

A Study on Effect of Financial Industry on College Technology Transformation of Guangdong Province

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Abstract: The college as a place of wisdom plays an important role in technical innovation of Guangdong Province. Investigating the effect of financial industry in college technology transformation of Guangdong Province can provide a new thought for technical innovation and transformation as well as social productivity. To specify the effect of financial industry in college technology transformation, this paper discusses the formation of capital mechanism, improvement of risk diversification mechanism, and financial support service system.

1. Introduction

The college is an important subject of national scientific and technological innovation, and a large number of scientific and technological achievements will be produced annually. College technology transformation is an important link and step for transforming these scientific and technological achievements into productivity. As a large province, Guangdong Province still lacks the capacity of technology transformation. There are various aspects, where the lack of financial support is an important factor restricting college technology transformation in Guangdong Province. College technology transformation can be better promoted by driving the development and innovation of financial industry, and strengthening the foundation of financial support. Seeing from different areas in Guangdong, college technology transformation capacity of Shenzhen is much higher than that of Guangzhou. One of the important reasons is that the development and innovation capacity of financial industry in Guangzhou is inferior to that in Shenzhen so that financial support of Guangzhou is 27.53% worse than that of Shenzhen. It thus can be seen that the development of financial industry has an outstanding effect on college technology transformation in Guangdong Province.

2. The Development of Combining Technology Transformation and Finance in Guangdong Province

It is found that the development of combining technology transformation and finance (technical finance) in Guangdong Province has experienced four stages: starting, exploration, fast development, and all-round development. In different stages, policy tendency and development priority differ a lot. The extensive and deep innovation practice has been conducted for many years in such aspects as construction of technical finance policy system, model pilot demonstration, service platform setup and product service innovation.

For example, bank credit is further expanded to support science and technology enterprises. Firstly, carry out credit rating pilot work for science and technology enterprises, establish science and technology sub-branches and united technology loan risk reserves, improve science and technology loan service mechanism, make risk mitigation plans, gather superior resources of various parties, and create science and technology loan development mode with distinct characteristics of Guangdong; secondly, technological management departments and banks performed general technical finance pilot sites in 7 cities including Guangzhou, Zhuhai, Shantou, Foshan, Dongguan, Zhanjiang, and Qingyuan, and established general technical finance work mechanism for the whole province.

Table 1 Credit loan issuance in Guangdong pilot area in 2017

S/N	Area	Number of customers	Accumulative amount/10000 yuan	Average amount for each customer /10000 yuan
1	Guangzhou	923	89074	97
2	Dongguan	411	69312	169
3	Foshan	122	17534	144
4	Zhuhai	165	15448	94
5	Shantou	143	26944	188
6	Zhanjiang	61	6108	100
7	Qingyuan	39	3787	97
Total		1864	228208	122

Table 2 Development history of combining technology transformation and finance in Guangdong Province

S/N	Development time	Stage	Main events	Main content and features
1	1985-1996	Starting	<i>United Notice on Active Implementation of Science and Technology Credit Loan</i>	Develop risk investment; increase science and technology loan; development credit loan market; utilize science and technology loan to support technical projects, etc.
2	1997-2005	Exploration	The government issued a series of technical finance policies	Development capital market; develop high-tech industry; encourage enterprises to issue corporate bonds; drive enterprises to finance by listing; support setup of venture capital institutions, etc.
3	2006-2012	Fast development	<i>Outline of National Medium and Long Term Science and Technology Development Program (2006-2020)</i>	Carry out the pilot sites for technical finance; carry out financing pilot sites for intellectual property mortgage; set up technical finance service platform, etc.
4	2013-Now	All-round development	<i>Opinions on Promoting Combination of Technology and Finance</i>	Develop venture capital and high-tech credit loan; construct multilevel capital market; improve technical finance system, etc.

3. Capital Mechanism Formation and Its Effect on College Technology Transformation

Since the “11th Five-year Plan”, Guangdong Province has continuously increased in the investment in technical research and development. The trading volume of technology contracts rank top for a long time. Hence, Guangdong becomes an important technical transaction distributing center in China. The sufficient financial support is the key to drive technical innovation and achieve technology transformation of colleges. At present, among the capital sources of college technical innovation and technology transformation in Guangdong, the government capital still occupies a large proportion. The channel of capital source is single, which leads to a big restriction to college technology transformation. Among the numerous constraints, financial matter ranks top. The development of financial industry, expansion of business types of financing institutions, and development of financial products for college technology transfer can expand capital channels of college technology transformation and form the sound capital mechanism so as to better solve the problem of capital deficiency in college technology transformation. The continuous development of financial industry and continuous financial innovation can make financial mechanism richer and more perfect, and the diversified financial support service system for college technology transformation in Guangdong Province can be constructed. The development of financial industry can provide support for college technology transformation through various forms.

