

Venture Capital: A Systematic Literature Review

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Abstract

Venture capital is an important financial element and has the natural attribute of supporting the real economy. As the venture capital industry continues to grow, they are now becoming an increasingly important support force in the capital markets. With the continuous development of venture capital, enterprise innovation also develops rapidly, which is similar to the growth trend of venture capital amount. Yet the areas of how do venture capital and enterprise innovation interact and influence each other have been mentioned by many researchers as ones that lack both consensus and devoted attention. The present paper aims to provide a detailed map of common and best practices in terms of venture capital and corporate innovation, and to explore whether they are related and how they influence each other to help extract best practices. in order to contribute to extracting best practice. This paper uses a systematic literature review (SLR) to help review the literature in a transparent and unbiased way. The review was guided by the PRISMA Statement (Preferred Reporting Items for Systematic reviews and Meta-Analysis). Try to find more relevant and useful papers through three stages. The process ended with 118 articles divided into corporate innovation, business models, and social capital. The results show that both enterprise innovation and business model innovation have significant influence on venture capital intention. The two moderates each other's influence on venture capital intention, and the moderating effect of enterprise innovation is non-linear. With the continuous improvement of enterprise innovation, the influence of business model innovation on venture capital intention first increases and then decreases. Social capital plays an intermediary role in the influence of venture capital on enterprise innovation.

Keywords: Venture capital, corporate innovation, business models, social capital

1. Introduction

There are many interpretations of the definition of venture capital. One authoritative definition comes from the National Investment Association, which defines venture capital as "equity capital invested by professional financiers in new, rapidly growing enterprises with great competitive potential". In the 1940s, the first venture capital institution, the United States Research and Development Corporation (AR&D), was established. From the 1960s, the United States continued to

develop technological innovation and gradually became the wave leading the world. It is widely believed that the great promotion of technological innovation by American venture capital has created the leading position of the United States in the field of high-tech and made great contributions to the unprecedented development of the American economy. Therefore, countries around the world begin to attach importance to and develop their own venture capital, hoping to promote the relevant technological innovation and ultimately promote the development of national economy through the development of their own venture capital.

At present, scholars have not reached a conclusion on whether venture capital can promote enterprise innovation. Most scholars believe that venture capital promotes the development of enterprise innovation by providing funds to enterprises, and plays a good role in market certification and supervision from corporate governance, decision-making and other aspects.

Firstly, (Cheng Siwei, 1999), based on the theory of enterprise financing, believes that venture capital has the characteristics of high risk and high return, which can ease the liquidity risk of enterprises using their own funds, and eliminate the requirements of debt financing on principal and interest and mortgage. By obtaining corporate equity and control, it provides the best financing method for innovative enterprises.

Secondly, (Bottazzi, 2008) and (Brav, 2018) found that venture capital institutions use their professional knowledge of finance and forecasting to select enterprises with innovative development potential, and use their accumulated experience in corporate governance, equity incentive and human resources to provide value-added services for innovative enterprises.

Thirdly, based on the resource-based theory (Dutta and Folta, 2016), it is found that venture capital, an investment behaviour, not only provides financial resources for innovative enterprises, but also transmits high-quality signals to the outside world through the mechanism of signal transmission, authentication, social network and other aspects. This not only attracts more external investors to invest, but also reduces the information asymmetry among various parties, brings stakeholders from various parties together, and provides value-added additional services for enterprises to obtain and optimize management, technology, channel, social and other resources.

Finally, (Wu Chaopeng, 2012) research shows that to safeguard its own equity interests, venture capital can restrain enterprises from using the investment obtained from venture capital institutions too freely, to prevent enterprises from deviating from the willingness of venture capital and the behaviour of innovative management objectives. Therefore, venture capital plays a supervisory role to a certain extent. However, (Wen Jun and Feng Genfu, 2018) research believes that in pursuit of fame and wealth, venture capital institutions and enterprise management take profit maximization or excessive attention to the commercialization of results as the ultimate goal, combined with poor protection of knowledge products, resulting in other enterprises' imitation and innovation and unable to obtain due returns, which ultimately leads to adverse effects on enterprise innovation.

The present paper aims to provide a detailed map of common and best practices in terms of venture capital and corporate innovation, and to explore whether they are related and how they influence each other to help extract best practices to contribute to extracting best practice.

