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Construction of High-tech Enterprise Financing System based on Soft and Hard Information under the Background of Dual Circulation

-- Based on the Survey and Analysis in Anhui Province

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Abstract

Under the background of dual circulation, China's economic development route has had a major change, and high-tech enterprises have also ushered in strategic opportunities. However, as an important role in promoting scientific and technological innovation, economic development and national progress, Chinese high-tech enterprises are faced with the dilemma of difficult and expensive financing. For high-tech enterprises in Anhui province, this paper established the characteristics of big data blockchain credit model evaluation and credit guarantee system, explore under the background of dual circulation soft and hard information on high-tech enterprise financing difference, analysis of soft information and hard information on high-tech enterprise financing credit, and put forward relevant suggestions: improve the soft information in the process of bank credit evaluation, can provide great help to depict the credit image of high-tech enterprises in Anhui province.

Keywords

Enterprise Credit Risk; Soft Information; Hard Information; Dual Circulation.

1. Introduction

1.1. Research Background

Under the background of the current double-cycle system, high-tech enterprises will usher in a new opportunity for strategic development. High-tech enterprises in promoting and stimulate economic growth, driving local economic progress, realize the transformation and upgrading of emerging industrial structure adjustment, and actively participate in international competition international influence plays an important role, but as the main force of dual circulation development, high-tech technology enterprises is one of the main dilemma is financing problems.

As an important carrier of innovation and entrepreneurship, a necessary channel for a strong country in science and technology, and an important productive force for economic development, high-tech enterprises have generally suffered huge economic blows in the COVID-19 emergency, and urgently need to turn the crisis into an opportunity. Therefore, relevant policies should promote the construction of long-term mechanism while promoting emergency measures, and try to explore comprehensive support in addition to financial support. For example, the implementation of a new double-cycle enterprise financing system based on blockchain, and the establishment of a financing characteristic evaluation and credit investigation guarantee system, can undoubtedly help high-tech enterprises to turn force position audit into their own competitive advantages. Therefore, it is of great significance to

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actively solve the financing problem of high-tech enterprises under the background of dual circulation, which is not only conducive to the better development of high-tech enterprises in China, but also conducive to the implementation of dual circulation policy and promote the high-quality development of China's economy.

1.2. Literature Review

According to the literature resources consulted, people and scholars from all walks of life have different research systems on the financing issues of high-tech enterprises, and scholars have made certain achievements in exploring the financing of high-tech enterprises, mainly focusing on the following aspects:

1.2.1. Analyze the Financing Difficulties and Countermeasures of High-tech Enterprises

Xinwei Zhao(2021)[1]:It points out that the financing structure and single financing structure are combined with the dual circulation strategy of small and medium-sized technology enterprises in China, the evaluation guarantee system, and the financial institution loan default risk of small and medium-sized technology enterprises; Yajuan Lu(2021)[2]:It is believed that the new development model of small and medium-sized enterprises is produced under the influence of shrinking external demand, international trade friction and economic globalization, and shows the suggestions and countermeasures of small and medium-sized technology enterprises through the construction of the operation index measurement model of small and micro enterprises; Lihui Wang(2021) [3]:After further research on the strategic goal of taking the domestic big cycle as the main body and the domestic and international dual circulation mutually promoting the new development pattern, it shows that the interest demands of science and technology financing in different participants, especially the credit level of small and medium-sized technology-based enterprises still needs to be improved.

To sum up, with the rapid development of modern economy, high-tech enterprises play an increasingly important role in China's economic and social development. Due to the characteristics of high energy consumption, high-tech enterprises need high growth investment support, and the demand for capital is often greater than traditional enterprises. Therefore, high-tech enterprises will encounter more difficulties in the financing process, and the establishment of a sound financing system is faced with many risks and challenges. Scholars mostly suggest enterprises to strengthen financial management level, set up good credit concept, strengthen bank support, etc. It is given priority to with theory, policy analysis, less from the perspective of enterprise soft and hard information comprehensive consideration analysis enterprise financing credit, build soft and hard information comprehensive evaluation system will help high-tech enterprises to better establish a new financing system.

