CHINA’S VENTURE CAPITAL INDUSTRY:
INSTITUTIONAL TRAJECTORIES AND
SYSTEM STRUCTURE

by

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China’s venture capital industry:  
Institutional trajectories and system structure

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ABSTRACT

The current structure of China’s venture capital industry is a recent phenomenon emerging from decades of government-led technology policy and a still-transitioning business system. This paper first traces the institutional and policy trajectories that have led to the current complex system in which technology-based new venture firms are being created and financed. It then compares the types of venture capital firms—government, corporate, university and foreign-backed—that have emerged in recent years as the primary agents financing new ventures in China. Case studies of venture capital firms and ventures that have been funded by them are used to identify general trends and important challenges to China’s current system for establishing and nurturing new technology-based firms.

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INTRODUCTION

The Chinese government has always seen science and technology as a critical part of its search for economic development and national security. Venture capital in the Chinese context, therefore, has been promoted not as a means to private gain, but as a critical mechanism for linking scientific and technological capabilities and outputs on one hand, with national and regional economic and social development on the other.

No longer, however, do policymakers or analysts ask the naïve question of whether China’s venture capital industry will follow the “Silicon Valley model”, that of some other country or region, or develop into a distinctive “Chinese” model. Although still developing, China’s venture capital industry is clearly an outcome if its particular combination of political, economic and social institutions\(^1\) and the nature of the broader changes it has been undergoing during its transition from central planning to a more market-based business system.

China’s venture capital industry, including the total set of related actors and institutions, has undergone a dramatic transformation over the last two decades. Because of its starting conditions—in particular, its legacy of inefficient central planning and socialist ideology—the results of this transformation seem particularly striking. The system that has emerged so far is highly complex in terms of variety and number of organizational actors, as well the multiple dimensions on which these actors are linked (Figure 1). This complexity is increased because all of the organizational and institutional elements are themselves changing in response to policy, technological and other developments.

Although still in flux, the system has already generated impressive results in terms of sheer scale (see Table 1). It now includes 86,000 new technology-based ventures employing 5.6 million and generating revenues of RMB 1.5 trillion. Supporting them are over 200 venture capital firms, at least 130 publicly listed firms, 465 technology business incubators, and 53 high-tech zones, as well as the central bureaucracies and provincial and municipal governments.

This paper examines the development, structure and key issues facing China’s venture capital industry and its impact on new technology ventures. Although by no means stable in terms of structure or dynamics, we are able to discern certain trends and trajectories. We are also able to understand the nature of the outcomes of this system to date regarding the development of new technology ventures, various forms of venture capital firms and

\(^1\) In this paper, we use the term “institutions” in the sense of North (1990), as “rules of the game” and including disembodied systems of practices, norms, and regulations; the legal system and financial system are in this sense institutions; in contrast to Nelson (1992) and others who use the term to indicate actors (such as universities) or a cluster of actors (educational system).
organizational structures supporting them. We relate these features of the system to indicators of its performance, as well as the current and emerging issues affecting its further development.

POLICY AND STRUCTURAL LEGACY

Venture capital represents a set of major institutional and organizational changes in China, especially compared to the central planning system operating into the 1980s. The timeline in Table 2 presents the major policy and business developments related to China’s VC industry since 1984. Although the result has been dramatic, the series of changes are best seen as evolutionary and primarily driven by China’s larger objective of national technological and economic development. As such, key changes in China’s science and technology policy and business system structure during the transition era can be linked to the emergence and nature of China’s venture capital industry. In this context, venture capital is simultaneously an extension of prior policy trajectories, as well as a potential answer to problems that other policy initiatives have not been able to solve.

Three changes during the transition from central planning to the (still evolving) market-oriented business system represent the principle policy and structural antecedents for China’s venture capital industry. First, a growing number of policymakers and ministries have developed an increasingly sophisticated perception of cause-and-effect relationships linking technological and economic development. By the late 1970s, pragmatic leaders had recognized the inefficiencies and lower effectiveness of a centrally planned economy in practice. The R&D system in China under central planning and lasting until the early 1980s comprised a large number of organizations specialized in particular industries and in specific stages in the value chain (i.e., research, development, manufacturing, distribution, etc.), each answerable to one or several parts of the central and often local government, but with little or no horizontal linkages and information flows between these functionally specialized actors. Innovation was primarily initiated by central government ministries and bureaus, within the guidelines of the State Planning Commission’s (SPC) national plans. These bureaucracies claimed both authority and responsibility for initiatives such as technological development, adoption, upgrade or transfer, as well as for definition of production output and distribution.

