

This work has been submitted to **NECTAR**, the **Northampton Electronic Collection of Theses and Research**.

**Article**

**Title:** How government venture capital guiding funds work in financing high-tech start ups in China? A 'strategic exchange' perspective

**Creators:** Wang, J., Wang, J., Ni, H. and He, S.

**DOI:** [10.1002/jsc.1948](https://doi.org/10.1002/jsc.1948)

**Example citation:** Wang, J., Wang, J., Ni, H. and He, S. (2013) How government venture capital guiding funds work in financing high-tech start ups in China? A 'strategic exchange' perspective. *Strategic Change*. **22**(7-8), pp. 417-429. 1086-1718.

It is advisable to refer to the [publisher's version](#) if you intend to cite from this work.

**Version:** Submitted version

**Official URL:** <http://onlinelibrary.wiley.com/doi/10.1002/jsc.1948/abstract>

**Note:** This is the pre-peer reviewed version of the article, which has been published in final form at <http://dx.doi.org/10.1002/jsc.1948>.

<http://nectar.northampton.ac.uk/5538/>



## **How Government Venture Capital Guiding Funds Work in Financing High-tech Start-ups in China? A ‘strategic exchange’ perspective**

Jinmin Wang, Jing Wang, Shaowei He

### **Abstract**

The paper explores how the local government in China makes use of public-private partnership approach to promote the development of hi-tech industry in China with a case study of the operation mechanism of Venture Capital Guiding Funds (VCGF) in Hangzhou City, Zhejiang province, East China through the ‘strategic exchange’ perspective. The case study has important policy implications for the venture capital companies that intend to participate in the VCGFs of China. The local government in China usually plays a dominant role in the VCGFs due to the strategic resources it possesses. Under its specific institutional context, the public-private partnership approach needs to be interpreted differently from strategic level to operational level in China to improve the performance of VCGFs.

Key words: financing, high-tech start-ups, government venture capital guiding fund, public-private partnership, China,

The paper is forthcoming in *Strategic Change: Briefings in Entrepreneurial Finance*,

## **How Do Government Venture Capital Guiding Funds Finance High-tech Start-ups in China? A Preliminary Review**

### **Introduction**

China's recent path to growth and development has proved to be distinctive and SMEs appear to have been a major driving force in this country's "economic miracle" (Li and Matlay, 2006; OECD, 2004). There are currently more than 50 million SMEs, which account for 80 percent of employment, 60 percent of gross domestic product (GDP) and 50 percent of the national tax revenue (Ministry of Commerce of China, 2010). Financing has been identified as one of the most crucial factors determining the survival and growth of SMEs (UNCTAD, 1995, 2001). If financial markets are not working efficiently and fail to provide enough capital for high-growth start-ups, it has been suggested that government should try to correct any occurring market failures (Lerner, 1999, 2010). Government intervention is based on the belief that small technology-based firms in particular, are a key source of innovation, job creation and productivity growth (Mason, 2009). Economists have also documented the strong connection between technological progress and economic growth, both across nations and over time (Nelson and Phelps, 1966; Romer, 1990; Solow, R., 1994; Barro and Sala-i-Martin, 2003).

The Chinese government has made conscious efforts towards promoting the development of SMEs by enacting regulations and program at local, regional and state levels. In 2003, the Chinese government introduced *SME Promotion Law* to provide a legal basis for government involvement in the promotion of SMEs. The Law focuses on developing organizations, programs and services to stimulate SME development (Atherton, 2008).

Government programs in supporting SMEs have been divided between those efforts that directly fund entrepreneurial firms and those that encourage or subsidize the development of outside investors. The well-known Torch Project in 1988 and

InnoFund in 1999 set up by the Ministry of Science and Technology to help technology-based SMEs develop and commercialize new technologies is an example of direct government fund support operating at state-level. However, the Chinese government realized that the size of fund and current support schemes, such as directly subsidizing R&D activities, facilitating financing from bank and reducing tax burdens were clearly not enough for this huge country with millions of qualified technology-based SMEs. As a result, in contrast to public venture capital, public-private partnerships (PPP) have emerged as a desirable vehicle for the government to solve some public management problems including the financing of high-tech start-ups. In 2007, State Venture Capital Fund (SVCF), the first venture capital fund in China, was established and operated by the central government aiming at guiding non-governmental investment into SMEs. Venture capital investment that combines both public and private fund to provide equity finance is widespread in OECD economies (INNO GRIPS, 2009). However, it is still a recent phenomenon in China. By the end of 2009, the local governments followed the central government and set up 50 local venture capital guiding funds, 19 of which operated at provincial level and 31 at city level (Chen, 2010).

