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Research on Strategies to Address Financing Constraints for Technology-based Small and Medium-sized Enterprises

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Abstract: With the rapid development of society, technology- based small and medium-sized enterprises (SMEs) have gradually become a cornerstone of China's national economy, serving as a long-term driving force for promoting the country's high-quality development. However, due to the incomplete financial institutional system, the need for enhanced government support, and inherent deficiencies within these enterprises, the financing requirements of technology- based SMEs often go unmet. This paper addresses the current challenges of difficulty, costliness, inefficiency, and slowness in the financing of technology-based SMEs. It analyzes the financing constraints faced by these enterprises and proposes corresponding strategies. The primary focus is on the gradual enhancement of the enterprises' capabilities, the establishment of a multi-level and comprehensive financial system, and the importance of the government establishing and maintaining a positive political relationship with technology- based SMEs.

Keywords: Technology-based small and medium-sized enterprises, Financing Constraints, Strategies to Address Financing Constraints

1. Introduction

As China's economy experiences rapid growth, technology-based small and medium-sized enterprises are becoming increasingly important, gradually forming a crucial part of the national economy. The financing constraints that have emerged during this process significantly hinder and restrain the development of these enterprises. Specifically, the imbalance between limited internal financing and high external financing costs makes it challenging for technology-based SMEs to thrive. Additionally, information asymmetry further complicates their financing efforts. Scholars have offered various strategies to address these issues, such as increasing internal cash holdings and building political connections to effectively alleviate financing constraints, as well as leveraging the advantages of internet financing and diverse financing methods to promote the development of technology-based SMEs.

The financing constraints faced by technology-based SMEs have been a focal point in academic research. This paper discusses these constraints from the perspective of strategies to address them. Building on previous definitions and research on the factors influencing financing constraints and their economic consequences, the paper combines an understanding of the current state and challenges of technology-based SMEs in China—facing difficulties, high costs, and slow financing. It delves into a deeper exploration and comprehensive summary of strategies to address the financing constraints of these enterprises, aiming to provide a theoretical foundation and strategic support for mitigating these constraints and further promoting the stable development of technology-based SMEs and the high-quality development of China's economy.

The paper is organized into five parts. The second part reviews classical literature, discussing factors influencing financing constraints and relevant literature on financing constraints for technology-based SMEs. The third part introduces the current state and development challenges of technology-based SMEs in China. The fourth part focuses on proposing strategies to address these development challenges. Finally, the fifth part concludes the paper, discussing its limitations and suggesting future research directions.

2. Literature Review

2.1. Literature on Factors Influencing Financing Constraints

2.1.1. External Factors Influencing Financing Constraints

Research by industry scholars indicates that financial institutions are one of the crucial factors influencing enterprise financing constraints. Zhang Qi and others suggest that the development level of formal and informal financial institutions simultaneously affects the issue of enterprise financing constraints. The former is linked to problems of information asymmetry and agency, while the latter, due to its characteristics such as short financing time and simplified procedures, better meets the needs of enterprises facing financing constraints [1]. Ye Zhiwei proposes that financial institutions need to align with the financing needs of Chinese enterprises by adjusting the proportion of large and small financial institutions. This adjustment aims to satisfy demands, alleviate information asymmetry, and mitigate enterprise financing constraints [2].