Firstly, asset securitization can support college technology transformation. Asset securitization is an important financing method, and it is also a main approach of general financial development. Through this way, the bonds can be directly issued for financing. For college technology transformation in Guangdong Province, asset securitization can provide a more flexible financing

mode with low threshold and small risks. Especially in the critical stage of technical commercialization and industrialization, the table capital source can be offered to provide the important guarantee for the technology to achieve industrialization.

Secondly, the guidance fund of technical achievement transformation can support college technology transformation. Although the fund leader is the government, this method mainly adopts financial means to guide private capital and financial capital to establish the sub-fund, compared with government's appropriation for scientific research funds. This method has significant marketization property. Hence, the guidance fund of technical achievement transformation is a joint mechanism of government and market, which can mobilize financial funds of the government and lots of social funds into college technology transformation to promote improvement of financing environment for college technology transformation, accelerate technical achievements of colleges in Guangdong into productivity, and realize commercialization and industrialization.

Thirdly, venture investment can support college technology transformation. Many uncertain factors will be encountered in college technology transformation, commercialization and industrialization of technical achievements, and there are high risks. Social capital enters college technology transformation, which is a kind of venture investment. The development of financing industry can cultivate more professional venture investment institutions and cultivate the habit of venture investment so that college technology transformation can gain more venture investment support, absorb more venture investment funds from the society so as to solve the problem of financial difficulty.

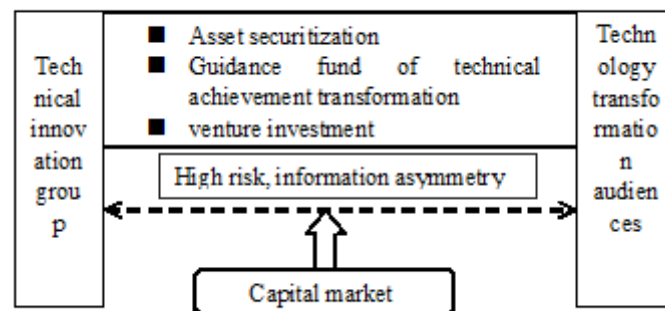


Fig.1 Effect of Capital Mechanism Formation on College Technology Transformation

4. Effect of Improvement of Risk Diversification Mechanism on College Technology Transformation

In the process of college technology transformation, capital source is one of the problems. Risk transfer and diversification is another problem. Finance support has important promotion effect for risk transfer and diversification in college technology transformation. Accelerating innovation and development of financial industry can better solve the restriction of high risks for college technology transformation and speed up the pace of technology transformation.

On the one hand, the development of financial industry can drive the development of technical insurance and thus play a role in dispersing college technology transformation. Technical insurance is an insurance guarantee mode of R&D institutions and technical enterprises for risk-caused profit, property and scientific research fund loss caused by risks in the research, development and production activities. It is an insurance service of scientific and technological activities, which is jointly affirmed by China Insurance Regulatory Commission and Ministry of Science and Technology. In the process of college technology transformation in Guangdong Province, it is an effective way for risk diversification and transfer. Although technical insurance is a quasi-public product, it is ultimately a financial product, and needs the extensive participation of insurance companies. So, the development of financial industry and the innovation of financial service are required. In this way, product types of technical insurance are enriched continuously, and the sound

technical insurance product library forms which covers more technical innovation and technical achievement transformation activities, thus giving a proper role in college technology transformation of Guangdong Province.