There are multiple studies on the performance of venture capital guiding funds (VCGF) in developed countries including the United States, Canada and Australia and so on. However, these analyses mostly operate at a country specific level (Lerner, 1999 and 2009; Cumming and MacIntosh, 2006). This paper focuses on the performance of VCGF by the local government in China with a view of broadening the capital access and improving the efficiency of resource allocation for financing high-tech start-ups. The previous research suggests that future private sector growth may be constrained should local government not develop mechanism to engage with the private sector to enable its continuous growth and development (Atherton and Smallbone, 2010). In addition, entrepreneurship development in transition economies suggested that market-oriented institutional development has proved to be the most challenging aspect of the process of market reform (Smallbone and Welter, 2009). The aim of this paper is to explore how the local government makes use of public-private

partnerships effectively to promote the development of hi-tech industry in China. The research questions pursued in this paper include how the local government in China leverages the private venture capital to finance high-tech start-ups through the scheme of VCGF? What are the challenges the local government is facing when implementing the VCGF scheme in China?

The remainder of paper is organized into six sections. Section two reviews theoretical and empirical literature on the operation and performance of different VCGF models in developed countries. Section three discusses the main promotion schemes adopted by the Chinese government to develop high-tech SMEs. Research methods are presented in section four. Section five presents research findings with a case study of VCGF in Hangzhou City, Zhejiang Province, East China. Section six are conclusions and policy recommendations.

### **Literature review**

Most banks regard high-tech start-ups as high-risk borrowers due to their inadequate tangible assets and fragility to market fluctuations. The high transaction costs of small-sum financing do not render the SME market as profitable as big corporations. However, as high-tech start-ups are reported to contribute disproportionately to innovation and economic growth (Cosh and Hughes, 2003), policy makers around the world have become increasingly concerned about the success of their high-tech sectors and the availability of venture capital (Cumming, 2007). For example, OECD governments are implementing a number of direct programs to mobilize venture capital in support of high-tech start-ups through the PPP. A PPP is “an arrangement in which the private sector participates in the supply of assets and services traditionally provided by the government” (IMF 2004, p.4). PPP as an approach employed for economic development is regarded as an agreed arrangement or a cooperative activity for supplying products or services where there is an integrated blend of both private and public ingredients. There is no doubt that any joint action of the private and public parties would be preferred only if both sides believe that more gains would be produced than action without such collaboration. PPP involves a series of functions

including formal identification, quantification and allocation among the partners of the risks associated with the partnership project (Ke *et al.*, 2008).

Combined public and private money to provide equity financing is called the hybrid fund approach (INNO GRIPS, 2009). The approach of hybrid venture capital funds takes a number of forms. Some have proved beneficial to the economies in which they operate, such as Israel, Australia and the United States (Lerner, 1999 and 2002; Gilson, 2003; Cumming, 2007), but an evaluation of all such funds showed largely negative in the UK and Canada (Cumming and MacIntosh, 2006). Adopting international company-level data, Brander *et al.* (2010) examine the impact of government-sponsored venture capitalists (GVCs) on the success of client enterprise. The results indicate that high level of GVC support or greater intervention by the state (in which enterprises received 50% or more from GVC sources) reduces the success of high-tech start-ups. China, France and Germany all have relatively high level of GVC involvement. Exit performance is an objective way to assess the performance of entrepreneurial firms and the success of its VC financiers. IPOs are widely regarded as the best exit outcome (Gompers and Lerner, 1999). Another striking observation in this international study is that in China is ranked as the second among top ten countries in terms of the percentage of high-tech start-ups with an IPO.

Cumming and Johan (2009) assess the effectiveness of the Pre-seed Fund (PPP) towards promoting entrepreneurial finance in Australia. They conclude that the impact of government-sponsored VC funds (GVCF) depends not only on the design of the program but also on the selection of VC managers carrying out the investment. The main role of private venture capitalists will focus on the services that identify the potential high-tech start-ups with the market-oriented criteria and raise private capital for investment. The role of government programs in private equity market ought to complement and partner with instead of competing with private VC investment (Lerner, 1999, 2002; Cumming and MacIntosh, 2006). In addition, government funding has an important role to play in assisting the formation of venture capital markets. Funding is best led by the private sector (EVCA, 2010). In order to stimulate VC activities, a host of factors need to be taken into account including investment

objectives, time horizons and capabilities of different types of VC investors. Policy initiatives might not be likely to have expected outcomes if these factors are not taken into account (Colombo *et al.*, 2010).

