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THE EFFECTS OF FINANCING CHANNELS ON ENTERPRISE INNOVATION

Abstract: This article does an theoretical examination of the effects of funding channels on innovation and the regulatory effects of the company life cycle, The findings indicate that government subsidies, tax favors, self-owned funds, and equity financing all provide considerable positive incentives for firm innovation, but their intensity gradually diminishes with time, whereas bank loans act as a hindrance to enterprise innovation. The effects of various financing channels on enterprise innovation vary according to the stage of the enterprise's life cycle, and overall performance deteriorates as the life cycle progresses.

Key words: financing channel; enterprise innovation; life cycle; financial subsidy; tax preference; self-owned funds.

Language: English

Introduction

Innovation is the key engine behind corporate growth. It has developed into a global social and societal activity [1], as well as a means of survival and progress [2]. Additionally, innovation entails the expenses of protracted periods of high investment and risk, as well as a lack of information clarity. This constrains the level of innovation and R&D in the majority of businesses [3]. Sustaining capital investment [4] necessitates a desire for innovation. Numerous governments have adopted financial initiatives to foster entrepreneurialism. Additionally to government subsidies, tax incentives, bank loans, equity financing, and crowdsourcing, this exogenous source of financing has been made available. These strategies promote endogenous financing through the use of an enterprise's own finances. Prior research has concentrated on the effect of single or partial funding channels on enterprise innovation [5–8], rather than doing a more comprehensive examination of the effect of exogenous and endogenous financing channels on firm innovation [9]. The life cycle of an enterprise is another critical aspect [8,10]. It has an effect on the enterprise's size, growth patterns, cash flow, financing capability, and objectives. The level of innovation required and its intensity varies according to the stage of the life cycle. It is hypothesized that the influence of each financing channel on enterprise innovation behavior varies across the enterprise's life cycle stages.

The objective of this study is to determine which stage of each financing channel contributes the most to enterprise innovation in order to maximize each financing channel's effect on company innovation. This article conducts an empirical analysis of the impact of each financing channel on innovation input intensity and output in order to thoroughly investigate the impact of various financing channels on enterprise innovation and the moderating effect of various life cycle stages using data from Chinese publicly traded companies from 2008 to 2017. Unlike many of its neighbors, China was not completely colonized. This historical e ect has influenced the country's modern combination of a distinct environment, a thriving culture, and a strong and stable government [11], and this piece is critical for understanding Chinese industry innovation. This contributes to the uniqueness of the study, which may be of interest to

international readers. The following issues are being investigated in this study: (1) The direction and magnitude of the influence of various financing channels on enterprise innovation are inconsistent; government subsidies, tax concessions, own funds, and equity financing can all significantly increase enterprise innovation intensity and output; and the innovation incentive effect of government subsidies is the strongest, tax concessions are the second strongest, own funds are the third strongest, equity financing is the weakest, and bank loans significantly inhibit enterprise innovation. The empirical study hypotheses are listed and addressed throughout the article, and their analysis is detailed in the methods section.

The following three components indicate the paper's research contributions. To begin, it studies the impact of multiple internal and external funding sources on enterprise innovation in detail, avoiding the shortcoming of evaluating only a single financing channel. This article evaluates the impact of the five most main financing channels on the innovation intensity and production of businesses, including government subsidies, tax concessions, bank loans, equity financing, and self-owned funds. The extent to which diverse finance channels influence enterprise innovation can be visualized through extensive inquiry. It circumvents the shortcoming of just being able to observe the effect of a single finance route.

Second, it contributes to a better understanding of the impact of the company life cycle adjustment on financing channels and enterprise innovation. The impact of financing channels on enterprise innovation varies according to the stage of the enterprise's life cycle, and by examining the regulatory effect of the enterprise's life cycle on the impact of each financing channel on enterprise innovation, one can gain a better understanding of the critical stage of each financing channel's role. The research discovers that the influence of various financing channels on enterprise innovation diminishes as the enterprise life cycle progresses, implying that more adequate financial support for enterprise innovation should be provided in the early stages. This outcome is favorable for optimizing the allocation of innovative resources and increasing the incentives for businesses to engage in creative activities.