The credit guarantee system directly relates to whether the financing needs of enterprises can be met, playing a crucial role in the development process of enterprises. Yang Deyong and others advocate for the establishment of an "open, inclusive, and shared" national financing service platform. This platform integrates government information, enterprise needs, bank guidance, credit rating, and more, addressing the drawbacks of high service costs, uneven risk sharing, and cumbersome approval procedures [3]. Shi Baoying and Zhou Zhicui point out that if the development prospects of enterprises are unclear, they may need to provide collateral to obtain mortgage loans. However, not all enterprises have sufficient real estate for collateral, and China's multi-channel collateral guarantee is still in its early stages and needs improvement [4]. Meanwhile, many scholars indicate that having good political connections can effectively alleviate the degree of financing constraints. Chen Yan and Yang Pengcheng's research concludes that building political connections can effectively manage the capital cost of financing constraints, and strong political connections have a higher impact than weak ones [5]. Yang Hongjuan and Feng Qiaogen's study shows that enterprises maintaining close and clear political connections with the government through new political-business relationships can help reduce credit financing costs, increase government subsidies, alleviate the burden of corporate taxes, and reduce rent-seeking costs. This pathway facilitates the goal of mitigating financing constraints [6]. In today's continuously developing society, China has enacted numerous laws and regulations to promote enterprise financing development. However, Yu Zhiting and others propose that China's legislative hierarchy for enterprise financing needs improvement, and the legal framework for financing guarantees requires further refinement. Targeted legislative efforts at the national level can provide a legal basis for enterprise financing, leading to better resolution of financing and development issues [7]. Industry experts also believe that the current era's development of digital technology is crucial for the survival and development of all enterprises, large and small, in economic and social spheres. Supply chain finance models and internet finance models derived from digital technology are closely related to enterprises. Research by Liu Jingtie and others suggests that the supply chain finance model, by reducing the degree of information asymmetry, alleviates enterprise financing constraints [8]. Li Huirong and Zhang Feixia conclude that the internet finance model can meet enterprise financing needs, reduce financing difficulties, and has the advantage of lower financing costs, ultimately easing enterprise financing constraints [9].

2.1.2. Internal Factors Influencing Financing Constraints

The size of an enterprise is one of the important factors influencing the degree of financing constraints. Large enterprises, due to their larger scale, higher transparency, more assets available for collateral, and well-established financial systems, are more likely to receive loans from banks and financial institutions. On the contrary, small and micro enterprises, with limited strength, find it challenging to meet financing conditions, making banks and financial institutions more inclined to provide loans to large enterprises. Scholars such as Ma Yiqun and Chi Renyong agree that the larger the enterprise, the smaller the financing constraints, showing an inverse relationship [10,11].

Simultaneously, the level of internal cash holdings is a key indicator of measuring enterprise liquidity, and enterprise liquidity is associated with the degree of financing constraints. Research by Gong Bo suggests that cash holdings provide financial flexibility for investment projects, help hedge investment risks, and alleviate enterprise financing constraints. However, the level of cash holdings should be within a reasonable range, as excessive cash holdings can increase agency costs and worsen the degree of financing constraints [12]. This has been reflected in the study by Ozkan et al., where companies with higher financing constraints tend to have higher cash holdings [13]. Internal control is another important factor influencing financing constraints for Chinese enterprises. Li Ning's research indicates that internal control, as a system designed and strictly implemented by enterprises for self-adjustment, constraint, regulation, evaluation, and control, can enhance information quality, thereby mitigating enterprise financing constraints [14]. Yang Yu points out that if there are internal control deficiencies in the enterprise, it will directly lead to financial risks, further exacerbating the degree of enterprise financing constraints, causing irreversible damage to the enterprise [15]. In addition, senior management plays a crucial role in enterprise financing activities, and their qualifications are directly linked to the completion of enterprise financing needs. Sheng Yun and Jin Bo support high-level corporate executives with diverse backgrounds, overseas experience, rich expertise, and familiarity with the financial industry. Such executives can compensate for insufficient investments and alleviate financing constraints [16,17].

2.2. Literature on Economic Consequences of Financing Constraints

Industry scholars unanimously agree that financing constraints have a significant impact on enterprise investment efficiency. Research by Zhang Lipai and others indicates a negative correlation between the degree of financing constraints and enterprise investment efficiency. In other words, the higher the degree of financing constraints, the lower the efficiency of enterprise investment. This is primarily manifested in external constraints, such as information asymmetry, suppressing the enthusiasm for enterprise investment, reducing overall investment behavior, and restricting enterprise development [18]. Liu Yuyu adds to this research by stating that when enterprises hold excess cash or face serious agency problems, financing constraints can appropriately inhibit excessive investment, adjusting enterprise investment behavior and bringing investment efficiency back to a reasonable range [19].

