Research on the Financing Modes and Risk Management on the Internet Based on the Innovation of the Secondary Industry

—Taking Small, Medium-sized and Micro Enterprises in China as Examples

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Abstract: The popularity of Internet has made everyone aware of business of Internet-based finance. And the innovation environment has also brought an impetus to small, medium-sized and micro enterprises. For the development, these enterprises need to get more financial support. Then this paper focus on designing the corresponding financing model of internet-based finance corresponding to their innovation characteristics in the secondary industry (excluding light industry). From the perspective of innovation of heavy industry, construction industry, production and supply of electric power, gas and water, this paper analyzes what their preferences for innovation activities are and whether they adopt new technique to improve their product quality and technological level, etc. And then, it proposes the financing model suitable for them and suggests the way to determine financing limit according to mortgage, sales revenue, net present value of cash flow, return swap and etc. Finally, it puts forward the relevant risk management measures about the specific financing problems.

1. Introduction

According to the data survey conducted by China at the end of 2014, the legal entities of small, medium-sized and micro enterprises in the secondary and tertiary industries accounted for more than 95%. It shows that the above-mentioned enterprises provide a large number of jobs and a solid driving force for the country's development. And based on the data from the 2013-2014 National Enterprise Innovation Survey in China, the statistical result shows that among all the innovation activities, the greater impact on the development of the enterprises is process innovation and product innovation, then organizational innovation, and finally marketing innovation. Then the enterprise's innovation activities require more financial support. But the imperfect financial information of small, medium-sized and micro enterprises has made them difficult to obtain funds from banks. For example, Angilella and Mazzù (2015) illustrate that financial data of Small and Medium-sized Enterprises (SMEs) are insufficient or even unreliable when they conduct innovation. Thus, they may face many obstacles in credit market. Giudici and Paleari (2000) believe that in both Britain and America, all kinds of sources of finance are available to the start-ups with innovative ability. But in the other European countries, especially in Italy, it is more difficult for this kind of enterprises to gain access to debt and equity financing. Mazzucato and Semieniuk (2017) deem that innovation has the properties of highly uncertain, cumulative, collective, and the like. Consequently, the field of public investment should be broadened. Berger and Udell (2016) mentioned that for SME, they may consider getting loans by means of lending technologies like credit scoring, asset-based lending, fixed asset mortgage, trade credit, factoring and relationship lending.

Internet-based finance can provide the diversified financing mode for small, medium-sized and micro enterprises on account of its convenience, high efficiency and multi-channel source of funds. For instance, Hornuf and Schwienbacher (2018) think that The Internet-based crowd-funding market in Europe has become an alternative source of financing for entrepreneurs through the Internet. Rossi, Festa, Solima and Popa (2017) found that corporate venture capital (CVC) mainly invests in start-ups with high growth and high potential, and its investments create corporate value for these enterprises with new technology or innovation in favour of their development. Generally speaking, the three major financing modes provided by the finance-based companies to small, medium-sized and micro enterprises include P2P such as “PPDAI Platform” in China, the financing modes with assistance of Big Data such as Ali financial loan and the Crowd-funding financing mode such as Crowd-funding sites like KickStarter. However, as Block, Colombo, Cumming and Vismara (2018) imagine, besides financing instruments like VC and crowdfunding, when enterprises is financing for their development, they should also consider debt venture funds, angel networks, family offices, and the interplay or interaction between the new players or instruments and the established forms of entrepreneurial financing. For examples, when conducting the research on P2P online lending problems, Bruett (2007) presumed that "Group Loan" was more effective in solving the problem about information asymmetry. Accordingly, it reduced the risk of loan default. Agarwal and Hauswald (2007) assumed that community banks were more conducive to solve the default risk of online lending; the risk control of Lending Club is characterized by the set of different interest rates according to different credit ratings of borrowers and its bad debts have been solved by the means of securitization and referring to the data from social network platform.

2. Research on the Financing Modes and Risk Management of Internet-based Finance Corresponding to the Innovation Activities of Small, Medium-sized and Micro Enterprises in Secondary Industry (excluding light industry)

As we all know, the secondary industry which consists of light industry, mining, manufacturing, electric power, gas and water production and supply industry and construction industry mainly processes the products (raw materials) provided by the primary industry and the secondary industry itself. However, because of the length of the paper, the research in this paper excludes light industry. Different type of innovation activities like process innovation, product innovation, organizational innovation, and marketing innovation help them determine financing amount, financing duration, features of enterprises’ investment projects, options for repaying the financing funds and the corresponding risk management way of small, medium-sized and micro enterprises.

