14] At present, venture capital has become the main source of funds for the development of start-up high-tech enterprises, while government funds are heavily invested in the research and development of strategic technologies that have an important impact on the development and security of the national economy. Secondly, in the market promotion period, whether the new product can quickly form consumer demand, form the market reaction, drive industrial development and obtain the first-mover advantage in the global competition requires huge marketing expenses, especially the government will introduce a series of fiscal, tax and financial policies to stimulate the consumption and investment in a strategic emerging industry in this process.[15] The empirical research on the role of finance in industrial development shows that finance

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has obvious support effect on industrial development.

3. Design of relevant variables

There are two main methods to measure financial agglomeration, namely the assessment of agglomeration indicators and the measurement of a comprehensive system of agglomeration indicators. The first one mainly measures the degree of financial agglomeration by calculating the proportion of the output value or employment of the financial industry in a specific area to the total output value or total employment, as well as other related indicators derived on this basis. The most widely used is the location entropy index. Some scholars take the financial industry as a whole to measure the level of financial agglomeration, and then study the impact of financial agglomeration on other variables.

As a special industry, the phenomenon of financial agglomeration belongs to one of the research categories of industrial economics and economic geography agglomeration theory. According to the theory of external economy, industrial agglomeration can be understood as a product of internal development, which is an important result of interaction with economies of scale. The formation of "agglomeration" is due to the enterprise in order to make the cost lower, thus indirectly promote the emergence of industrial agglomeration phenomenon, the internal by technology, equipment, labor and marketization of the joint evolution. Cluster competition theory, on the other hand, holds that industrial agglomeration is the spatial proximity of related enterprises, and the industrial agglomeration formed by such proximity helps to improve the competitiveness of the whole system to a certain extent, and the essential reason is the synergistic effect within the system. On the basis of these early formed theories, academics have carried out research related to financial agglomeration. Some scholars believe that financial centers can shorten the geographical distance and facilitate the matching and exchange of funds, i.e., the existence of financial centers promotes the flow of financial resources.

A single agglomeration indicator and indicator system have their own advantages and disadvantages, the evaluation system can describe the level of financial agglomeration more comprehensively, but it is easy to appear multivariate covariate covariance problem in the empirical analysis, and it is more subjective, so this paper still considers using a single agglomeration indicator to measure financial agglomeration.

The financial agglomeration formula in this paper is as follows:

$$\frac{Total\ regional\ savings\ and\ loans\ in\ province\ i\ for\ period\ j/Total\ population\ in\ province\ i\ in\ period\ j}{Total\ national\ savings\ and\ loans\ for\ period\ j/Total\ national\ population\ in\ period\ j}$$

The other variables in this paper are shown in *Table 1*:

Table 1: Relevant variables and their meanings

Variable	Meaning	Unit
fin	(Total regional savings and loans in province i in period j/total population in province i in period j)/(Total national savings and loans in period j/total national population in period j)	
Turn over	Amount of signed projects in strategic emerging industries	thousand dollars
num	Number of projects signed in strategic emerging industries	term
patent	Number of domestic patent applications granted	term
human	Full-time equivalents of RD personnel in industrial enterprises above designated size	man-year
open	Total exports and imports of goods by location of business unit (thousands of dollars)/local GDP	

4. Empirical Analysis

This paper takes 30 provinces (cities and districts) (excluding Tibet, Hong Kong, Macao and Taiwan) as observation samples, and selects 2014-2020 as the period span in consideration of the availability and timeliness of the data of "strategic emerging industries"; all the data come from China Statistical Yearbook, China Statistical Yearbook of High-tech Industries, China Science and Technology Statistical Yearbook, China Torch Statistical Yearbook, China Science and Technology Statistical Yearbook and China Torch Statistical Yearbook. Individual missing data values are supplemented by interpolation and

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average growth rate method; all variables involving price changes are deflated.