Domestic scholars mainly categorize the impact of financing constraints on enterprise performance into three directions: negative impact, positive impact, and no significant impact. Regarding the negative impact, Li Yongmei and others propose that financing constraints have a negative effect on enterprise performance. This is because financing constraints stem from information asymmetry between investors and enterprises. To minimize the risk of information asymmetry, investors choose to increase risk premiums, resulting in excessively high financing costs for enterprises, reduced investment, decreased returns, and ultimately lowered enterprise performance [20]. For the positive impact, Qiu Lijia and Wang Lu demonstrate that financing constraints can regulate the impact of R&D investment on enterprise performance. The higher the financing constraints of an enterprise, the stronger the promotional effect of R&D investment on enterprise performance [21]. Lastly, regarding no significant impact, Gu Leilei and others conclude that overall financing constraints do not have a significant impact on enterprise performance, indicating no direct relationship between the two [22].

Maximizing enterprise value is the modern goal pursued by enterprises, and the impact of financing constraints on enterprise value is significant. Qiu Lijuan and others point out that there is a significant negative correlation between financing constraints and enterprise value. That is, the higher the degree of financing, the more likely an enterprise is to encounter setbacks in market competition, hindering the enhancement of enterprise value [23]. Huang He's conclusion supports the aforementioned research, stating that actively controlling the level of financing can effectively enhance enterprise value [24].

2.3. Literature on Financing Constraints of Small and Medium-sized Enterprises

Small and medium-sized enterprises, as the backbone of Chinese enterprises, play an indispensable role in economic development. However, they often face more severe and specific financing constraints. Yang Deyong and others point out that the specificity of China's SME financing issues is mainly manifested in the lack of professional small and medium-sized banks that provide credit services on an equal footing. Additionally, insufficient protection of property rights and incomplete relevant legal regulations, frequent industry monopolies leading to intense competition and talent loss for SMEs, and the need for improvement in the financial environment. These unfavorable factors constantly impact the development of SMEs, exacerbating the degree of financing constraints [4]. However, scholars in the industry have not been passive and have proposed various solutions. On one hand, Li Huirong and Zhang Feixia advocate leveraging internet finance to broaden financing channels. They introduce equity financing, peer-to-peer financing, and small-scale lending on the basis of traditional financing methods, implementing a multi-pronged approach to meet the financing needs of enterprises at various stages of development and alleviate financing constraints [11]. On the other hand, Yao Wangxin and others propose effectively reducing the information asymmetry between SMEs and banks by utilizing supply chain finance. Two key aspects play a role: firstly, core enterprises transfer their advantageous information resources, such as large asset scale and strong profitability, to SMEs; secondly, third-party logistics act as intermediaries between the two, assisting enterprises in improving the quality of information disclosure. This ultimately achieves the goal of alleviating SME financing constraints [25].

2.4. Literature Review Comment

Financing constraints for enterprises are a significant issue in the current economic and social development, and many scholars have researched this problem from various perspectives. Starting from the angle of influencing factors, it is found that the situations leading to financing constraints for enterprises are complex and varied, existing not only in the external environment but also influenced by the internal mechanisms of enterprises. Regarding the economic consequences of financing constraints, a detailed analysis has been conducted from the perspective of various indicators of enterprises facing financing constraints, showing different degrees of impact and varying degrees of change. Narrowing the focus to the financing constraints of small and medium-sized enterprises, scholars have explored the specificity of these issues and promptly proposed coping strategies, offering strong practical significance. From the materials currently collected for this topic, although scholars have conducted multifaceted research on financing constraints for enterprises, there are still gaps and shortcomings in these studies. This paper aims to complement such research from the perspective of technology-based small and micro enterprises.