Accordingly, science and technology development efforts were driven by policy objectives, and from 1956 the priority was on developing research and production capabilities in atomic energy, electronics, semiconductors, automation, computers and rocket technology

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2 For a fuller account of this transition in China’s national innovation system, see Gu (1999), Liu and White (2001).
(McDonald, 1990), and it also injected massive resources into ultimately successful mission projects, developing atomic and hydrogen bombs (1964, 1967 respectively) and launching satellites (1967). This system structure and innovation dynamics stands in stark contrast to that of most developed countries, in which large firms play a central role in R&D, undertake activities across the value chain (although certainly not completely independently), and make their own decisions regarding science and technology initiatives, funding and outputs.

The complete dependence on the central government for targeting and providing resources for innovation, however, created an environment in which there were no incentives for organizational actors in the innovation system—research institutes and manufacturers, in particular—to introduce, adopt or diffuse innovations proactively. There was no market competition, profit, nor other operational efficiency-based criterion for their performance. In this context, many of the reforms introduced in the 1980s can be interpreted as the central government’s willingness to experiment with a new institutional structure that would be more effective at introducing, transferring and exploiting new technology. The emergence of a few successful entrepreneurs—for example, Stone Electronics—also spurred the central and local government to re-examine its S&T policies and related institutions.

The first wave of reforms in the 1980s had two objectives. The first was to increase science and technology outputs, reflecting the assumption that a greater supply of technology would lead to greater diffusion and implementation, which would support both technological and economic development objectives. During the same period, and part of the larger reforms underway in China from the early 1980s, the government began to shift responsibility and, more gradually, authority for resource allocation decisions from the central government bureaucracies to the operational organizations (research institutes, manufacturers, and others). This was accompanied by increased responsibility and alternatives for improving financial performance, either by generating or increasing revenues or winning competitive project funds from the government (Naughton, 1994; Child, 1994)

These reforms, however, were not as successful as hoped in terms of bringing new products to market and improving the technological base of China’s (predominantly) state-owned industries. Policymakers began to realized that generating more S&T outputs was not enough. Increasingly, policymakers became aware of the importance of linkages across functional activities and stages of research, development and manufacturing (White and Liu, 1998, 2001; Liu and White, 2001). Prior reforms that decentralized most resource and operational decisions had at the same time largely removed the central government as the mechanism linking functionally specialized organizations. Studies of the innovation process in
other contexts, however, emphasize the critical importance of linking activities and resources across the value chain. Successfully managing such linkages is a challenge, even within the same organization. In the Chinese context, where linkage had to occur across organizational boundaries, linkage was even more difficult. This realization led the government to pursue both cross-organizational and internal solutions to this problem of linkage. Perhaps the first major initiative was in 1985 when it encouraged the establishment of technology markets (auctions in which research results are traded). This was followed by encouraging of state-owned manufacturers to establish R&D centers internally, promoting mergers between S&T organizations and manufacturers, and allowing S&T institutes to undertake manufacturing operations to exploit the technology they developed.

By the end of 1980s, however, it became clear that only the technology markets and functional diversification of S&T institutes were having a significant impact. Mergers of research institutes and manufacturers have been extremely rare, and those that have been implemented have been conflictual and the results disappointing. One problem was that cash-strapped SOEs were not able to support the additional financial burden of supporting a research institute (Gu, 1999). Establishing R&D centers and capabilities within manufacturers has been primarily window-dressing, with little evidence that such centers have actually contributed significantly to innovative capabilities and outputs, beyond simple quality control or analysis. The general lack of related managerial experience and expertise has been a major barrier to such centers invigorating innovation within SOEs (Gao and Fu, 1996).