1.2.2. Analyze the Bank Credit Risk Management and the Overall Credit Ability of Enterprises

Ziping Du(2007)[4]:The influence of different types of information on credit risk management is analyzed under the principal-agent framework with hidden information moral risk. The results show that the signal transmitted based on the combination of "soft" and "hard" information will be more accurate, but because "soft" information cannot be proved by third parties, so "soft" information is an important source of moral hazard, which is also the main driving force for banks to change their internal organizational structure. Renyong Chi (2020) [5]:Using the data of unlisted SMEs in Zhejiang Province and the logistic model to analyze the credit risk factors of unlisted SMEs, the credit risk model built by comprehensively using hard information and soft information indicators has the best prediction effect. Qianqian Hu(2020) [6]:In 2013-2017 small and medium-sized enterprise board and gem enterprise research samples, combined with the regional financial development level of external regulation effect and enterprise soft information, using hierarchical linear model quantitative analysis of big data credit establishment and micro, small and medium enterprises credit ability, big data

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credit construction can improve micro, small and medium enterprises credit ability, and the positive effect has increasing trend over time.

In conclusion, although for the enterprise overall credit ability and bank credit risk management perfect scholars research, but overall, the lack of blockchain technology can assign soft information of enterprise financing credit differences, blockchain technology applied to financing credit will enrich the existing research perspective, for soft information on enterprise financing credit provide theoretical basis and decision-making reference.

2. Technical Characteristics and Theoretical Analysis

2.1. Problems Existing in Soft and Hard Information in the Application of Enterprise Financing Credit

Hard information and soft information are financial information and non-financial information, respectively. The hard information of enterprises is structured data, including financial statements, guarantee contracts, etc. Compared with soft information, hard information is legally binding and traceable, and the collection cost is relatively low. Therefore, the traditional commercial Banks usually with hard information as the basis of credit risk, but in the development of high-tech enterprises for small and medium-sized enterprises, lack of scale effect, thus the lack of complete financial data, mortgaged fixed assets and other structured hard information, but these high-tech enterprises have high development, innovative strength, social responsibility ability and rich unstructured soft information, eventually lead to the development potential of high-tech enterprises in financing difficulties, financing expensive.

The unstructured soft information of enterprises specifically includes enterprise opinions, operation mode, constitution and regulations, market reputation, etc. ,which comprehensively reflects the unstructured information of entrepreneurs, such as their moral character, operation ability, risk control ability, and market share. Compared with hard information, soft information contains more and other important contents of enterprises, and can more comprehensively present the credit level of high-tech enterprises. However, the collection of soft information mainly relies on questionnaires or professionals to collect according to specific targets, which is not easy to observe, collect, confirm and supervise, and it is also difficult to be directly quantified. It is precisely because of the difficulty of deleting soft information, the large acquisition cost and the difficulty of matching the risk and income of traditional commercial banks that banks pay more attention to whether enterprises have good hard information indicators when reviewing corporate loans, and soft information is largely covered up to a large extent.

2.2. Blockchain Technology Enables Enterprises to Provide Financing and Credit Related Background

Blockchain technology has broken to some extent the information island and information gap of enterprise credit data. Combined with the cross-chain technical characteristics of blockchain itself, it helps solve the difficulties of passing trust across regions, across institutions and across systems in the past, making it possible to cross-department information query and collection. At the same time, the hard information obtained by enterprises joining the alliance chain can be cross-checked to improve its accuracy and provide valuable historical information for the strategic decision of enterprises. In addition, the number of blockchain. According to the verification and audit, enterprise. The content with enterprise credit evaluation value can be selected from a large number of soft information and applied in the credit evaluation of enterprises, which reduces the screening cost of soft information and significantly improves the utilization rate of soft information. Therefore, blockchain technology can not only use distributed ledger to reasonably save hard information, but also effectively solve the technical

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problems of the difficulty and short timeliness of soft information collection. Therefore, the introduction of blockchain technology can bring soft information and hard information into the same evaluation system.

2.3. The Significance of Establishing a New Credit System of Soft and Hard Information Financing under Blockchain Technology

Anhui province has been fully aware of the role of high and new technology in economic development. Under the background of the state advocating high-quality development and strengthening the national innovation capacity, Anhui province should be more prominent in the leading role of high-tech industry in the industrial development of itself and its surrounding areas, and improve the proportion of high-tech industry in the whole industry. Therefore, it is of profound significance to actively solve the financing problem of high-tech enterprises in Anhui Province.

In the traditional financial supply chain, nuclear enterprise trust cannot be transmitted across levels on demand, and trust can only be transmitted between nuclear enterprises and primary suppliers or dealers, and cannot be transmitted to the "far heart" of the supply chain. In the traditional scenario, banks cannot explore high-quality customers among multi-level suppliers, and the business profit space is extremely limited. Most financing demands of multi-level suppliers need to be met through private lending, and the annualized interest rate is high.