Despite the lack of universally accepted principles or conclusive evidence on effectiveness, efficiency and equity terms, PPP is politically popular and generally viewed positively by the business community as a method for contributing talent and capital, as well as assuring their input into important economic development decisions. In order to motivating fund managers to raise private capitals, initiatives like putting a cap on its investment return, sharing the initial risk of investment loss, thereby improving the desired return to private investors were adopted by public side. In this case, the public investment is the first portion to suffer from the potential loss of risk investment in the event of investment failure (INNO GRIPS, 2009).

As the PPP approach focuses on establishing long-term stable relationships between the public sector and the private venture capital institutions (Peters, 1998), it is highly important to establish a mechanism of effective strategic resources exchange that leads to a balance or equilibrium between risk and returns of the joint venture investment for both the local government and private venture capital institutions involved in the VCGF. Therefore, how to promote the successful strategic exchanges between the public sector and private venture capital institutions is crucial to the successful operation of VCGFs. This paper adopts the conceptual framework of strategic exchange to explore the operation mechanism of VCGF in transitional China. “Strategic exchange” originally explains the relationships between managers and social groups at micro level to promote long-term survival of the organization (Watson, 1994). We build our strategic exchange perspective by incorporating three key parties in our framework: the local government, private venture capital institutions and the high-tech start-ups.

Public-private partnerships represent an attempt to correct the shortcomings of traditional public organizations in efficiency and service delivery (Lerner, 2002). Although there have been a considerably wide range of theoretical studies and empirical applications of public-private partnerships, most of them are in the field of

the infrastructure programs under the regional urbanization (Lerner, 1999,2009; Cumming and MacIntosh, 2006; Poulton and Macartney, 2012), while few researches concentrate on supporting the growth of high-tech start-ups as a vehicle of governmental intervention with market failure. Therefore, the paper fills in the gap by examining how the private capital could be motivated to invest in the high-tech start-ups with the public support in China.

### **The promotion policies of high-tech SMEs in China**

The central government in China has launched a series of promotion policies to encourage the development of high-tech SMEs since the late 1980s (Chen, 2010). The Torch Program and the national innovation framework, which were established in 1988, aimed at facilitating the development of high-tech industry, encouraging the technology transfer and diffusing the research outputs (Atherton and Smallbone, 2010). Innovative Fund (Innofund) was established in 1999 to support the early stage commercialization of innovative high-tech projects with good market potential, but unattractive for commercial capital,. In other words, this fund targeted at “market failure” where government support is needed, bridging the capital market and incubating innovative start-ups. *The SME Promotion Law* was implemented in 2003. The previous policies of the Chinese government in support of SMEs were mainly through the measures such as directly subsidizing R&D activities, facilitating financing from the banks, and reducing tax burdens. The central government realized that they were inadequate to meet the financial needs of high-tech start-ups.

Traditionally, VC is often viewed as the primary source of capital for inventive high-tech start-up companies (Gompers and Lerner, 1999; 2001). In order to guide non-public fund to flow into high-tech SMEs, Ministry of Finance (MOF) and Ministry of Science and Technology (MOST) in China jointly issued *the Interim Regulation on Managing the Venture Capital Guiding Fund for High-Tech SMEs (the Interim Regulation)* in July 2007. The operation principle of SVCF is to let the market make decision on investment-worthy projects (Chen, 2010). Following *the Interim*

*Regulation*, four forms of public venture capital schemes were proposed, including *Fund-of-funds* (non-controlling shareholding); *Co-investment*; *VC investment subsidy* (risk subsidy) and *VC comforting subsidy* (investment guarantee) (Table 1). The Chinese approach to the public venture capital funds shows an apparent influence by the Israeli Yozma model, which emphasises leveraging private venture capital through indirect co-investment rather than direct public equity investment.

<< Table 1 >>

Because of the emphasis on decentralization and local experimentation with market reforms, the private sector development in China has been greatly influenced by local conditions, including the attitudes of local government towards the role of the market (Atherton and Smallbone, 2010). An emphasis on local decision making about policy formulation and implementation is also important because it is at the local level that policy makers can get close to the real needs of entrepreneurs and their business, which has a strong tradition during the reform period of local experimentation and adaptation of the central government policy to the needs of local economic development (Li and Rozelle, 2003). The local government expected to forge mutual and complementary partnership with some venture capitals to correct market failure. It means that the local government should explore the feasibility of leveraging the abundant capital and specialized business expertise from the private sector for financing high-tech start-ups. Li and Matlay (2006) identify decentralisation as the main source for the local empowerment. In turn, local empowerment is construed as the main motivating factor that promotes local entrepreneurship involving multiple stakeholders in China.

## **Research methods**

This paper adopts a qualitative approach with a case study to get insights into the early stage development of VCGF in China. According to Mintzberg (1983), good sources of evidence in qualitative research include interviews and documentation.