Theoretical Analysis
Channels of Financing and Enterprise Innovation

Innovation is a high-risk business activity that necessitates significant and sustained long-term financial commitment. It is exceedingly improbable that investment in innovation will generate revenue. It takes a long time to generate money through the stages of innovation transformation, market development, and promotion. As a result, enterprise innovation frequently faces significant financial constraints. Exogenous and endogenous financing are available

for corporate innovation. Given the favorable externalities associated with innovation and its critical role in social progress, governments are continually implementing measures to alleviate funding limitations and boost enterprise innovation. Thus, the relevance of external funding for enterprise innovation is gradually growing and has developed into a significant source of money for enterprise innovation [12]. Exogenous funding, according to the many major bodies of capital supply, mostly consists of government subsidies, tax preferences, and bank loans. Crowdfunding has grown in popularity as a method for firms and entrepreneurs to raise capital for new projects [13] through the use of online platforms. It is a cost-effective and efficient method of generating fresh financing ideas for innovation [14]. Crowdfunding can be equity-based, in which investors aim to optimize their financial returns by acquiring firm shares and profits. It can be loan-based, with investors seeking to maximize financial returns while limiting default risk; it can be reward-based, with project completion resulting in specific intangible benefits; or it can be donor-based, with contributors receiving no monetary benefit [15]. Crowdfunding projects have a considerable (if frequently exaggerated) impact on the fundraising success [16]. China is the world's largest crowdfunding market, with the number and size of platforms used by local businesses growing quickly [17]. While crowdfunding has considerable potential for small businesses, this article focuses on relatively large-scale A-listed companies in China that rely on other traditional fundraising sources. While endogenous finance refers to an enterprise's own cash, the method by which various financing sources influence enterprise innovation varies.

Subsidies from the government and enterprise innovation

Subsidies are one of the fiscal policy strategies used to address the market failure associated with creative capital allocation in businesses [18]. Government subsidies are available to businesses only after their innovative proposals have been examined by an expert panel. Thus, government subsidies include a signal display et cetera, as well as certification et cetera [19–21]. This can help lessen the knowledge asymmetry between businesses and financial institutions [22], which is beneficial for raising money for company innovation. Government subsidies are primarily ex-ante incentives, and the early-stage firm R&D effect is more visible. Simultaneously, it was noted that the purchase cost of government subsidies is relatively low in comparison to other channels [23]. Government subsidies, due to their non-reimbursable nature, can stimulate enterprise innovation enthusiasm by directly sharing the cost and risk of enterprise innovation or by increasing enterprise profits through government

subsidies, thereby alleviating financial constraints on R&D department investment.

There are two schools of thought on the impact of government subsidies on enterprise innovation: the support school of thought and the squeeze school of thought. Government subsidies appear to have a large favorable effect on both R&D inputs and innovation outputs [24–26]. Previously, it was discovered that government subsidies are the primary source of finance for enterprise innovation [27,28]. According to the squeeze effect, government subsidies will stifle corporate R&D investment [29,30]. Additionally, it was revealed that while the number of firms producing innovation rose, the quality of innovation did not improve following the receipt of government subsidies through government support funds [31]. However, the past literature demonstrates a predominance of the support e ect. Government support for company innovation is intended to address possible market failures under market-based resource allocation. After examination, firms may receive government subsidies as long as they have viable projects. As a result, government subsidies can help minimize the cost and risk associated with enterprise innovation. Simultaneously, it can better inspire firms to enhance R&D expenditure and rekindle enterprise innovation passion.

Preferential Tax Treatment and Entrepreneurial Innovation

Tax preference is another critical fiscal policy tool for stimulating company innovation, as well as for internalizing the externalities associated with innovative activities [32]. Tax preference is a secondary incentive mechanism that can take several forms, including lowering the tax rate, tax amount, or tax return, with the goal of lowering innovation costs. By lowering R&D expenses and tax burdens, businesses can earn more revenue from innovation, which can be used to enhance R&D investment [33]. It was discovered that tax preference has a strong incentive effect on the level of firm innovation [34]. Oliviero [35] discovered that while both government subsidies and tax preferences might stimulate firms to boost R&D investment, the incentive effect of tax preferences is larger. Furthermore, while comparing the property rights of different types of firms, Wang et al. [36] noted that the innovation incentive effect of non-state-owned enterprises is superior to that of state-owned enterprises. By internalizing externalities, tax preference reduces the cost and enhances the benefits of innovation, resolving the problem of enterprise innovation's positive externality. Tax preference means that the more innovation production and value an enterprise generates, the larger the income generated by the tax preference. Tax preferential treatment not only encourages enterprises to boost their innovation input, but also their innovation output.