2. Materials and Methodology

As there is a vast amount of research on venture capital, it seems nearly impossible to undertake a comprehensive review of the literature. As it is very costly and not practical to review all of them, the second option is to adopt a narrative literature review, but it involves many disadvantages and has been subjected to many criticisms. Because of this, the present paper uses a systematic literature review (SLR) to help review the literature in a transparent and clear way. This method is characterized by transparency, clarity, equality and accessibility, unified and focused (Thorpe, Holt, Pittaway and Macpherson, 2006). In addition, it provides an effective method for mapping out thematically the field of study and allows them to be viewed holistically. Moreover, it links the different researches together that have not been linked previously (Pittaway and Cope, 2007). Thus, it helps to avoid the pitfalls of a narrative literature review, which can sometimes be vulnerable to criticism that the choice of articles was biased, arbitrary or limited in scope (Petticrew & Roberts, 2006).

In this section, the method used to retrieve articles related to venture capital and enterprise innovation is discussed. The reviewer used the method called PRISMA, which includes resources (Scopus, Google Scholar and CNKI) used to run the systematic review, eligibility and exclusion analysis.

The review was guided by the PRISMA Statement (Preferred Reporting Items for Systematic reviews and Meta-Analysis). According to Sierra-Correa and Cantera Kintz (2015), it offers three unique advantages which are 1) defining clear research questions that permits systematic research, 2) it identifies inclusion and exclusion criteria, and 3) it attempts to examine large database of scientific literature in a defined time.

This review relies on three major journal databases – Scopus, Google Scholar and CNKI. Scopus is the largest abstracts and citation database in the world, covering not only science literature such as medicine, earth environmental science, chemistry, mathematics, engineering, physics and biological science, but also liberal arts literature such as sociology, anthropology, psychology, economics, business management and art. It has gained increasing recognition in domestic universities. Google Scholar is a free online search engine that enables users to find academic literature, including journal articles, dissertations, books, preprints, abstracts, and technical reports, covering a variety of disciplines, including natural sciences, humanities, and social sciences. CNKI provides users at home and abroad with unified search, unified navigation, online reading and downloading services for Chinese academic literature, foreign literature, academic papers, newspapers, conferences, yearbooks, reference books and other resources, as well as professional software products and services.

The review process was performed on December 2022. There are three stages involved in systematic review process. Those stages are identification, screening, and eligibility.

2.1 Identification

The first stage determines the keywords to be used in the search process. Based on previous studies and thesaurus, keywords similar to and related to venture capital, enterprise innovation and

business model are used (Table 1). At this stage, after careful screening, 32 duplicate articles were removed.

Table1: Keywords and searching information strategy

Databases	Keywords used
Scopus	(Venture capital OR enterprise innovation) AND (venture capital OR business model)
Google Scholar	(Venture capital OR enterprise innovation) AND (venture capital OR business model)
CNKI	(Venture capital OR enterprise innovation) AND (venture capital OR business model)

2.2 Screening

A number of eligibility and exclusion criteria are identified as shown in Table 2. First of all, in terms of the type of literature, only article journals are selected, which means that series, books, chapters in books and conference proceedings are not included. Second, to avoid confusion and difficulty in translating, the search excluded non-English and non-Chinese publications and focused only on articles published in English and Chinese.

Table 2: The inclusion and exclusion criteria.

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles)	Journals (systematic review), book series, book, chapter in book, conference proceeding
Language	English and Chinese	Non-English and non- Chinese

2.3 Eligibility

Finally, the articles identified and screened were further analysed according to Figure 1 to find the most useful articles, and then summarized and discussed.

3. The Review Findings

3.1 Enterprise Innovation

Venture capital can promote enterprise innovation. (Gorman and Sahlman, 1989) believed that the entry of venture capital alleviated the financial strain of enterprises, and venture capital institutions were also interested in improving enterprise production and innovation output. (B. Elango, 1995) pointed out through empirical research that venture capital institutions, for their own interests, would offer suggestions for the strategic development of enterprises and provide a series of value-added services, thus contributing to the realization of enterprise innovation. (Dushnitsky and Lenox, 2005) concretized value-added services, pointing out that venture capital institutions serve enterprises mainly through their own professional knowledge and grasp of the capital market. (Liu Gang, 2018) empirically revealed that the high reputation of venture capital institutions can bring value-added effects to enterprises by using the data of the New Third Board. It can be seen that the value-added service function of venture capital has been widely recognized by scholars in promoting

enterprise innovation.