In addition, since the resource fields such as the mining industries of rare metal, petroleum and coal involve the development of overall resource of a country and the important resources for human survival, it is much better to be coordinated by the state. Moreover, because these industries usually involve a large number of investment and safety of workers, this paper will not consider the financing problems of small and medium-sized enterprises in this field to avoid huge waste of resources, loan loss and resource outflow, and environmental contamination to the country. However, small, medium-sized and micro enterprises with capital strength can participate in the large enterprises through shareholding. For the same reason, the content discussed in this paper does not concern the financing problems of enterprises in the above-mentioned industries. The emerging industries with high technologies are the orientation of the future development. However, the traditional manufacturing are important for the supplies of food, clothing, housing and transportation to the people of one country as well as sustainable development of the country. Therefore, it is necessary to combine the financing modes with the innovative features in different industries to reduce the risks faced by the finance-based companies. This paper analyzes the corresponding financing modes from the innovation activities of heavy industry, construction industry, electric power gas, water production and supply industry as shown in Fig. 1. But, as Wonglimpiyarat, (2015) thinks, China still needs to perfect regulatory policies in order to support the development of innovative businesses and improve financing mechanisms to advance their economic status.

At present, China is vigorously promoting seven strategic emerging industries like energy conservation and environmental protection industry, emerging information industry, bio-industry, new energy industry, new energy vehicle industry, high-end equipment manufacturing and new material industry, whereas these seven emerging industries are permeated through all the fields of the secondary industry.

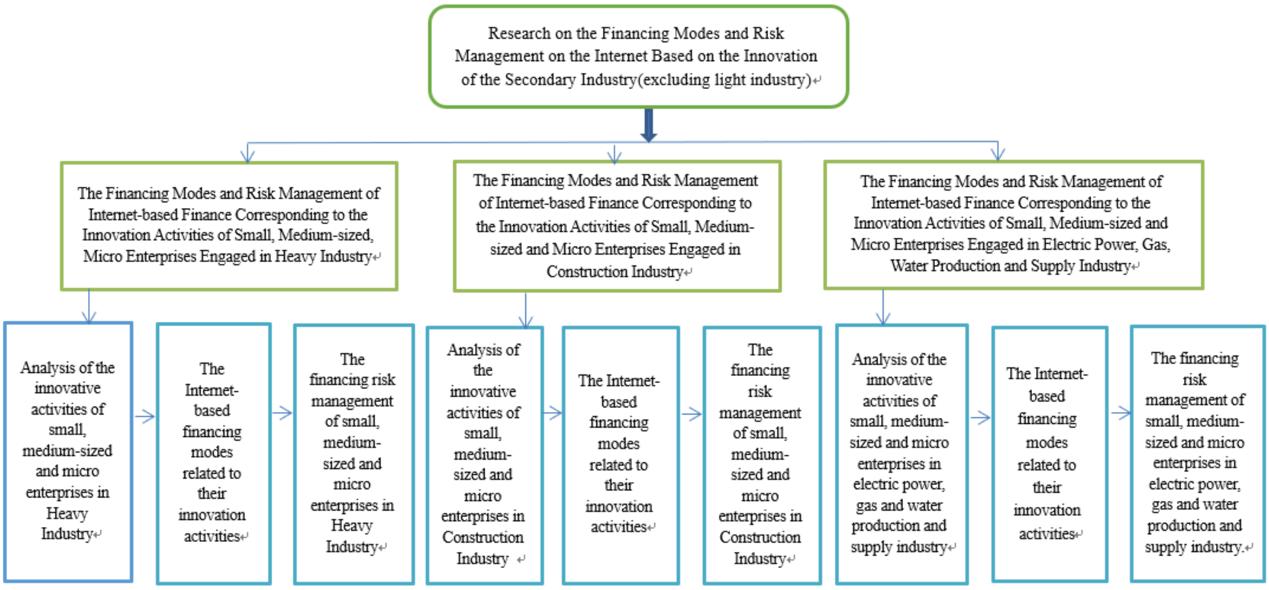

Figure 1. The Framework of the Financing Modes and Risk Management on the Internet Based on the Innovation of Secondary Industry (excluding light industry)

2.1 The Financing Modes and Risk Management of Internet-based Finance Corresponding to the Innovation Activities of Small, Medium-sized, Micro Enterprises Engaged in Heavy Industry

According to production properties and product usage of heavy industry, Heavy industry can be divided into the following three categories: mineral industry; raw material industry; processing industry.