Although technology markets, first initiated in 1985, have grown dramatically by all measures—numbers of markets operating, transactions, value—they have primarily encouraged technical consulting relationships, rather than the transfer of S&T results (technology transfer) or joint development. The instances of these technology market transactions involving truly collaborative activity across organizational boundaries have been rare, however, and even less so when the technology is closer to commercialization. Gu (1999) emphasizes the difficulty of market-type exchanges in transfers of resources in which there is a high degree of uncertainty, and this is particularly true of joint development relationships in which often the outcome and even process cannot be specified ex ante. Indeed, this is one factor explaining the different strategies that SOEs have used to acquire resources with different degrees of uncertainty (White and Liu, 2001). The lack of absorptive capacity (Cohen and Levinthal, 1990) on the part of most SOE recipients also hinders the use of technology markets in transferring technology or collaborative R&D. Indeed, the degree of internal R&D capabilities was a key factor predicting
joint development versus simple technology transfer in China’s pharmaceutical industry (White, 2000).

In addition to the sources of difficulty in managing such relationships in any context, collaboration across organizational boundaries has been severely hampered by China’s inadequate institutional environment for governing such relationships. This includes an immature corporate legal code—especially contract law—and its uneven enforcement, and ambiguity regarding intellectual property rights; i.e., which individuals or organizations have legitimate claim over what type of property rights. After the government bureaucracies withdrew from their central planning era roles as governors of interorganizational relationships, S&T organizations and enterprises must rely on formal contracts and trust (whatever the source of that trust; e.g., Zucker, 1986). As long as actors perceive that there is a high risk of opportunistic behavior by a partner, with no effective legal or other safeguards, they will rationally try to avoid such relationships. This helps explain why the instances of interorganizational collaboration have increased in the area of academic research (as seen in the increase in number of papers being published by collaborators in different types of organization), but a simultaneous decrease in joint patenting over the same period (Liu and White, 2001).

These disincentives and barriers to collaboration and technology transfer, and the economic potential for significant revenues by exploiting the technology internally, could be argued to have created too strong incentives for the institutes to implement new technology themselves. These research institutes and universities lacked financial resources and capabilities in manufacturing, sales and distribution, and these resource and capability gaps could result in the technology being under-exploited (Liu and White, 2001).

By the mid-1990s, central government policymakers still had not found an effective solution to the basic objective that had initiated China’s reform period in the late 1970s. Although refined somewhat in terminology as it became loosened from communist ideology, leaders were still searching for the best means to develop and derive economic value from new technology to support national developmental goals. Furthermore, their basic policies, institutions and practices to promote new technology ventures had not changed significantly since the mid-late 1980s.

Thus, the system that emerged in the 1990s consisted of three primary institutional actors providing resources for these ventures. First, R&D institutes and universities played the primary role at the start-up stage, providing both the original technology and seed capital for the venture. The Torch Program’s actual financial contribution to these new ventures was relatively
minor. Instead, the primary benefit of being designated as a Torch Program project was the signal it gave to banks to provide loans to these ventures for technology commercialization.

The technology that was the substance of these projects was typically embodied in the spin-off of an entire institute, one of its sub-units, or a group of individuals. Various estimates suggest that such institute-initiated new ventures represented approximately half of such ventures operating in technology zones, or over a thousand such ventures, by 1993 (Gu, 1999:83). The source institution, using its new authority to allocate resources, would also provide financial support. For example, of the new technology enterprises founded in Beijing, an average of 85% of their start-up capital came from the originating institution.

Accordingly, the next set of actors who played an important role in new technology ventures were the banks, who were the primary source of financing. They, rather than the government, provided the majority of the investment in spin-off projects under the Torch Program. Although representing only 10% of that investment in 1988 when the Torch Program began, their share increased to 50% by 1990 and 70% by 1991 (Gu, 1999:352). The banks themselves did not have the capability or access to critical information to assess risk at this initial start-up stage. Instead, they relied on a project’s designation as a recipient of Torch Program support as policy guidance. The majority of bank financing, however, was available only at the expansion and later stages of the new ventures, with local governments acting as guarantors. Even into the mid-1990s, banks were the main financers of new venture expansion, but essentially absent as financers at the seed capital and start-up stages of these ventures.