Bank Loans and Enterprise Innovation

Bank loans are the primary source of debt financing [37] and can effectively alleviate an enterprise's financial difficulties. However, it is not an effective method of financing enterprise innovation. Enterprise innovation requires a significant amount of long-term venture capital, and banks favor low-risk loans. The risk associated with innovation is considerable, as is the uncertainty associated with revenue, whereas bank loans place a premium on guaranteed interest income in order to prevent risk. That is why the bank's loan return does not equal the risk cost [38]. As a result, banks are uninterested in high-risk initiatives such as enterprise innovation and are hence unwilling to assist them financially. Long-term, durable, and consistent capital investment is required for innovation [39], however bank loans are typically short-term. Thus, there is an incompatibility between bank lending terms and the requirement for inventive capital. Bank loans typically require the provision of significant collateral, particularly for some technological enterprises and start-ups. On the one hand, corporate innovation requires significant investment; on the other hand, there is a dearth of fixed assets, making bank loans difficult to get. Even if the bank participates in enterprise innovation, it is frequently at the stage of innovation transformation rather than early stage R&D, because this stage provides a more stable cash flow and enterprises at this stage have more assets that can be used as loan collateral, ensuring the bank's funds are safe. Scholars have concluded with greater consistency that bank loans do not promote enterprise innovation. Bank loans, for example [40], make a negligible contribution to enterprise technical innovation. Similarly [41], debt financing will stifle corporate innovation and exacerbate the enterprise's perpetual innovation issue [38].

Equity Financing and Entrepreneurship

Equity finance is a critical tool for firm innovation in mature capital markets [42]. While stock issuance can help boost R&D investment and innovation production [43], at the moment in China, equity financing is a helpful but restricted source of funding for corporate innovation. The reason this is advantageous is that equity funding must be completely transparent. This can contribute to reducing the knowledge imbalance between inventors and investors and promoting enterprise innovation. Simultaneously, in comparison to bank funding, shareholders seeking high returns are willing to take on correspondingly bigger risks; that is, investors' better returns are compatible with the higher risk incentives they accept [44]. Thus, if novel finance is required, equity investors will be eager to invest, but rational investors will shun high-risk innovative initiatives. Yencha's study [45] established the importance of venture capital as a source of equity financing. However, venture capital is typically used during the enterprise innovation's commercialization

stage, which is relatively late. In comparison to other forms of financing, equity's stability ensures that the inventor is not required to repay the principal and interest and can give long-term and stable financial support [25]. Nonetheless, equity financing is still subject to rather rigorous controls in China's capital market, as it is not a flexible financing vehicle. As a result, equity financing can be advantageous but has a limited role in corporate innovation.

Self-Owned Funds and Entrepreneurship

Internal financing is more significant than external financing for enterprise innovation, according to the Pecking Order Theory [46], and can help boost associated innovation activities [47]. On the one hand, start-up firms, in particular, face difficulties obtaining bank loans and other forms of financing due to the absence of fixed asset mortgages. On the other hand, due to the significant degree of uncertainty associated with innovation, they also have difficulty securing sufficient equity financing and government subsidies. Even if a tax preference is secured, it is frequently used as a secondary incentive strategy. As a result, Brown et al. [48] and Zhang [49] discovered that enterprise innovation is mostly driven by self-owned capital. Simultaneously, the firm is more confident in the capabilities of its research team and the prospects for its R&D projects, and therefore more prepared to invest internal funds in innovation activities. In comparison to other modes of funding, it is more stable and less susceptible to macroeconomic fluctuations. According to Zhong et al. [50], when monetary policy is tightened, enterprise innovation becomes more reliant on internal capital.

Conclusions

It was discovered that the influence of various financing channels on firm innovation is heterogeneous. Among these, government subsidies, tax breaks, equity financing, and self-owned funds all have the potential to considerably stimulate firm innovation, whereas bank loans have the potential to significantly restrict it. Simultaneously, several finance sources offer a range of incentives for enterprise innovation. Government subsidies, tax preferences, self-owned funds, and equity financing eventually erode their incentive effect on firm innovation, demonstrating that government subsidies and tax incentives are critical tools for stimulating enterprise innovation. Additionally, it was discovered that the life cycle has a moderating effect on the incentive effect of funding channels for innovation, and that the incentive effect of financing channels represented by government subsidies and tax incentives diminishes as the life cycle phases progress. Additionally, the incentive effects of diverse financing channels on enterprise innovation are heterogeneous, and their incentive effects or inhibitory effects on non-state-owned holding firms are stronger than those on state-owned holding organizations. Finally, the study demonstrates how the major financing channels had a non-linear relationship with company innovation, and how this relationship was consistent across the whole sample of enterprises in both the growth and mature stages. This demonstrates that each finance channel has a limited amount of room, and that excessive financing assistance stymies firm innovation.

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