Benbasat *et al.* (1987) indicate that the goal of data collection from various sources is to obtain a rich set of data regarding the specific research questions and to catch the contextual complexity.

The eastern provinces and municipalities of Jiangsu Province, Zhejiang Province, Guangdong , Province Shanghai City and Shandong Province account for almost half of all private enterprises in China (Atherton and Smallbone, 2010). This research selects Hangzhou City, Zhejiang province as the main research site. It is one of the most developed cities in China which has witnessed the rapid development of high-tech industry. In addition, VCGF in Hangzhou City was on the list of top ten VCGFs in China in 2012 (Hangzhou Municipal Government, 2012).

The primary data in the paper were collected through semi-structured interviews in August 2010 and April 2011. Purposive sampling method was adopted in this research (Miles and Hubermann, 1994). We interviewed four government officials (referred to as Interviewee A), five CEOs of venture capital institutions (referred to as Interviewee B) , two business managers of VCGF (referred to as Interviewee C) and four senior managers of high-tech start-ups (referred to as Interviewee D). Each interview lasted for about one hour on average. The interviews covered the financing difficulty of high-tech start-ups, the strategic resources possessed by private venture capital institutions and local government officials, the approach Hangzhou municipal government adopted to finance high-tech start-ups. All the interviews were recorded and transcribed. Secondary data used in the paper included policy documents published by Hangzhou Municipal Government.

### **Case study: The operation model of VCGF in Hangzhou City, East China**

Located at the southern wing of the Yangtze River Delta, Hangzhou City is the provincial capital of Zhejiang province. It has a population of 8.1 million. There are 200 villages and towns (districts), including 31 villages, 99 towns and 70 sub-districts, with a total area of 16,596 square kilometres, including the urban area of 3,068 square kilometres. Under the jurisdiction are eight districts, three county-level cities and two

counties. SMEs play an important part in the regional economy. At the end of 2010, there were over 75,000 SMEs in the city, contributing to 50% of local tax revenue, 75% of Gross Domestic Products (GDP) and 80% of employment. Hangzhou Municipal Government has financed the local SMEs with an annual fiscal budget of RMB 200 million since 2005 (Hangzhou Municipal Government, 2012). It has been delivering the public fund for supporting local high-tech start-ups, including subsidized credit programs, guarantees with special fiscal budget to encourage the local commercial banks to offer bank loans. In addition, it has established a special fiscal fund to finance the approved investment projects of local high-tech SMEs directly. However, there are still recognized gaps to meet the financing demand from the high-tech start-ups.

*“For our company, it is quite hard to deal with financing problems. ... Moreover, due to the limitation of non-current assets and cash flow, our company cannot acquire enough loans from banks. Therefore, what we can do is to rely on ourselves or borrow money from our relatives and friends.” (Interviewee D2)*

Therefore, Hangzhou Municipal Government decided to establish VCGFs to leverage the private capital to finance high-tech start-ups and promote the rapid development of high-tech industry in 2008.

*“As you know, the fiscal budget of local government for supporting high-tech start-ups is always limited. In addition, the local government is not familiar with the operation of financial market, which could be illustrated more or less by the under-expected performance of traditional practices. Thus, the only way to handle the financing troubles of local high-tech start-ups is relying on the support of the local government to attract more private capital or venture capital to the high-tech industry. ” (Interviewee A4)*

#### *The operation model of VCGF in Hangzhou City*

In 2008, Hangzhou Municipal Government followed the central government of China to set up a VCGF to finance high-tech start-ups with a total fiscal budget of RMB 100 billion. It established Hangzhou VCGF Management Committee to oversee the

operation of fund (Hangzhou Municipal Government, 2012). The VCGF in Hangzhou City makes “Periodic Investment” by Hangzhou High-tech Venture Capital Management Co., Ltd to invest in VC funds as a non-controlling shareholder for about five years to attract talented fund managers and private venture capital institutions to the region and “Follow-up Investment” by Hangzhou Tai Bang Venture Capital Co., Ltd and Hangzhou Tong Hui Venture Capital Co., Ltd to invest in high-tech start-ups following other VCs (Figure 1). By the end of July 2011, twenty public-private venture capital funds had been established with the leading domestic venture capital institutions through the means of “Periodic Investment”. Their investment in 57 projects amounted to RMB 812 million, among which 30 were high-tech start-ups. All the projects by “Follow-up Investment” were high-tech start-ups in the field of e-commerce, software development, new energy, clean technology and bio-technology. Focused Photonics Inc. (FPI), which received “Follow-up Investment”, was listed at the GEM (Growth Enterprises Market) Board, Shenzhen Stock Exchange on 15 April 2011 (VC China Net, 2012).