The establishment of financing characteristic evaluation and credit investigation guarantee system under blockchain technology to help small, medium and micro high-tech enterprises into unstructured information into their own competitive advantages is not only conducive to the better development of China's high-tech enterprises, but also conducive to the implementation of the national science and technology power policy, and promote the high-quality development of China's economy.

3. The Impact of Soft Information and Hard Information on Enterprise Credit

3.1. The Relationship between Soft Information and Hard Information Pairs and the Credit Evaluation of High-tech Enterprises

Soft information and hard information influence the information evaluation of high-tech enterprises through different mechanism principles, and then affect the financing constraints of high-tech enterprises. If the high-tech enterprise has good soft information index, it can be considered full of social responsibility, honest and trustworthy, with good corporate culture and internal control system, and good traders, the credit risk of the high-tech enterprise hard information index, the enterprise, good cash flow performance, the smaller the operating risk, the lower the credit risk.

Traditional institutions because hard information transaction cost is low, coding, structured, not easy to cause distortion in the process of trading, in credit evaluation pay more attention to high-tech enterprise analysis of hard information, but micro, small, medium enterprises, its hard information is poor, such as internal control, the company's articles of association to be perfect, the financial report is not perfect, only by hard information show is difficult to obtain enterprise financing. Renyong Chi used soft information and hard information to predict the credit risk of small and medium-sized enterprises, and found that the prediction ability of soft information was significantly higher than that of hard information.

3.2. The Regulating Role of the Scale of New and High Technology Enterprises

It can be seen from the resource base view that due to the gap between scale and operating life, the information resources of large high-tech enterprises and small, medium and micro

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enterprises are different. Large high-tech enterprises are relatively old, with mature and perfect financial system and articles of association, commercial banks and other lenders are more inclined to choose large high-tech enterprises, so hard information has more influence on the credit of large high-tech enterprises; relatively speaking, small, medium and micro high-tech enterprises are small, not mature and perfect, but have high growth and flexibility. Therefore, the unstructured soft information such as entrepreneur integrity and enterprise reputation can fully reflect the credit level of small, medium and micro high-tech enterprises. Therefore, compared with large high-tech enterprises, soft information has a more obvious credit impact on small, medium and micro high-tech enterprises. The information of small and medium-sized high-tech enterprises, education, charity, trustworthiness and personnel flow can help commercial banks to evaluate objectively. Similarly, compared with small, medium and micro high-tech enterprises, hard information has a more obvious credit impact on large high-tech enterprises.

3.3. The Regulatory Role of Blockchain Technology

Blockchain technology has the characteristics of transparency and credibility, tamper-proof traceability, privacy security guarantee and high system reliability. The new credit system under blockchain technology provides a verifiable and traceable trusted distributed system. The logic of blockchain technology has become a "middleman" to solve the problem of distrust and sharing and data authenticity, breaking the information island and ensuring the authenticity of information sharing.

Blockchain aims to solve the distance of trust. In the blockchain network, the information is credible and transparent, tamper-proof and traceable, which can realize the value exchange, and the interaction between banks and enterprises can be further simplified. Trust can be transmitted together with funds, resolve the trust crisis, effectively extend the chain of supply chain financial services, realize the separation and reintegration of credit, and the split credit of core enterprises can realize cross-level financing. The credit in the business system becomes traceable and transmitted, filling the trust gap between financial institutions and small and medium-sized enterprises. Through blockchain, soft information and hard information will be included in the credit consideration in the evaluation, and the financing evaluation of enterprises will be more comprehensive and objective.

4. Countermeasures and Suggestions on the Financing of High-tech Enterprises

The biggest opportunity for the economic development of high-tech enterprises under the double-circular economy model comes from two aspects, the continuously expanding domestic market and the Supply-side reform relying on the continuous progress of technology. Based on this, this paper puts forward the following two suggestions:

4.1. Demand Side: Expand Domestic Demand, Increase Consumption and Investment

4.1.1. Increase Residents' Income and Promote Their Consumption

Strong market demand is an important support for the construction of a new development pattern of high-tech enterprises under the double-cycle mode, supplemented by the basic advantages of the income groups such as a huge domestic population of 1.4 billion, to further stimulate the potential of domestic consumption. Domestic demand is the key to big economic growth and the biggest driving force, so our country on the one hand should continue to speed up the reform of income distribution system, improve the social security system, improve the disposable income and expand the size of the middle income group, better play to China's large market advantage and strong demand potential, on the other hand from internal circulation to

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reduce urban and rural per capita consumption spending difference, tap the structural potential of consumer consumption.