In addition, venture capital institutions have more advantages than debt financing in eliminating information asymmetry due to their strong supervision and governance ability, thus helping enterprises to improve their innovation (Brown, 2009). The supervision of venture capitalists on enterprises is mainly realized through the form of contract such as the right of appointment of directors, the right of management to decide, and the right of stock distribution (Bottazzi *et al.*, 2008; Celikyurt *et al.*, 2014). (Tykvova, 2000) studies and confirms that German venture capital has a positive effect on technological innovation, but its effect is far less than that of American venture capital. (Romain and Pottelsberghe, 2004) selected data from 16 APEC countries for 12 consecutive years and proved that venture capital significantly promoted technological innovation through direct and indirect influences. (Hirukawa and Ueda, 2008) expanded the sample time range of Kortum and Lerner and adopted a similar method to prove that American venture capital in the late 1990s had a significant and stronger impact on enterprise innovation.

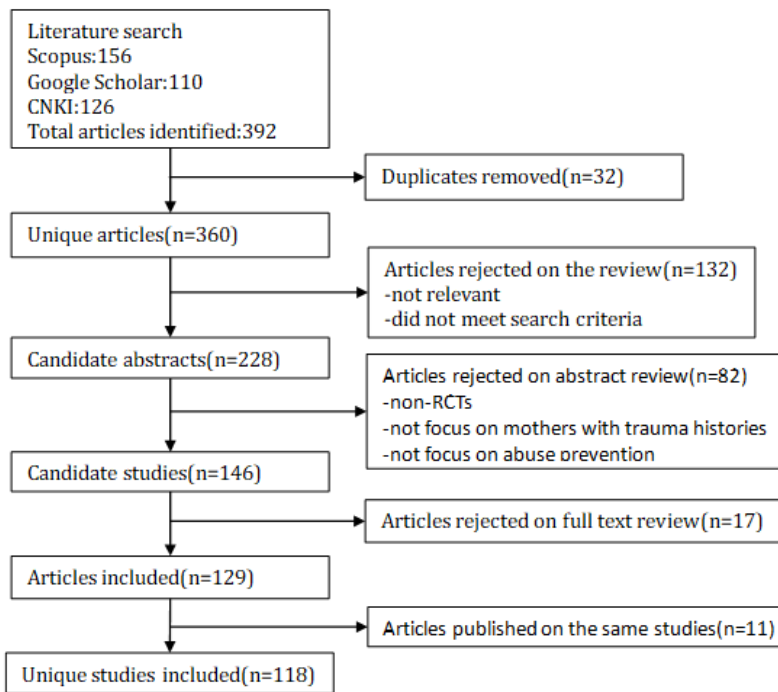


Figure1: Qualification for document determination

(Alexander and Peter, 2012) used the data of 10 manufacturing industries in 21 countries for 15 consecutive years to study the impact of venture capital on the number of patents granted. The results showed that in countries with highly developed venture capital, its impact on technological innovation was more significant. At the same time, under the environment of small barriers to entrepreneurship, less taxation and relaxed taxation and regulation of venture capital, venture capital has a more significant effect in promoting technological innovation. (Yao Li, 2018) Based on the inter-provincial spatial panel data of China from 2006 to 2015, the spatial econometric model was used to analyse the spatial effects of different regional venture capital levels on technological innovation. The results showed that local venture capital levels could not only significantly improve

the innovation level of local enterprises, but also have an impact on the innovation level of enterprises in surrounding areas. (Duan Yongqian and Chen Jin, 2021) A stepwise regression method and a two-stage panel DEA-Tobit model were adopted to conduct an empirical study on Chinese provincial panel data from 2008 to 2019. The results showed that, on the whole, venture capital could significantly improve regional innovation efficiency.

Venture capital has a certain hindrance to enterprise innovation. (Engel and Keilbach, 2007) A controlled experiment found that venture capital could significantly promote the growth of enterprises, but could not stimulate the output of innovation. (Huang Yan, 2013) found through the study of China's small and medium-sized board enterprises that venture capital does not promote enterprises to increase investment in research and development, and there is no significant relationship between venture capital and investors' shareholding ratio. (Deng Junrong, 2013) also came to a similar conclusion, but it was largely because the samples selected were in the early stage of the development of venture capital market and could not play a good role of venture capital.

Using the data of GEM, (Results and Tao Ma, 2018) pointed out that the ownership attributes of venture capital institutions would have different impacts on enterprise innovation, and non-state-owned institutions would hinder enterprise innovation input to a certain extent. In terms of micro-mechanism, (Wen Jun and Feng Genfu, 2018), from the perspective of balancing "value-added service" and "value capture", conducted an empirical study on the data of Shenzhen Small and medium-sized board and growth Enterprise Board, and found that the negative effect of capture effect on innovation was greater than the positive effect brought by value-added service, which ultimately led to insufficient innovation output of enterprises.