Technology zones were the third source of support for new ventures, officially sanctioned in 1991 and extending a local experiment by the Wuhan government in 1987. These became a key source of support for new technology ventures. Gu (1999) has described them as an institutional interface between the new ventures and the broader, and in some ways inadequate, socio-economic system into which the ventures were founded. First, they provided incubator functions, including physical space and infrastructure. Second, they licensed the new ventures in order for them to qualify for preferential treatment under the Torch Program and other government policies, and to access funding from various sources, especially banks and venture capital firms. Local governments supported them because, by locating in these zones, the new ventures were seen as contributing to local economic development.

**Venture capital as a solution to new venture investment bottleneck**

The policies, institutions and actions over the 1980s and early 1990s resulted in a large number of new technology ventures being founded in China before a separate venture capital
industry and related institutional regulations were established. However, by the mid-1990s, central government leaders recognized that the current system for establishing new ventures, as a means of pursuing broader national developmental objectives, had reached its limits. There were several features of the current system that lead to that view. First, the supply of initial stage seed capital was too small, in effect dependent as it was on the very limited resources of research institutes and universities. Banks were strapped by their non-performing loans, and increasing loans to inherently high-risk ventures was untenable. Similarly, neither the central nor local governments had the surplus funds to step in as alternative financers of new ventures. An institutional bias against financing individual private ventures also represented a barrier to possibly promising new ventures being established.

In addition to the limits of the existing system to finance new ventures, the system also did not provide the legal and institutional support necessary to channel available funds to new ventures. The government did not recognize venture finance organizations—i.e., venture capital firms—as a legitimate organizational type. Until it did, such financing was either internal, as the institutes and universities allocated their own resources to new ventures, or a category of central or local government funding, whether through the Torch Program, zone incubators, or other funds targeted to new technology venture support. Although the China New Technology Venture Investment Corporation was formed in 1986, it was founded by the State Science and Technology Commission and the Ministry of Finance and operated as an SOE. As such, it was essentially a central government agency with the mandate to support national technology venture policy objectives, rather than a profit-oriented private enterprise.

A broader issues that was particularly relevant for new venture investment was the lack of an adequate legal framework and enforcement to enable new types of investors to provide financing to new ventures. This same problem has already been cited as one reason for the rarity of truly collaborative development activity between organizations, and the failure of technology markets to encourage research institutes to transfer commercially promising technology to enterprises. If parties do not have confidence in formal (or informal) institutional safeguards, such as contract law, then they will rationally avoid exposing themselves to the resulting risk of a transaction. This was exacerbated by the generally murky state of property rights in China regarding who has what rights over the use, rent extraction and transfer of assets (Steinfeld, 1998). Venture capital, defined as high-risk equity investment, is not possible if there is no legal definition and protection of ownership over a new venture’s assets.

Gradually, from the mid-1990s, the perception of venture capital shifted from its being a type of government funding, to being a commercial activity necessary to support the
commercialization of new technology. Foreign VC firms had already been allowed to register as commercial enterprises in China in the 1980s, although their investment activities were extremely limited by the lack of suitable investment projects.\(^3\) The founding of domestic VC firms began with the establishment of local government-financed venture capital firms (GVCFs), followed by university-backed VC firms (UVCFs). With Announcement No.1 at the Ninth Conference of the NPC in 1998, however, corporate-backed VC firms could be established, and there was a wave of foundings involving government, corporate and foreign capital.

From that point, venture capital shifted from being a topic of policy research, discussion and experimentation, or a form of government subsidization of new technology ventures, to being a rapidly growing segment of China’s commercial financial system. The next section describes the structure of today’s VC system that has emerged in the years since venture capital was formally sanctioned. It identifies the key actors and their relationships in the context of founding and financing new technology-based ventures in China.

**STRUCTURE OF THE VC INDUSTRY**

The venture capital industry that has emerged from China’s policy, structural and institutional trajectories described in the preceding section is represented in Figure 1. As a system, it represents the current albeit evolving “solution” in China for funding and nurturing technology-based new venture firms. It is diverse and complex in terms of both types of actors, as well as the diversity of interactions among them.