<< *Figure 1* >>

#### *The role of Hangzhou Municipal Government*

Hangzhou Municipal Government formulated the *Guidelines on the Operation of Venture Capital Guiding Fund in Hangzhou City* in 2008 and updated the policy document in 2010. The new document clarifies that the VCGF is a public fund working as a leverage to secure private capital to encourage the development of high-tech start-ups instead of seeking profit maximization (Hangzhou Municipal Government, 2012).

In order to improve the public services for venture capital companies and local high-tech start-ups, Hangzhou Scientific Bureau of Hangzhou Municipal Government established Hangzhou Venture Capital Investment Service Centre in 2008. The service centre offers a series of business services to the venture capital companies and the local high-tech start-ups through project briefing, financing consultancy, brokerage service and coaching for new ventures. About 40 financial institutions are stationed at

the service center and 118 investment and financial corporations have joined the membership of the service center. The total amount of venture capital accumulated by the service center exceeds RMB 10 billion. Therefore, Hangzhou Venture Capital Investment Service Centre has become a comprehensive investment and financing platform specifically for financing the high-tech start-ups (Hangzhou High-tech Pioneering Centre, 2012).

Meanwhile, due to the fact that there is still a shortage of professional financial talents to manage the Fund of Funds, Hangzhou Municipal Government has adopted reward policies to encourage equity investment and attract high-tech entrepreneurs and professional venture capitalists to the city.

#### *The role of private venture capital institutions*

Our interviews indicate that the venture capital market in China is immature compared with those in the developed countries. There is still lack of an eco-system for the development of venture capital industry in China. Since there are many investment opportunities, some private venture capital institutions think it unnecessary to take high risks in investing high-tech start-ups. The investment projects with VCGF support in Hangzhou city have been largely successful. This high success rate in PPP is a rare phenomenon in a mature venture capital market, for example, as the most possible outcome of a venture-backed investment is failure or modest success in the United States (Lerner, 2002). The costs involved in investment appraisal and monitoring are fixed regardless of the size of investment and these costs are likely to be highest in the case of investment in technology-based start-ups due to the requirement for more detailed information to understand the new technology and potential markets (Mason and Harrison, 2004), which further results in the reluctance of venture capital institutions to participate in. A typical criterion of venture capital institution for selecting an investment target was “high growth SME with IPO potential” in China. Some venture capital companies participating in the VCGF have focused more on the pre-IPO SMEs instead of nurturing hi-tech start-ups. Therefore,

the VCGF scheme in Hangzhou City exhibits the typical feature of short-termism.

*“We have established RMB funds in various areas including Hangzhou City because Zhejiang province is famous for SME industrial clusters. If we can cooperate with the local government, we will be able to find out the potential leading SMEs in the regional industrial clusters. In the short-run, American venture capital model is not suitable for China because the VC market here is still immature.” (Interviewee B2)*

The current arrangements appear to be associated with weak mechanisms for managing information flow. Asymmetric information can lead to market failures in the financing of early-stage entrepreneurial ventures-much more than in other parts of the financial sector (Lelarge *et al.*, 2008), as entrepreneurs may possess more information about the nature and characteristics of their products and processes than potential financiers (OECD 1997; 2004).

*“There is still ample room for the further development of venture capital industry in Hangzhou city. But we are facing two challenges. Firstly, the financial needs from those high-tech start-ups have not been satisfied fully because some private venture capital firms are unwilling to take high risks during the venture investment. Secondly, the information asymmetry is a common problem for most venture capital companies because there is huge uncertainty in high-tech start-ups regarding the opportunistic behavior by entrepreneurs.” (Interviewee B3)*

The shortage of professional fund managers is another big challenge for most of venture capital corporations in Hangzhou city.

*“We need to recruit more professional investment talents. They can not only find out potential high-tech start-ups, but also assess those potential investment programs. As far as the management process is concerned, it is difficult for us to satisfy all the expectations of high-tech start-ups, such as management consultation” (Interviewee B6)*

*The strategic exchange between the local government, private venture capital institutions and high- tech start-ups*

The VCGF in Hangzhou City aims to improve effectiveness and efficiency of venture investment by introducing competition and market-oriented operating mode in

financing hi-tech start-ups. The private venture capital institutions specialize in identifying and investing in those high-tech start-ups with potential growth under the market-oriented principle. Whether the VCGF can succeed would be determined by the strategic exchange between the local government and private venture capital institutions to ensure a balanced allocation of risks and returns from investment.