3. Current Situation of Financing Constraints for Technology-based Small and Micro Enterprises

In recent years, financing constraints have become one of the main obstacles hindering China's economic development and slowing down innovation, especially for technology-based small and micro enterprises. This issue has gained increasing attention from the academic community. This paper will analyze the current situation of financing for technology-based small and micro enterprises from the perspectives of difficulty, cost, and efficiency.

In China, enterprises mainly have two financing methods: direct financing represented by bank loans and indirect financing with collateral. On one hand, to smoothly obtain bank loans, enterprises need to have organizational structure, operational management and financial management systems, the ability to fulfill contracts and repay debts, credit asset risks within a reasonable range, and stable business conditions with marketable and profitable products. These are precisely the aspects that technology-based small and micro enterprises lack in their developmental stages. Therefore, to avoid risks, banks are more inclined to lend to large enterprises with high transparency, good financial conditions, and repayment capabilities. As of the end of the third quarter of 2023, the total balance of loans for various financial institutions and public institutions in China was 234.59 trillion yuan. Among them, the balance of inclusive small and micro loans was 28.74 trillion yuan, and the balance of loans for technology-based small and micro enterprises was 2.42 trillion yuan, with a significantly slowed growth rate. There is still an unmet demand for over 40 trillion yuan in financing loans for technology-based small and micro enterprises. [26] On the other hand, if enterprises choose indirect financing, it means that enterprises will use properties such as houses, production equipment, and patent rights as collateral to obtain loans from financial institutions. However, technology-based small and micro enterprises, due to their small scale, long research and development and production cycles, and lower capital efficiency, often cannot meet the conditions for collateral loans. Although in theory, technology-based small and micro enterprises can use intellectual property as collateral to achieve financing goals, relevant laws in China are still incomplete, making the feasibility low, and ultimately, sufficient funds cannot be obtained. Therefore, the financing road for technology-based small and micro enterprises in China is filled with numerous challenges rather than being smooth sailing.

Despite the increasing support from the Chinese government for the financing of technology-based small and micro enterprises (SMEs), the issue of high financing costs persists. The reasons leading to high financing costs for enterprises primarily manifest in two aspects. Firstly, most technology-based SMEs require substantial capital investment in their early stages of development. However, due to characteristics such as non-standard financial systems, unstable operational conditions, and limited risk resistance, coupled with the drawbacks of information asymmetry between banks and enterprises, they generally struggle to gain favor from financial institutions. To compensate for the risk, financial institutions often significantly raise loan interest rates and related fees, thereby increasing the cost of enterprise financing. Statistics show that in the third quarter of 2023, the interest rate for inclusive small and micro loans in China was 4.8%, still higher than the average loan interest rate for enterprises. [27] Among these, technology-based SMEs face a more challenging financing situation. Secondly, if, based on the aforementioned situation, technology-based SMEs turn to private borrowing, the

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associated risks will greatly increase. Simultaneously, borrowing costs may also be higher, further worsening the difficulty of enterprise financing.

The efficiency of financing directly affects whether an enterprise can timely raise funds to meet financing needs, subsequently influencing the future development of the enterprise. The loan approval process by financial institutions is extremely complex and lengthy. Assuming that technology-based SMEs can accept higher financing costs to obtain funds, the entire process, from preparing loan documents to financial institutions assessing the credit status, repayment ability, and operational conditions of the enterprise, to formulating corresponding loan schemes, signing loan contracts, and finally disbursing funds, takes nearly 16 weeks. This lengthy process may cause enterprises to miss developmental stages, leading to stagnation. Therefore, slow financing efficiency is a major challenge for the financing of technology-based SMEs.

In summary, technology-based SMEs in China mainly face problems of difficulty, high cost, low efficiency, and slow speed in financing. Urgent measures are needed to promote the continuous development of such enterprises and alleviate financing constraints.