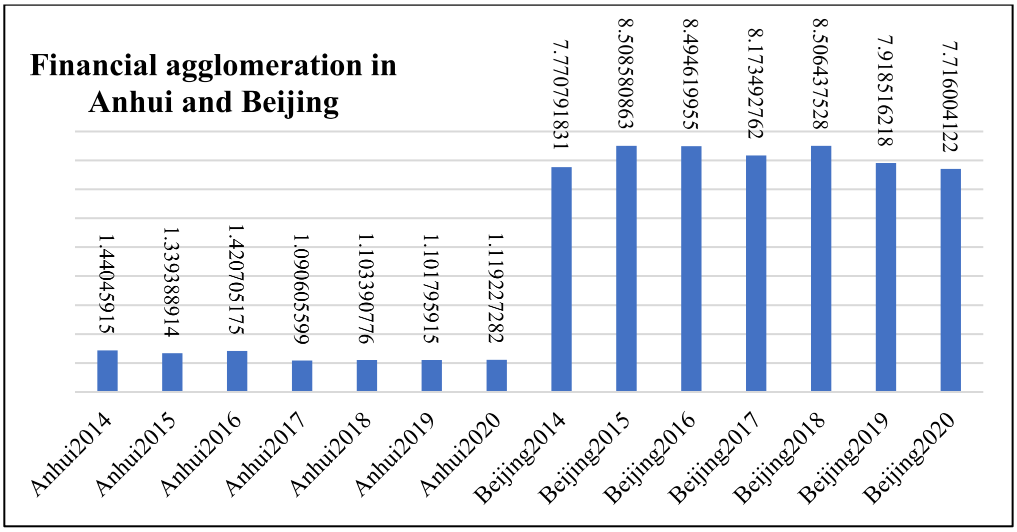

Figure 1: Financial agglomeration in Anhui and Beijing

Taking the financial agglomeration data of Beijing and Anhui provinces as an example, as can be observed in *Figure 1*, the value of financial agglomeration in Beijing is much larger, generally around 7, and the value of financial agglomeration in Anhui is around 1, and the value of financial agglomeration in the two provinces has been gradually decreasing from 2016 onwards.

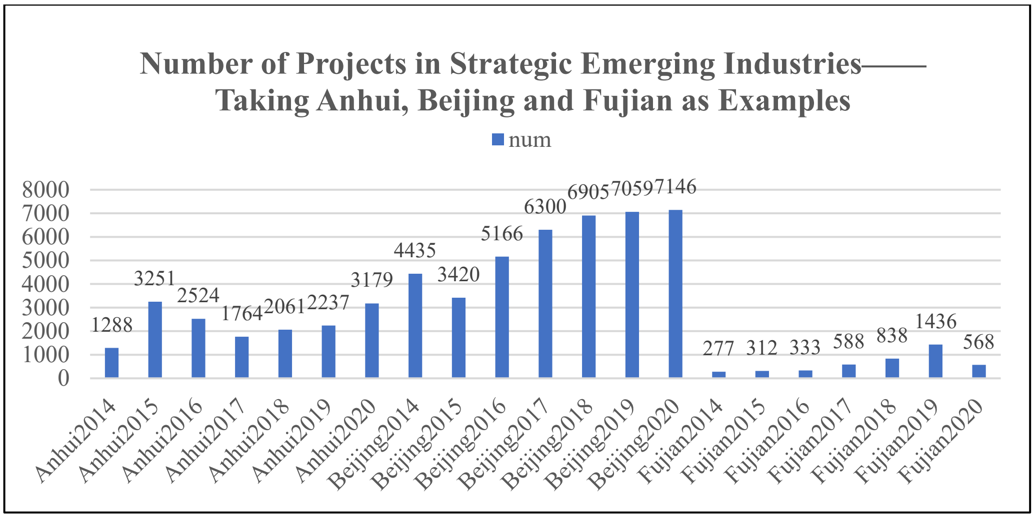

Figure 2: Number of projects in strategic emerging industries (Anhui, Beijing, Fujian)

Taking the number of strategic emerging industry projects in Beijing, Anhui and Fujian provinces as an example, as can be observed in *Figure 2*, the value of strategic emerging industry projects contracted in Beijing is larger, all above 3,000 items, and increasing year by year. Anhui province got more strategic emerging industry project signings than Fujian province strategic emerging industry project signings, with the highest value in 2015, while Fujian only reached the highest value in history in 2019.