4.1.2. Alleviate the Financing Constraints of Small and Micro Enterprises and Promote Enterprise Investment

On the one hand, the capital market in promoting high-tech enterprise science and technology innovation and real economy plays an important role in efficient dual circulation, is to build "dual circulation" high-tech enterprise financing system, and the capital market is conform to the enterprise financing needs in different stages of development, help domestic demand side industrial chain, in order to realize the rolling value of social wealth.

On the other hand, the new "dual circulation" development mode of financial support power and potential put forward higher requirements, means that high-tech enterprise economic body need to gather strength to meet the potential demand of the phenomenon, the government should establish a "white list" mechanism, to strengthen enterprise management, and according to the enterprise credit score demand list of small and medium enterprises in the supply chain, in addition to improve the government of high and new technology enterprise financing laws, policies and regulations, establish a scientific financial system, from the perspective of the enterprise itself financing ability, complete risk defense measures.

4.1.3. Fair Allocation of Resources and Narrow the Income Gap

The original extensive, the introduction of tension, rapid stimulation is no longer suitable for the development of technology enterprises, must be according to the law of ecological sustainability, this also requires the social whole of production factors should be reasonable allocation, the government digital unified management level, laws and regulations should be further improved, and quickly optimized resources configuration and regeneration, in order to achieve the small and medium-sized technology enterprises in Anhui province.

4.2. Supply-side:Deepen Supply-side Reform

Actively use big data and other technologies to build a new credit system, increase the financing channels of high-tech enterprises, to realize the dual circulation pattern provides a good financial environment, provide seamless docking financial services, the integration of online financial model, build digital economy era multi-subject, multi-level financial market, upgrade for the development of high-tech enterprises. Combine the soft and hard information to enrich the credit risk rating of high-tech enterprises, and adopt diversified and diversified financial instruments and service means, to broaden their financing channels.

Expanding domestic demand does not mean to give up foreign trade, the formation of a large domestic market does not mean to give up international competition, because of this, high-tech enterprises in Anhui province should actively seek and with the help of new models and new technologies to stabilize international trade business. While improving the financial system with scientific innovation with Chinese characteristics, we will support financial institutions to provide all-round financing services for high-tech innovation enterprises according to the life cycle law of high-tech innovation. In addition, enterprises should also speed up the formation of a distinctive, dynamic, market-oriented and professional management of risk investment and financing system, give full play to the role of gem, Science and technology Innovation Board, small and medium-sized enterprise Board, GEM and state-owned stocks transferred to the GEM, and dredge the operation and exit channels of the GEM capital market.

5. Conclusion

Under the strategic background of dual circulation, to have "based on internal circulation, facing external circulation" pattern, through soft and hard information power high and new technology enterprise market opportunities, is conducive to establish credit guarantee system,

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solid foundation for high-tech enterprise benign development, solve the problem of high-tech enterprise financing difficulties, high financing cost. Establish a multi-level and multi-channel guarantee system, formulate corresponding credit rating standards combined with soft and hard information, timely evaluate the credit status of high-tech enterprises, help high-tech enterprises in Anhui province to better obtain financing, realize industrial upgrading and resource integration, and promote the rapid development of national economy.

This paper adds the research between high-tech enterprise financing credit evaluation and hard information index, enrich the research of blockchain technology background, discusses the influence of soft and hard information index on high-tech enterprise credit risk, improve credit evaluation, financing ability provides new theoretical support, provides reliable empirical evidence, from the perspective of high-tech enterprises, reflects the value of soft and hard information, further enrich the connotation of the dual circulation.

Although at this stage soft information cannot be fully used and collection, but with the development of big data technology, the future we can through the use of big data technology to break the phenomenon between credit data division, make data sharing, unstructured data collection processing, the government and the market, company data transmission more smooth, can more comprehensive restore enterprise credit ability.

Similarly, the credit rating system of high-tech enterprises based on big data in China is not perfect. Under the background of dual circulation, strengthen the management of credit data such as soft and hard information, combined with the big data credit evaluation system, strive to realize the supervision of credit data collection and application. At the same time, the rating index system and credit rating supervision system of high-tech enterprises should be improved, pay attention to the application of soft and hard data, improve the sharing of information data, break information islands and remove technical obstacles for enterprise credit rating departments, so as to improve the differentiation and accuracy of credit rating among high-tech enterprises.

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