*“Financing activity is a kind of market behavior. In other words, it is the strategic exchange between the local government, hi-tech start-ups and venture capital institutions. Hence, there are three key issues, namely, the market-oriented operational mode, sharing the risk and returns of venture investment.”*  
(Interviewee C1)

The commercial operation and independent decision-making of private venture capital institutions are guaranteed through the design of equity structure. Hangzhou Municipal Government has avoided imposing the excessive interference with the operation of private venture capital companies. The investment decision has been delegated to the professional fund managers as the interviewee indicates.

Each partner involved is expected to be well prepared for offering what the other partner desires, which contributes to strengthening and sustaining the partnership with joint efforts for shared strategic vision. For instance, the local government is interested in the abundant capital and business expertise from the private counterparts, while the input of public capital, returns of investment and shared information have been mentioned repeatedly by the interviewees in the private venture capital sector for the proposed partnerships. Both sides of partnership need to cooperate with each other, and share the risks of venture investment.

The local government in China possesses more *strategic* resources than that in developed countries including fiscal capital, tax incentives, listing quotas. Business promotion is potentially another strong attraction to private venture capital institutions.

*“Relying on the guarantees from the government, those SMEs, whether in the*

*initial stage or in the mature stage, can be a little easier to get some loans from the specific bank than ever. Moreover, the Financial Services Department of Hangzhou Municipal Government also attempts to set a series of favorable policies to encourage high-tech SMEs to be listed at the stock market for broadening funding channels.” (Interviewee A3)*

In addition, the local government in China usually links VCGF to multiple policy objectives. For example, the VCGF in Hangzhou City is closely related to the promotion of regional industrial development and industrial upgrading. There has been inter-city, provincial or regional competition for attracting venture capital or other forms of private capital.

Maintaining the equilibrium of strategic exchange is obviously critical in mechanism formation of public-private partnerships in financing high-tech start-ups. Hangzhou Municipal Government has adopted the following model of VCGF to realize the strategic changes among the local government, private venture capital institutions and hi-tech entrepreneurs ( Figure 2).

<< Figure 2 >>

In the designed model, the public-private partnerships for financing high-tech start-ups involve the local government, private investors and fund managers with their respective roles and desired goals. The government investors, including the public agencies on behalf of the provincial, municipal, and county district governments, invest a portion of public capital with information services for targeting the size or sector of investment in high-tech start-ups and agree to share the lower rate of return with shared risk in its participation. However, previous literature indicates that the local government usually has different objectives from the private sector venture capitalists (Brander *et al.*, 2010), which are often reflected in “mandates” received by the VCGF from the Chinese governments. One possible mandate consideration in our paper is on promoting technological innovation and industrial upgrading by stimulating participation of private venture capital companies. This principle is typically reflected by the fact that the government fund to private fund ratio is even lower than government programs in other developed countries. However, the

government intervention is inevitable under the institutional context of China. Supervision on capital flow for the investment direction by the local government is a distinctive role to ensure the fulfillment of “mandate” and further to maintain a long stable relationship with private partner.

Maintaining information flow is another key aspect to ensure an effective establishment of PPP. Since the VCGF is established for targeting local high-tech start-ups, information flow from high-tech start-ups to the public and private equity holders is particularly important to ensure goal congruence among the three parties. Educating entrepreneurs is also critical to the process, as they may have a great deal of confidence, but relatively little understanding of the expectations of potential strategic partners (Lerner, 2010). All stakeholders should be informed of the business affairs associated with the plan, progress and outcomes of venture investment. This role can be achieved by means of a well-designed information disclosure system and an internal regular reporting mechanism, thereby strengthening efficient communication and facilitating partnership for both sides.

### **Conclusions and policy implications**

This paper has attempted to provide a preliminary observation and review on the operational mechanism and potential challenges of VCGF to finance high-tech start-ups in China. From the government point of view, VCGF leverages more private capital to the high-tech industry. The financing sources for local high-tech start-ups could be favorably broadened and the supply of capital available would be magnified in folds from the public sector with the partnership of private venture capital corporations. Public-private partnerships integrate the capital of both public and private partners for financing high-tech start-ups and serve to leverage more private capital to flow into the venture capital industry by the demonstrating effect in China. The desirable demonstration effect of partnership is through creating strategic exchanges between the local government and the venture capital companies. The local government makes use of VCGF to correct market failure by acquiring funding and

professional capabilities to offset their weaknesses.

The case study of VCGF in Hangzhou City indicates that the private venture capital is expected to cooperate with the government for more desirable investment opportunities to increase their returns and match with acceptable risks. The investment risk in high-tech start-ups is supposed to be shared by *two* parties in partnership, thereby keeping the potential profit and loss from investment within their respective accepted scopes and boosting their investment confidence. However, there is non-alignment on objectives within this partnership, which results in short-termism rather than long-term stable relationship.

