

Macro Factors, Financing Constraints and Corporate Innovation

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Abstract: The inhibitory effect of financing constraints on corporate innovation has been a hot topic of academic concern. Based on the perspective of financing constraints, this paper combs through the latest domestic and international studies related to corporate innovation activities from the macro level of industrial policy, government subsidies, financial market development, etc., and looks forward to the possible future research directions of financing constraints and corporate innovation.

Keywords: Financing Constraints; Innovation Activities; Government Subsidies; Industrial Policy; Financial Market

Introduction

R&D innovation, because of its high risk, high failure rate, high uncertainty, etc., often requires a large amount of long-term capital investment, and it is difficult to meet the financial needs of enterprise innovation activities by relying only on endogenous financing, so external financing has become an important source of funds for enterprise innovation activities (Qu Wenzhou et al., 2011). However, R&D investment often faces greater financing constraints than general investment. There are three main reasons for this: first, information asymmetry due to market imperfections; second, it is difficult to accurately assess the risks associated with innovation uncertainty with exogenous financing; and third, the results of R&D are mostly intangible assets, which are easy to be imitated and difficult to be used as collateral for debt financing. Financing constraints have become a “stumbling block” for enterprise innovation. In this regard, based on the perspective of financing constraints, the article summarizes the domestic and international literature related to the influencing factors of enterprise innovation from the macro level, and looks forward to the possible future research directions of financing constraints and enterprise innovation.

In the study of macro influencing factors on enterprise innovation, the hotspots discussed by scholars mainly center around industrial policy, financial market development level, government subsidies, financial intermediaries, etc. This article mainly selects the literature from the perspective of financing constraints to be sorted out.

1. Industrial Policy

In recent years, studies on the impact of industrial policy on corporate innovation have mainly focused on tax incentives (Li Bingcai et al., 2021; Atanassov & Liu, 2020), financial support policies (Feng Yongqi & Qiu Jingjing, 2021; Yue Ruibo, 2018), talent support policies (Yu Chaoqun, 2021; Huang Yan et al., 2013), monetary policies (Liu Sukun & Yan Ling, 2021; Ren Shuming et al. 2021; Ren Shuming et al. 2021), selective industrial policies (Zheng Yu, 2020; Dou Qianbin et al., 2020), and improving the intellectual property protection system (Wu Chaopeng and Tang, 2016; Zong Qingqing et al., 2015). Throughout the relevant studies exploring the impact of industrial policy on enterprise innovation from the perspective of financing constraints, the mechanism that industrial policy can alleviate the financing constraints faced by enterprises and thus enhance their innovation performance is widely recognized. Yang Rong et al. (2018) proposed that industrial policy can promote enterprise innovation investment and alleviate the pressure of financing constraints faced by enterprise innovation investment by expanding the sources of financing as well as improving the financing environment, which is consistent with the findings of Zhang Chaolin et al. (2019). In terms of the research on selective industrial policy, the high-tech enterprise qualification policy is a major hotspot in research. On the one hand, high-tech qualification recognition will significantly increase the credit guarantee expectation of the recognized enterprises, improve the long-term liabilities and loan preferences of the enterprises, and alleviate the financing constraints faced by the enterprises (Dou Qianbin et al., 2020); on the other hand, the high-tech recognition policy has a certification effect, which is able to transmit positive messages to the outside regarding the quality and development prospects of the enterprise, increase the trust and recognition of external

investors on the enterprise, and indirectly solve the problem of insufficient financing of enterprise R&D (Zheng Yu, 2019). However, there is a large uncertainty in the introduction and implementation of industrial policy, and economic agents cannot accurately predict whether, when, and how the government will change the current economic policy (Gulen & Ion, 2016), and these uncertainties limit the play of the industrial policy effect, and Nan Xiaoli and Han Qiu (2019) found that the uncertainty in the policy of strategic emerging industries will have a dampening effect and a crowding out effect on R&D investment. inhibition effect and crowding out effect.