Taking the data on the contracted amount of strategic emerging industry projects and financial agglomeration in Shaanxi, Shanghai and Sichuan provinces as an example, as can be observed in *Figure 3*, unexpectedly the value of financial agglomeration in Shanghai is lower than that in the other two provinces, which may be related to the setting of the indicator. Because this paper chooses the total regional deposits as the indicator of financial agglomeration, although Shanghai has a high degree of financial development, but Shanghai has a large population, and Shanghai residents may have other ways of financial investment, which will crowd out part of the deposit and loan investment methods. Shaanxi has a higher degree of both strategic emerging industries and financial agglomeration in these three provinces, which can be seen to have some correlation.

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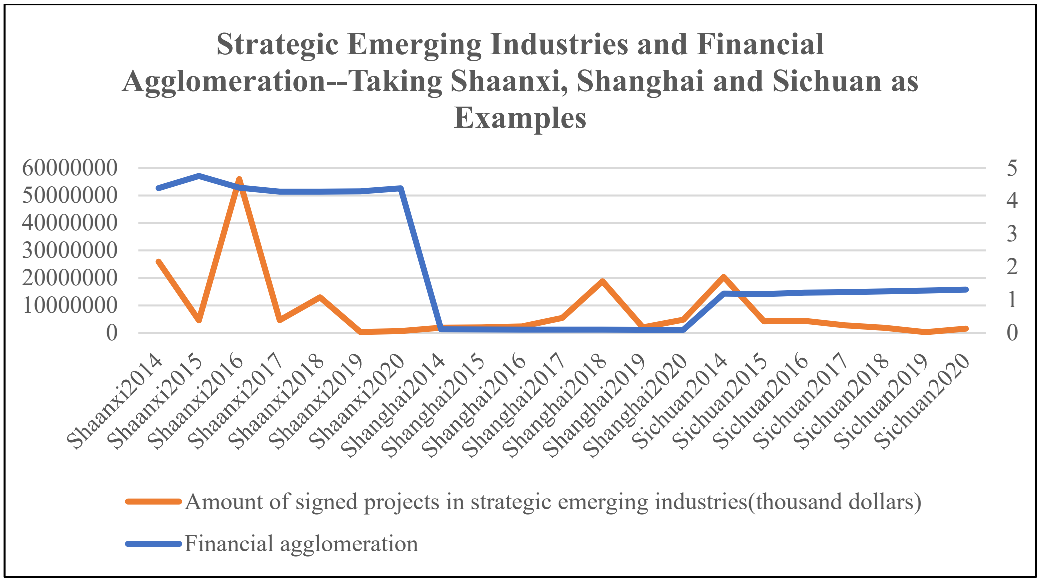

Figure 3: Strategic Emerging Industries and Financial Clustering (Shaanxi, Shanghai, Sichuan)

Table 2: Ols regression

	(1) fin	(2) fin
lturnover	-0.220** (-1.98)	
lhuman	-2.438*** (-6.72)	
lpatent	1.556*** (3.9)	
open	1.435** (2.35)	
num		-0.000215** (-2.54)
turnover		0.000000126*** (2.94)
_cons	14.62*** (8.41)	2.515*** (9.17)
N	210	210

Notes: * p<0.1, ** p<0.05, *** p<0.01

As shown in *Table 2*, regression (2) reveals that financial agglomeration (FIN) and the number of projects contracted in strategic emerging industries (NUM) are strongly correlated with the amount contracted in strategic emerging industries (TURNOVER), and the results are all significant at the 95% level. The higher the number of signed projects, the lower the financial agglomeration expressed in terms of deposits. This may be that the contracted projects will land in the local area, while the strategic emerging industries intend to develop in places where the degree of financial development is not so good, in order to drive local employment as well as economic development. Regression (1) reveals that financial agglomeration (fin) is also affected by the degree of local openness, human capital, and the number of patent projects. The l in front of the explanatory variable in regression (1) represents the logarithm of the variable.