According to the data analysis of the 2014 National Enterprise Innovation Survey statistics in China, the railway, shipbuilding, aerospace and other transportation equipment, special equipment manufacturing attach importance firstly to product innovation, secondly to process innovation and organizational innovation and finally to marketing innovation. The electrical machinery and equipment manufacturing, instrumentation manufacturing and automotive manufacturing show their preference firstly for product innovation, secondly for process innovation. The general equipment manufacturing, computer, communications and other electronic equipment manufacturing mainly prefer process innovation, product innovation and organizational innovation. The non-metallic mineral products industry prefers process innovation firstly, then organizational innovation and marketing innovation and finally product innovation. The waste resource comprehensive utilization industry prefers process innovation firstly, then organizational innovation and product innovation, and finally marketing innovation which only accounts for a small percentage.

For those enterprises which prefer product innovation and process innovation, when they use high-end technologies such as new energies, new material technology, biological manufacturing technology, new-generation communication network technology, new flat panel display technology, high-performance integrated circuit technology, high efficiency and energy-saving technology, recycling utilization and ecological environmental protection technology to further develop high-end equipment manufacturing, new energy automotive industry and even the single-person automatic car manufacturing, and because these technological investment projects are all supported greatly by the governments at all levels (local, provincial and central) in China, these enterprises may adopt the financing modes like Internet –based platform for financing and investment, P2P lending or Crowd-funding. In addition to collecting and checking all kinds of information related to credit evaluation just as before, the Internet –based finance companies may allow the enterprises to use their fixed assets, patents or technology shares or parts of share of the enterprises as mortgage or use joint mortgage to apply for the financing funds. Besides, the net present value of cash-flow generated in the future innovative activities can also be used for the financing purpose or the manufactured products can be used for regular repayment amount. For those enterprises that have better development prospects, their own patents and unique products, they may choose the Crowd-funding financing mode, or apply for venture capital from the Internet-based finance companies. The venture capital can be withdrawn as soon as the enterprise completes its listing successfully. The Internet-based finance companies may also invest in such enterprises in the form of return swap with local government. Among the enterprises which prefer organizational innovation, some of them have made major adjustments in internal departments and personnel in order to carry out product innovation or technological innovation; some of them have made greater corporate cultural improvements which include various kinds of regular and irregular professional training for their staff, then such kind of companies may adopt the financing mode like Crow-funding or the financing mode based on E-commerce platforms. And if necessary, the professional rating agencies can be invited to conduct evaluation on the existing operation of the enterprises so as to help the financing company to decide the amount of financing fund according to the enterprise's income generated by the type of organizational innovation, or the financing companies may allow the enterprises to use their cash flow produced in each period by other projects as the financing repayment. For those enterprises that prefer marketing innovation, the finance Internet-based companies can provide the financing funds for them according to the finance information from big data on the Internet obtained from the enterprise's revenue that was created by the previous marketing innovative activities and the current unique product marketing strategies, and the financing companies select enterprises' assets, the form of swapping products for financing funds or the form of using market sales as the financing repayment, etc.

2.2 The Financing Modes and Risk Management of Internet-based Finance Corresponding to the Innovation Activities of Small, Medium-sized and Micro Enterprises Engaged in Construction Industry

Small, medium-sized and micro enterprises engaged in construction industry, especially housing industry, civil engineering construction industry, construction and installation industry, architectural decoration industry and other construction industries usually prefer firstly organizational innovation which accounts for the highest percentage among all the innovation types, followed by product innovation. The percentages of process innovation and marketing innovation range from 5% to 10% are the lowest because the construction industry is in the traditional field and the overall quality of the staff is relatively low, and then it is rather difficult to conduct its product or process innovation. Relatively speaking, if the staff in the architectural decoration industry who engaged in product innovation or process innovation has a much higher quality, the products designed or produced by them will be more unique and have higher taste. Consequently, when small, medium-sized and micro enterprises in the construction decoration industry apply for innovative financing funds, the enterprises should consider the overall quality of employees as much as possible and the innovation degree of their products, and they may adopt the financing modes like P2P Lending and the Crowd-funding financing mode for their projects. In addition, their financing repayment can be paid off on a daily or weekly basis. For small, medium-sized and micro enterprises which prefer organizational innovation activities and product innovation activities, when they apply new energy-saving and environmental-friendly materials or the information technology to control the temperature or air inside buildings which in turn has brought the enterprises some significant development opportunities, these enterprises may choose the financing modes like Internet Banks, the Platforms for Investment and Internet-based Financing, P2P Lending or financing by Big Data to improve the capital operational efficiency of enterprises. However, construction industry is a traditional industry, and it is easily influenced by the economic environment. Therefore, it is necessary for the Internet-based financing companies to conduct agreement supervision, system supervision and irregular supervision to prevent the transfer of collateral or joint mortgage used by the enterprises for the financing fund