The interviews indicate that the investment in high-tech start-ups is not always perceived as an attractive target to private venture capitalists since there are a large number of investment opportunities available in China. Therefore, promoting the venture capital market by stimulating private investors engagement is a crucial step to create the foundation of PPP from the local government perspective. However, a balance needs to be reached and maintained between achieving the objectives of investing in high-tech start-ups and attracting private capital. The financing constraints experienced by SMEs are conventionally attributed to the existence of information asymmetries (Mason, 2009). Therefore, forging an adequate service center as a platform by the local government largely facilitates information flow between the private venture capital corporations and high-tech start-ups at the assessment and evaluation stage. In addition, gathering the information by the local government on current level of entrepreneurial activity in the local market, the decision-making process of the investment has been mainly delegated to private investors. Under the specific Chinese context, the strategic resources possessed by the local or provincial government such as the IPO assistance are a distinctive factor to encourage participation in the investment in high-tech start-ups by private venture capital corporations.

The local government in China has tried to introduce the market orientation in financing high-tech start-ups. However, the practice that VCGF is best led by the private venture capital companies does not really fit into the business environment

and institutional context of China. The government funding is mainly driven by policy and serves “mandates”, because of speculative characteristics in the venture capital industry of China. VCGF has to be developed and structured under the supervision of government shareholder. However, at operational level of VCGF, both public and private stakeholders should follow the market-oriented principle by minimizing the intervention or control over business decisions of high-tech start-ups. In addition, a well-designed reporting mechanism is also required to monitor the performance of high-tech start-ups by the local government and private venture capital companies.

The case study has important policy implications for the venture capital companies that intend to participate in the VCGFs of China. The local government in China usually plays a dominant role in the VCGFs due to the strategic resources it possesses. Under its specific institutional context, the PPP approach needs to be interpreted differently from the strategic level to the operational level in China to improve the performance of VCGFs.

## References

Atherton, A and Smallbone, D. (2010), "State promotion of SME development at the local level in China, an examination of two cases", *Journal of Chinese Entrepreneurship*, Vol. 2 No.3, pp.225-241.

Atherton, A (2008), From 'fat pigs' and 'red hats' to a 'new social stratum': the changing face of enterprise development policy in China, *Journal of Small Business and Enterprise Development*, Vol. 15 No.4, pp.640-655.

Barro, R. and Sala-i-Martin, X. (2003), *Economic Growth*, MIT Press, Cambridge.

Benbasat, I., Goldstein, D. and Mead, M. (1987), "The case research strategy in studies of information systems". *MIS Quarterly*, Vol. 11 No. 3, pp. 369–386.

Brander, J., Du, Q. and Hellmann, T. (2010), "Governments as venture capitalist: striking the right balance, globalization of alternative investments", working papers vol.3, The Global Economic Impact of Private Equity Report 2010, World Economic Forum (WEF).

Chen, J. (2010), "China's venture capital guiding funds: policies and practice", *Journal of Chinese Entrepreneurship*, Vol. 2 No.3, pp.292-297.

Colombo, M.G., Luukkonen, T., Mustar, P. and Wright, M. (2010), "Introduction, venture capital and high-tech start-ups", *Venture Capital*, Vol. 12 No.4, pp. 261-266.

Cosh, A and Hughes, A. (2003), *Enterprise Challenged*. ESRC Centre for Business Research, University of Cambridge, Cambridge.

Cumming, D.J. and MacIntosh, J.G. (2006), "Crowding out private equity: Canadian evidence", *Journal of Business Venturing*, Vol. 21, pp.569-609.

Cumming, D.J. and Johan, S. (2009), "Pre-seed government venture capital funds", *Journal of International Entrepreneurship*, Vol. 7, pp. 26-56.

Cumming, D.J. (2007), "Government policy towards entrepreneurial finance: innovation investment funds", *Journal of Business Venturing*, Vol. 22, pp.193-235.

EVCA White Paper (2010), Closing gaps and moving up a gear: The next stage of venture capital's evolution in Europe, European Private Equity & Venture Capital Association, Brussels.

Gompers, P.A. and Lerner, J. (1999), *The Venture Capital Cycle*, MIT Press, Cambridge.

Gompers, P.A. and Lerner, J. (2001), “The venture capital revolution,” *Journal of Economic Perspective*, Vol.15, pp.145-168.

Gilson, R.J. (2003), “Engineering a venture capital market: lessons from the American experience.” *Stanford Law Review*, Vol. 55, pp.1067-1103.