4. Financing Constraints Faced by Technology-based SMEs and Strategies to Address Them

4.1. Urgent Issues to be Resolved

Firstly, in China's capital market, financing constraints are widespread among enterprises, and technology-based SMEs are more prone to financing failures due to their characteristics of incomplete management systems, imperfect financial systems, and irrational financing structures. Therefore, technology-based SMEs often struggle to raise funds to meet their development needs, facing more severe financing constraints.

Secondly, Chinese financial institutions, led by banks, tend to exhibit a "hug the big thigh" phenomenon. In other words, financial institutions are more willing to provide funding support to large enterprises with higher transparency, more stable financial and operational conditions, even if they are in the early stages of development and their financial situations are not optimistic but have strong financing needs. This will lead to severe financing constraints for technology-based SMEs, making it difficult for them to raise funds, resulting in a vicious cycle that causes enduring harm to the enterprises. Additionally, alternative financing options that better suit the financing needs of technology-based SMEs, such as private borrowing and small financial institutions, have not matured, undoubtedly increasing the difficulty of enterprise financing.

Lastly, as many listed companies in China have transformed from state-owned enterprises, in similar financing situations, state-owned enterprises are more likely to receive government financing subsidies and support due to their close political connections with the government. On the contrary, technology-based SMEs lack such tight political connections, making them more susceptible to the challenges of financing constraints and unable to meet their financing needs.

4.2. Strategies to Address

Firstly, technology-based small and micro enterprises (SMEs) should focus on gradually enhancing their own strength. Specifically, they need to regulate their behavior, establish and strictly implement operational and financial systems, improve operational and financial conditions, enhance their risk resistance, and break the deadlock in loans. Simultaneously, constructing a scientific investment decision-making system, adjusting financing structures, achieving a complementary balance between internal and external financing, and providing ample funds for enterprise development will help overcome the financing predicament. Additionally, leveraging the advantages of supply chain finance, technology-based SMEs can integrate into the upstream and downstream industrial chains, qualify for financing, reduce financing costs, and optimize financing models based on increased transparency, reducing external investors' concerns about enterprise operational risks.

Secondly, establish a multi-level and comprehensive financial system. On one hand, major financial institutions, primarily banks, should overcome biases and understand the characteristics of technology-based SMEs in their early stages of development. They should fairly assess and approve the financing needs of these enterprises and further promote the development of mortgage loans to provide a broader financing channel. On the other hand, vigorously develop small and medium-sized as well as private financial institutions and open up the market access for non-deposit financial institutions. Such financial institutions align better with technology-based SMEs due to their flexible financing requirements, lower loan interest rates, and more timely fund provision, thus driving further development.

Thirdly, the government should establish and maintain good political connections with technology-based SMEs, prioritizing their development and financing issues. The government can achieve this by setting up specialized institutions to provide various services to enterprises and implementing policies such as financing subsidies and support. These measures will eliminate discrimination in financing against enterprises with different ownership structures. By playing a core leadership role, the government can correct unfavorable practices and genuinely alleviate the financing constraints faced by technology-based SMEs. Additionally, it is crucial to establish and improve relevant laws and regulations for technology-based SMEs to ensure legal compliance and accountability, improving their disadvantaged position in the market and fundraising.

5. Conclusion

Technology-based small and micro enterprises play a crucial role in the national economy due to their significant volume. Financing constraints are one of the important factors hindering their development. Therefore, considering both internal and external factors influencing the degree of financing constraints on technology-based SMEs, along with the current status of enterprise development, it is essential to analyze and summarize the financing constraints. Strategies should be proposed to address these issues, thereby alleviating the degree of financing constraints on technology-based SMEs. In this process, efforts should be jointly undertaken by enterprises, financial institutions, and the government to promote the long-term development of technology-based SMEs.

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