2.3 The Financing Modes and Risk Management of Internet-based Finance Corresponding to the Innovation Activities of Small, Medium-sized and Micro Enterprises Engaged in Electric Power, Gas, Water Production and Supply Industry

Electric power, thermal production and supply industries, water production and supply industry show their preference firstly for process innovation, secondly for organizational innovation and finally for product innovation and marketing innovation. When conducting the activities of process innovation and product innovation, these enterprises mainly utilize energy-saving and environmental protection technology, newly-emerging information technology, intelligent power technology, and new energy technologies such as solar power, nuclear power and biomass energy as well as some intelligent equipment. These technologies help them to improve their environmental-friendly power generation ability or the quality of drinking water. Meanwhile, the technologies of recycling and energy-saving environmental protection can help them to reuse waste water. Thus, the application of these technologies have improved the utilization rate of natural water resources and lowered the harm of pollution to the surrounding environment. If these enterprises can obtain the financing services, the Internet-based finance companies and the enterprises can realize win-win results. Therefore, the financing modes like P2P Lending, Financing by Big Data and Crowd-funding or venture capital can be considered. In addition, high-end equipment, patent rights, values of securities can also be used as collateral for the financing funds or the net present value of cash-flow generated in the future production from this type of innovation can be taken as the financing basis. For those enterprises that conduct the organizational innovation activities, they may choose the financing modes like P2P Leaning, financing by Big Data to apply for the financing services. The financing companies should evaluate their innovation value generated by the different strategies of organization innovation of enterprise to decide the corresponding financing amounts.

Owing to the unique traits of electric power, gas, water products and supply, this kind of enterprises are not suitable to take products as the way to pay off the financing funds. However, for those enterprises that apply the newly-emerging technologies to product innovation or technological innovation, the net present value of cash-flow generated by the future sales from their high-tech products can be used to determine the financing amount and as the way to repay the financing funds. For the enterprise preferring organizational innovation or marketing innovation, the Internet-based financing companies may audit its daily or weekly transaction volume and transaction amount. If it actually meets the financing requirement, then the financing can be offered. Simultaneously, it should be stipulated that the daily or weekly repayment will be made for both principal and interest by the enterprise by the enterprises. But, if the sales revenue of products in each period after innovation will be used to determine the amount of financing funds, it is necessary to set a guarantee that other operating income can be used for repayment due to the uncertainty of the innovation results. However, for those enterprises that may provide collateral, their capital risk management approach should be the same as before to prevent the enterprises from transferring mortgage assets.

3. Conclusion

The preferred types of innovation and the trait of product are somewhat different owing to the characteristics of different industry, thus the financing modes and risk management are different. For the enterprises that focus on product innovation or process innovation and have adopted the technologies like new generation information, energy conservation and environmental protection, new material, new energy or high-end equipment in new emerging strategic-developing industry, they may adopt the financing modes like Internet banks, finance by Big Data, P2P Lending and Crowd-funding and the other financing modes as the ways to financing. Of course, when enterprises apply for the financing service, the Internet-based financing companies will assess whether the financing service can be granted on the basis of the information provided by credit rating agencies, the various kinds of online and offline evaluations from the related enterprises together with their credit ratings on management personnel. If an enterprise has a great development potential, then the Internet-based financing company may select the form of venture capital into the company. The funds can be withdrawn from the enterprise after the enterprise has successfully completed its listing. The financing amount for these types of innovation can be determined by the net present value of cash flow produced from products in the future each period. And the cash flow generating in each period can be repaid for the financing funds or the weekly or daily transaction revenue of products in this kind of enterprise can be used to repay the financing funds. Besides, if the products are easy to be stored for sale, the products produced in the future can also be used as the way to repay the financing amount. For those enterprises that prefer organizational innovation or marketing innovation, they will generally adopt the financing modes such as finance by Big Data, Crowd-funding, P2P Lending, etc. However, because the fact that the Internet-based financing companies usually worry about the innovative result of the enterprises, they will generally ask the enterprises for collateral or joint mortgages before granting the financing amount and stipulate the location and duration of the collateral and the compensation clauses for the default to lower the financing risks. For the enterprises that apply for Crowd-funding finance service, the Internet-based finance companies need to learn about the financing projects and the credit evaluation for the enterprises through various online and offline channels. If they get the financing service, they may repay the loan by cash flow generated by the projects in the future or set up collateral or choose the other ways to increase the likelihood of obtaining the financing service and the ability of repayment. But, small and medium-sized enterprises with similar innovation activities in a region or in different regions can form an alliance of enterprises and apply for group loans, and they need to formulate agreements to bind the enterprises within the alliance so as to avoid or prevent credit or market risks from other enterprises caused by the crisis of one enterprise within the alliance.

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