Because many of these differ significantly from the structure of venture capital systems in other national contexts, it is useful to describe the categories of actors and the nature of their relationships. The actors can be variously categorized, for example, distinguishing among them based on ownership or control (e.g., government bureaucracies, government-controlled organizations, and relatively autonomous organizations), or primary role vis-à-vis new technology ventures (e.g., provider of financing, knowledge resources, or political and social support). Because of the government’s central role, we begin with a description of bureaucratic and government-linked actors in the system. We then describe the newer actors that have emerged, including different types of venture capital firms, as well as the new ventures themselves.

\(^3\) The main channel for foreign private equity in China before 1992 were China Direct Investment Funds; see Bruton and Ahlstrom (2002).
Government as enabler

As the first section described and as is clear from the timeline of events (Table 2), the government has played a central role in the development of China’s venture capital industry. The Ministry of Science and Technology (MoST, formerly the State Science and Technology Commission) was the primary champion, interpreting venture capital as a key factor behind the success of the high-tech industries in the United States. In the Chinese context, venture capital came to be seen as a means of linking science and technological development on the one hand, with national economic development on the other. During the transition period, MoST was able to garner support from other key central government bodies, including the State Council, State Planning Commission, and the Chinese Communist Party leadership. This top-level support then led the way for bringing on board other important bureaucratic actors; in particular, the Ministry of Finance and local governments.

The result of these developments has been a de facto division of labor between central government bureaucracies and local governments vis-à-vis new venture firms. The central government has played three important roles. First, its transition-era policy of decentralization of responsibility and authority has created the institutional space for lower level actors—both local governments and science and technology organizations (i.e., research institutes and universities)—to act entrepreneurially and undertake new activities. The result for local governments is discussed below. This has allowed research institutes and universities to spin-off organizational sub-units, people and even who organizations to become the basis of new venture firms.

The second important role has been to provide legitimacy to technological entrepreneurship as a commercial activity and to new ventures as legal entities. Thus, the funds that have flowed directly from central government sources to new ventures, for example, serve a more important role as a signal to other actors rather than as a source of financing. Indeed, these funds are more accurately described as “leading funds”, serving as a signal to local governments and banks that the venture is politically and socially legitimate and a qualified recipient of financial and other support.

Finally, the third important role of the central government has been to create an institutional environment conducive to technology-based new venture development. Although still under development, the government has made impressive strides towards aligning the legal and financial systems more closely to the goal of establishing a market-oriented business system. For venture capital and new venture firm development, key institutional elements
include corporate law governing the status and activities of legal entities, investment, contracts and intellectual property; regulation of foreign capital and enterprises; and the stock market and other elements of the capital markets.

Compared to the central government, local governments have played a much more direct role in the development of new ventures and supporting infrastructure. Of course, one reason that local governments have responded so positively to central government’s initiatives in this area is the still considerable control of the central government over key rewards to individuals and organizations that stand out as supporters and implementers of policy initiatives. This is exercised through the still major role that the central government and Communist Party exert over upper level personnel appointments, both in government and enterprises.

Broader support for central government initiatives within local governments, however, is motivated by the same fundamental objective as that of the central government; i.e., the consensus that greater exploitation of local science and technology resources can support economic and social development objectives, albeit focused on the local rather than national level. Indeed, the local governments have an increasing incentive to pay attention to local economic growth, as central government support for both their budgets and local enterprises (especially SOEs) has dropped sharply, concomitant with an increase in authority for pursuing economic growth.

For these reasons—pursuit of recognition, searching for revenues and employment opportunities—local governments have responded enthusiastically to the incentives and opportunities to foster new technology-based ventures in their regions. More than the central government, the local governments—specifically, the local departments of finance, bureaus of the science and technology committee, and high-tech zone administration departments—have provided a range of direct support to new ventures. For example, the departments of finance have created government-backed guaranty companies to guarantee bank loans to local ventures, in addition to direct financial support to new ventures. The local governments have also allowed these firms greater operating autonomy, including offering competitive compensation to their employees.