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5. Conclusion

In recent years, China's strategic emerging industries have made great progress, and the output value of strategic emerging industries accounts for an increasing proportion of national income, reaching the world's leading level in certain industries and fields. However, the role of financial support for strategic emerging industries is obviously insufficient, especially science and technology-based small and medium-sized enterprises are also facing the financing difficulties of general enterprises or even more difficult financing. At present, there are the following problems in financial support for the development of strategic emerging industries:

Financing channels are limited. The development of strategic emerging industries needs the support of perfect financial system, including credit support, government policy support, stock market and venture capital and other financing methods. Due to the uneven development of China's financial market, the credit resources are too much tilted to the state-owned enterprises and big enterprises, and it is difficult for the government policies to be put into practice. On the other hand, China's stock issuance system is not adapted to the requirements of the development of emerging industries, and the requirements for the profitability of enterprises are too high, coupled with the imbalance between supply and demand in the stock market and the difficulty of listing enterprises, which hinders the capital market from supporting the development of strategic emerging industries.

There is insufficient innovation and limited supply of financial products. China's financial market started late, the research and development of financial products, especially scientific and technological financial products, is in the initial stage, and the supply of financial products to serve the financing of strategic emerging industries is limited. The strategic emerging industries are mainly characterized by high and new technology, high risk, light assets as the main mode of enterprise operation, and it is difficult to provide traditional collateral in the financial market. Although commercial banks prioritize the support of strategic emerging industries, in practice, they treat the development projects of strategic emerging industries with general projects without much difference, and often do not give special arrangements for strategic emerging industries, and there is no alternative science and technology financial products.

Limited policy support. The central government and local governments have set up many special funds and venture capital funds to promote the development of strategic emerging industries, but from the operation of the funds, the government investment is still mainly tilted to state-owned enterprises and large and medium-sized enterprises, and the support for small start-up enterprises is not strong enough. At the same time, the operation efficiency of government funds is low, and there is too much intervention, which is inconsistent with the business objectives of enterprises and cannot meet the needs of rapid development of start-ups.

So efforts should be made in the following areas:

Strengthen financial services. Financial service innovation can not only promote the development of strategic emerging industries, but also facilitate the development of the financial industry itself. The government should vigorously develop industrial park incubators, comprehensive incubators and other institutions to improve service efficiency and provide startups with a "package" of investment and financing services, including assistance in obtaining government financial funds, applying for tax incentives, applying for guaranteed loans, investing directly in the enterprise, and combining with venture capital.

Innovative financial products and financing models. Financial institutions should develop targeted financial products according to the development characteristics of strategic emerging industries and the development needs of high-tech enterprises, support financing with patents and other intangible assets as collateral, and reasonably assess the value of intangible assets; and in the credit process, implement differentiated credit policies, and give more lenient credit conditions. On the other hand, the government should cooperate with financial institutions to explore the establishment of a risk-sharing mechanism to eliminate the concerns of financial institutions.

Improve the capital market system. As an important part of the market economy, the capital market has the most mature market-based resource allocation mechanism. From the viewpoint of world industrial development history, capital market has been proved to be an effective way to promote the development of emerging industries. As for the capital market, different levels of capital market correspond to different investors and financiers, the government should develop multi-level capital market to meet the multi-level and diversified financing needs of strategic emerging industries, so that enterprises of different types and different growth stages can get more adequate and reasonable value

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discovery in the capital market.

Looking ahead, although still facing some unfavorable factors and uncertainties in the international environment, the development of China's strategic emerging industries is facing unprecedented opportunities, and institutional innovation, technological innovation, and model innovation are pregnant with great potential and vitality, so if we can make the best use of the situation and make a good response to the situation, we will surely open up a brand-new situation of development, and play a stronger leading role for China's economy to enter into the high-quality stage.

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