On the other hand, the development of financial industry can promote the establishment of risk capital pool. Technical achievement transformation of many colleges cannot be separated from the support of science parks. The setup of science parks can resolve the problem of knowledge and industry integration for college technology transformation, and speed up the transformation speed of technical achievements. In this process, the risk capital pool is established by the cooperation of science parks and financial institutions, and a firewall can be constructed in the process of technology transformation. Through the mode of decompensation, the risks can be resolved and shared to reach the purpose of credit enhancement for science and technology enterprises and enhance their financing ability in technology transformation. The setup of risk capital pool requires joint contribution of enterprises, banks and guarantee institutions in the college science park as per relevant provisions. The risk capital pool is built in the mode of fund, and adopts market-oriented operation. The bank loans are used to repay liquidated damages, enhance credit of enterprises in the science park and lower the credit loan risk of banks, which effectively solves financing difficulty resulting from the large risks in college technology transformation. It is an important financial innovation to build the risk capital pool to diversify the risks of college technology transformation in Guangdong and solve the financing problem. The fund of risk capital pool is operated by the guarantee institution, and the funds in the capital pool are used as the guarantee. The guarantee is amplified to gain the banks' bank line and provide credit services for enterprises in the science park. To achieve this mode, mature financial system is required as the support, and extensive financial innovations are needed to clear away the obstacles. Therefore, the development of financial industry plays an important role in improving risk diversification mechanism of college technology transformation.

5. Effect of Financial Support Service System Construction on College Technology Transformation

College technology transformation is a systematic project involving many aspects. The sound financial support service system plays a crucial role. From the college technology transformation experience in developed countries and regions such as Europe, America, Japan and South Korea, we can see the important significance of financial support service system construction. In college technology transformation of Guangdong Province, financial support service system should cover guarantee system, financial intermediary service system, credit system of credit loan and insurance system.

With the fast development of financial industry, more various types of technical finance intermediaries can be cultivated. The increase of credit guaranty institutions, scale expansion, and business level improvement as well as the close cooperation relation with banks can better drive the development of guaranteed fund of college technology transformation, and facilitate the development of non-government institution insurance, thus forming the college technology transformation guarantee mechanism of risk sharing by guarantee institution, government, enterprise and bank. The development of financial industry can also cultivate excellent technical achievement evaluation institutions to provide high-quality project appraisal, fund investment, policy information and loan consultation for college technology transformation, and offer necessary support for technical achievement identification, evaluation and supervision in college technology transformation. As well, the development of financial industry can facilitate financial information service platform for technology transformation in Guangdong and the sound information disclosure mechanism can be established. In college technology transformation process, investors' investment decision requires lots of information about the subject and project of technology transformation. Information blockage will dispel investment will of most investors and make college technology transformation caught in the plight. Through financial information service platform for technology transformation, the information of technology transformation project in the whole province can be effectively integrated

so that investors and relevant institutions can more easily gain information about the subject and project of technology transformation, break information asymmetry and make up for current situation of information deficiency. Moreover, through financial information service platform for technology transformation, technology transformation projects with potential and development prospect can be recommended to insurance companies, risk investment companies, banks, and guarantee institutions in time, and college technology transformation projects with potential can obtain funds in time. Meanwhile, industrialization and commercialization can be out on the schedule as early as possible, and various barriers of college technology transformation can be broken.

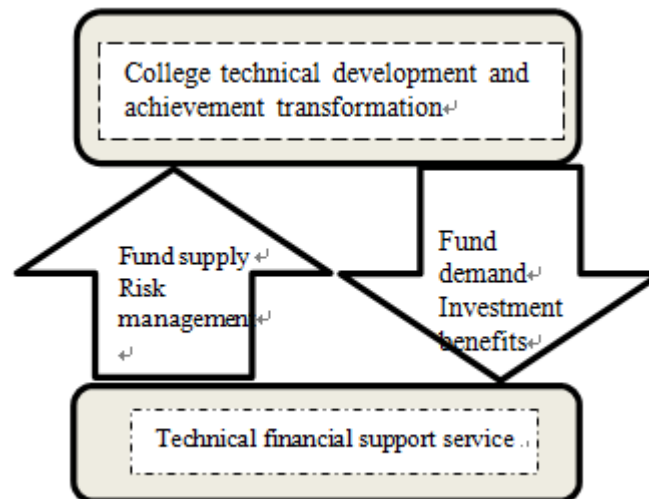


Fig.2 Effect of Financial Support Service on College Technology Transformation

It thus can be seen that, through great development of financial industry, the sound financial support service system can be established for college technology transformation in Guangdong Province. Through this system, financing, guarantee, insurance and information consulting services can be provided for college technology transformation, and technology transformation can be promoted.

6. Summary

In one word, college technology transformation can greatly boost economic development and technical progress in Guangdong Province. College technology transformation can create higher value for social development. Improving technical level is an important problem to be solved for the development of Guangdong in the new age. As the relation between technology and finance becomes closer, the support effect of financial industry becomes more and more prominent in the process of college technology transformation. We must have a correct understanding of the important role of financial support.

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