2. Government subsidies

Regarding the effect of government subsidies on enterprise innovation, no consistent conclusion has been reached at home and abroad. Some scholars believe that government subsidies can incentivize enterprise innovation, and their influence mechanisms are mainly resource attributes and signaling attributes (Xing Hui et al.; 2019; Wu Jian et al., 2018). The resource attribute refers to the fact that government subsidies promote the innovation input of enterprises by providing free funds (Howell, 2017), and at the same time reduce the risk and cost of innovation input of enterprises, and drive the innovation output of enterprises. The signaling attribute refers to the fact that by providing subsidies to enterprises, the government can send positive signals to the outside world, on the one hand, the government's recognition of the development prospects of the enterprise, and on the other hand, the signal that the enterprise has a close relationship with the government, which helps the enterprise to obtain the support of the stakeholders and the innovation resources (Wu, 2017), which in turn, has a positive impact on the enterprise's innovation. guo et al. (2015) showed that innovation output of science and technology enterprises increases significantly after receiving government subsidies. Yan Ruosen et al. (2020) empirically found that financing constraints play a partially mediating effect in the impact of government subsidies on firms' innovation inputs, and similarly, Zhang Xufeng et al. (2019) showed that financing constraints have a significant negative impact on the innovation performance of enterprise-led industry-university-research cooperation projects, and government subsidies can mitigate this negative impact to a certain extent. Further, Chen Lu et al. (2019) found that the facilitating effect of government subsidies on enterprise innovation through signaling attributes is mainly reflected in equity financing, and there are regional differences, with the best effect in the eastern region and not obvious in the central and western regions. Other scholars have suggested that government subsidies do not have an obvious role in promoting corporate innovation, and even have a negative effect. Catozzella and Vivarelli (2015), using a study using panel data of firms from Italy, find that innovation productivity is negatively correlated with government subsidies, and that firms that receive government subsidies exhaust their advantages simply by increasing their innovation expenditures. Zhang Yuan et al. (2018) based on the data of more than 30,000 high-tech enterprises in Zhongguancun found that although government subsidies can improve the innovation performance of enterprises, the source of innovation is mainly the purchase and introduction of new technological innovations rather than independent innovation, i.e., there is a "crowding out effect" of government subsidies. Holding the same view, Boeing (2016) and Bai Xuyun et al. (2019) showed that government subsidies have a crowding out effect on the innovation performance and innovation quality of enterprises. In this regard, Zhang Fan and Sun Wei (2018) argue that innovation activities should be left to the market, and through the construction of a stochastic frontier model, they prove that the incentive effect of government subsidies on the innovation efficiency of enterprises is almost ineffective compared with factor markets and infrastructure.

3. Financial market

A perfect financial market can, on the one hand, optimize the capital allocation of enterprise technological innovation through the function of financing innovation capital and diversifying investment risk (KNIGHT, 2018); on the other hand, it can accelerate the flow of financing information, reduce the information asymmetry, so that the external financing cost of the enterprise decreases, and stimulate the innovation vitality of the enterprise (Aghion & Howitt, 2009). Song et al. (2018) showed that the development of financial markets can alleviate the dependence of R&D investment on internal capital. Bai Junhong and Liu Yuying (2021) found that the process of financial marketization has a significant role in promoting technological innovation of enterprises, and the specific transmission mechanism is to enhance the innovation capacity of enterprises by alleviating their external financing constraints and enhancing their internal R&D expenditures. The study of Chen Jinyong et al. (2020) also reached the same conclusion, that is, the development of regional finance can reduce the inhibitory effect of financ-

ing constraints on enterprise innovation. Zhang Xindong and Hao Panpan (2016) verified that the channel of external financial market's influence on corporate innovation is equity financing, which improves corporate R&D investment by alleviating financing constraints. Further, Chen Taoran and Tan Zhibo (2019) compare the effects of financial structure and financial development on enterprise innovation, and the empirical results show that it is the financial structure with a higher degree of market dominance that promotes enterprise innovation by alleviating the external financing constraints of enterprises, rather than a larger financial market size, which is instructive for the kind of financial system to be constructed. It is worth mentioning that in countries with imperfect market transition systems, credit rent-seeking and financial mismatches are more frequent, which can help enterprises reduce financing constraints in the short term, but at the same time, it will also generate financial mismatches and inhibit enterprise innovation, and this inhibitory effect will gradually diminish as the degree of financial marketization increases (Zhen, Liming, and Lo, Dang-Lun, 2019).

4. Review of Literature

In addition to industrial policy, government subsidies and financial markets, the research on the relationship between financial intermediation (Zhang Weijun et al. 2021; Cheng Jingjing et al. 2020; Gu et al. 2017), the development of fintech (Li Chuntao et al. 2020; Wan Jiayu et al. 2020) and corporate innovation is gradually increasing. Through combing the relevant literature, this paper finds that: the academic community has basically reached a consensus on the view that financing constraints inhibit corporate innovation, and at the same time, financing constraints are widely recognized as a channel of influence of the above macro-environmental factors on corporate innovation.

This paper believes that relevant research can be innovated and developed from the following perspectives in the future: at the level of macro factors, focusing on the impact of macro system reforms and policy implementation on micro enterprise financing constraints and innovation behaviors under China's new normal economy, such as the establishment of the Science and Innovation Board (SIB) and the implementation of the IPO registration system, the GEM IPO from the approval system to the registration system, and the new regulations on capital management, and other macro factors affecting the impact of enterprise financing constraints and thus enterprise innovation. constraints and thus affect corporate innovation. In addition, most of the research on venture capital focuses on the impact on enterprise innovation performance, and future research can try to combine venture capital, innovation and macroeconomic growth and financial market development to construct a model to study the intrinsic connection and logical relationship of the four variables, so as to provide a reference for China's sustained economic growth and policy making.

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