3.2 business model innovation

Business model innovation positively affects venture capital intention. (Mitchell and Coles, 2003) believe that business model innovation can greatly improve the performance of enterprises in sales, profit and cash, and bring competitive advantages to enterprises. (Cucculelli and Bettinell, 2015) conducted an empirical study with 376 Italian SMEs as samples, and the results showed that business model innovation is crucial to enterprise performance, especially in terms of maintaining sales growth. (Luo Xingwu, 2017) investigated the impact of business model innovation on the performance of new start-ups in China, and the results showed that there was a significant positive correlation between the two. The performance of new start-ups was measured by profitability indicators and growth indicators, etc. It can be seen that the business model has strong competitiveness in the market, customers, profits and other aspects, and the innovation of the business model can form a certain imitation barrier, so as to bring good profit growth points for enterprises. It is for this reason that the business model of entrepreneurial projects is increasingly attracting the attention of investors.

On the other hand, investors and customers are the most important stakeholders of new ventures. Business model innovation is conducive to start-up enterprises to show their legal identity and obtain the recognition of these two stakeholders. Therefore, this paper argues that business model innovation can increase the novelty and reliability of entrepreneurial projects, thus improving the project's appeal to investors. (Xu Xusong and Dan Chaoyang, 2000) proposed a venture capital

decision model that includes three dimensions: entrepreneur quality and ability, project characteristics (i.e., business model), and entrepreneurial situation.

Business model innovation has a positive moderating effect on the impact of technological innovation on venture capital intention. (Doganova, 2009) The technology of entrepreneurial projects is often difficult to understand for investors, customers and other stakeholders. The business model can provide a comprehensive explanation for this complex process and explain the value created by it, making it easier to understand technology entrepreneurship and increasing the legitimacy and reliability of its innovation. (Teece, 2010) believes that appropriate business model is a necessary condition for realizing potential technology value, and proves the importance of business model to technology commercialization through empirical evidence.

(Zelong Wei, 2014) and others conducted empirical research based on Chinese data, proving that business model design plays a moderating role in the impact of technological innovation on the growth of enterprises, and technological innovation needs to be matched with business model design to better promote the sales growth of enterprises. Obviously, business model innovation can help enterprises successfully commercialize technological innovation, make technological entrepreneurship easier to understand, and strengthen the impact of technological innovation on venture capital intention.

3.3 Social capital

Corporate social capital is a good social relationship established between enterprises and the government, banks, suppliers, customers, related parties, enterprises, universities, research institutes, employees and other stakeholders, from which enterprises can obtain various market resources and industry dynamic development information conducive to R & D innovation. Studies by many scholars have shown that corporate social capital can help enterprises obtain many key and complementary knowledge and resources needed in the process of innovation. After integration and innovation improvement, enterprises' shortcomings can be balanced, so as to enhance their innovation ability (Li Haichao and Chen Xuejing, 2015). Obtaining venture capital can help enterprises obtain innovation resources from multiple stakeholders and place enterprises in a more complete social network.

First of all, venture capital will conduct professional research and investigation on the innovation ability and overall competitiveness of the enterprise before entering the enterprise, which will increase the government's trust in the technological innovation and research and development of the biological enterprise, so that the enterprise can obtain more institutional and social capital from the government.

Secondly, the addition of venture capital will increase the confidence of external creditors to enter the enterprise, especially through financial institutions represented by banks to obtain debt financing (Tresierra, 2012).

Thirdly, venture capital institutions will take advantage of their investment advantages to find and provide innovative enterprises with a wider range and more secure upstream and downstream enterprises, expand the scope of enterprises' communication and cooperation in the whole supply

chain, and provide innovative enterprises with added value (Li Mengya and Yan Taihua, 2019).

Finally, venture capital can increase the cooperation between innovative enterprises and scientific research institutions and universities, attract and cultivate talents needed for technological innovation, accumulate social capital within enterprises, and promote the development of technological innovation in the future. Therefore, the acquisition of venture capital by innovative enterprises will promote the enterprises to further expand their own social network and obtain a variety of social capital, so as to better improve the level of enterprise innovation.

4. Conclusion

According to the theme review of previous studies, we find that enterprise innovation, business model innovation and social capital all have certain impacts on venture capital. However, scholars have not reached a consensus on the effect. (Brown, 2009) believes that venture capital can promote enterprise innovation. Venture capital has a certain hindrance effect on enterprise innovation (Results and Tao Ma, 2018). (Cucculelli and Bettinell, 2015) Business model innovation positively affects venture capital intention. (Teece, 2010) Business model innovation has a positive moderating effect on the impact of technological innovation on venture capital intention. The mediating role of corporate social capital in the impact of venture capital on firm innovation (Tresierra, 2012).

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