Hangzhou High-tech Pioneering Centre (2012) An introduction of Hangzhou Venture Capital Investment Service Centre. [http://www.hhpc.gov.cn/showart.asp?art\\_id=288](http://www.hhpc.gov.cn/showart.asp?art_id=288). Accessed on 16<sup>th</sup> January 2012.

Hangzhou Municipal Government (2012) About Hangzhou, <http://eng.hangzhou.gov.cn/main/zpd/English/AboutHangZhou/index.shtml>. Accessed on 1<sup>st</sup> February 2012.

IMF (2004), *Public-Private Partnerships*, International Monetary Fund, Washington D.C.

INNO GRIPS (2009), *Public-private partnership for financing innovative SMEs*, European Commission’s Directorate General Enterprise and Industry.

Ke, Y., Liu, X. and Wang, S. 2008, “Equitable financial evaluation method for public-private partnership projects,” *Tsinghua Science and Technology*, Vol. 13 No. 5, pp. 702-707.

Lelarge, C., Sraer, D. and Thesmar, D (2008), *Entrepreneurship and Credit Constraints Evidence from a French Loan Guarantee Program*. Cambridge: National Bureau of Economic Research.

Lerner, J. (1999), “The government as venture capitalist: the long-run impact of the SBIR program”, *Journal of Business*, Vol. 72 No. 3, pp. 285-317.

Lerner, J. (2002), “When bureaucrats meet entrepreneurs: the design of effective ‘public venture capital’ programs”, *Economic Journal*, Vol. 112, pp. F73-F84.

Lerner, J. (2009), *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed and What to Do About It*. Princeton University Press, Princeton and Woodstock.

Lerner, J. (2010), “The future of public efforts to boost entrepreneurship and venture capital”, *Small Business Economics*, Vol. 35, pp. 255-264.

Li, J and Matlay, H. (2006), "Chinese entrepreneurship and small business development: an overview and research agenda", *Journal of Small Business and Enterprise Development*, Vol. 13 No. 2, pp. 248 - 262.

Li, H. and Rozelle, S. (2003), "Privatizing rural China: Insider privatization, innovative contracts, and the performance of township enterprises," Discussion Papers 00001, Chinese University of Hong Kong, Department of Economics.

Mason, C.M. and Harrison, R.T. (2004), "Does investing in technology-based firms involve higher risk? an exploratory study of the performance of technology and non-technology investments by business angels", *Venture Capital*, Vol. 6 No. 4, pp. 313-332.

Mason, C.M. (2009), "Public policy support for the informal venture capital market in Europe: a critical review", *International Small Business Journal*, Vol. 27, pp. 536-556.

Nelson, R. and Phelps, E. (1966), "Investment in humans, technical diffusion and economic growth", *American Economic Review*, Vol.56, No.1/2, pp.69-75.

Miles, M.B. and Huberman, A.M. (1994), *Qualitative Data Analysis: An Expanded Sourcebook*, Sage Publications, London.

Mintzberg, H. (1983), "An emerging strategy of direct research", in Van M.J. (Ed.), *Qualitative Methodology*, Sage Publications, London.

OECD (1997), *Government Venture Capital for Technology-based Firms*, Organization for Economic Cooperation and Development, Paris.

OECD (2004), *Venture Capital: Trends and Policy Recommendations*, Science technology industry, Organization for Economic Cooperation and Development, Paris.

Peters, B.G. (1998), "With a little help from our friends: public-private partnerships as institutions and instruments", in Pierre J. (Ed.), *Partnerships in Urban Governance: European and American Experience*, pp. 11–33, St. Martin's Press, NY.

Romer, P. (1990), "Endogenous technological change," *Journal of Political Economy*, Vol.985, No.2, S71-102.

Smallbone, D. and Welter, F. (2009), *Entrepreneurship and Small Business Development in Post Socialist Economies*, Routledge Studies in Small Business, Routledge, London.

Solow, R. (1994), "Perspectives on economic growth," *Journal of Economic Perspectives*, Vol. 8, No. 1., 45-54.

UNCTAD (1995), *Issues Concerning SMEs' Access to Finance*, the United Nations, Geneva.

UNCTAD (2001), *Survey of Good Practice in Public-Private Sector Dialogue: Enterprise Development Series*, the United Nations, New York and Geneva.

VC China Network (2012), Focused Photonics Inc., the first follow-up investment project, was listed successfully.

[http://www.vcc.com.cn/news\\_details.asp?info=zxpt&info\\_kind=001004&ID=1355](http://www.vcc.com.cn/news_details.asp?info=zxpt&info_kind=001004&ID=1355)

Watson, T.J. (1994), *In Search of Management: Culture, Chaos and Control in Managerial Work*, Routledge, London.