Local governments have also used high-tech zones and specific incubators organizations within these zones to support the development of new technology ventures. They provide various levels of support to new firms, including tax exemptions and reductions, physical space at low rental rates, leasing, better social services, and other preferential conditions. In 1991, after the State Council authorized local governments to provide VC funds through these zone administrations, their role and activities increased dramatically. As a result, by 1992 there were
already 52 high-tech zones established throughout China, 5,569 new technology ventures were registered, and their combined output was estimated at RMB 23 billion (Gu, 1999:39). By 2000 the number of new ventures in these zones had exceeded 20,000 (Table 1).

The central government considers the zones to be a successful policy initiative. From MoST’s perspective, these zones have generated benefits in two areas (Chen, 2002). First, they have provided the structure in which local governments can express their creativity by adopting and improving the policies and activities related to these zones. They have allowed experimentation in terms of administrative structure, market-oriented operations, and human resource management, all in line with the overall thrust of economic reforms underway in China. Second, the zones have contributed significantly to the commercialization of China’s S&T outputs by non-government S&T firms, as well as by serving as an important base for training and education. They have also helped enhance the competitiveness of these firms by supporting their continual innovation capabilities.

Coinciding with the development of S&T zones in the early 1990s, incubators emerged in force. They were first founded within zones as extensions of the original services provided by the zone administration within the local government. The 465 incubators registered nationwide are now found both within and outside zones, and receive funding from all of the sources backing VC firms. Indeed, some of these incubators are even treated as a category of new technology venture firm by their investors. The outputs of these incubators are impressive; by 2000, nearly 4,000 firms had emerged from them, including 32 that had been listed on the stock market (Table 1).

The local government usually provides incubators—whether within or outside S&T zones—with physical infrastructure and favorable policies, such as related to leasing space, tax incentives and basic services. A number go even further, acting as intermediaries and providing training and management services. This could even be to the extent of providing platform software services, although usually through a larger industrial firm with those resources and capabilities.

Now, anyone may establish an incubator as a for-profit firm. Beijing, with the largest number of incubators, has special policies for promoting incubators, regardless of their location vis-à-vis zones, and whether backed by the government, corporations or other private financing. There is a licensing process by which an incubator is authorized as such by the Beijing Science and Technology Commission, including standards of operation and assessment by a group of experts. Authorized incubators are re-examined every two years to confirm that they still meet these requirements.
Many zone or government-backed incubators are actually state entities, with many of the managers coming from the government. As a result, in many of these organizations, incentives are inadequate, nor do these managers have the expertise to provide strong support and expanded value-added services. University-based incubators are better than pure government-backed incubators in terms of both their internal systems and human resources. Corporate-backed incubators are even more strongly focused on creating profit and value than the other types. Of course, they are liable to an overemphasis on short-term profits at the expense of longer-term investment and development. Although university, corporate and purely private incubators may not be under direct government control, most still seek local government support, especially related to physical space, infrastructure supply and tax incentives.

**Venture capital firms and their investors**

Venture capital firms have become the primary source of funds for new technology-based ventures in China, with the total number operating estimated at 210 as of 2002. There are, however, four distinct categories VC firms, each with different antecedents, objectives and operating characteristics. Table 3 presents a comparison of these four types, will examples of each presented in Table 4.

The first type to appear in China were the government VC firms (GVCFs). Although the first such venture capital firm was established by the central government (SSTC and MoF) in 1985 (beginning operations in 1986), those that followed were all controlled by local governments, usually led by the local bureau of the science and technology commission and supported by the finance department of the local government. Although local governments were their initial source of financing, over time and with changes in the regulatory environment, they have diversified their funding sources. Indeed, they are increasingly dependent on listed and cash-rich enterprises to keep up their investment capacity.

GVCF’s linkages to the local government and thereby new venture developments in those zones represent preferential access to information and investment opportunities. This can also be a weakness, however, since they are also susceptible to local government pressure to support new ventures whose risk and return prospects are not attractive. They also are not able to attract the most experienced or capable managers, so their ability to assess, monitor and intervene in new venture management is limited.

University VC firms (UVCFs) emerged in large numbers from 2000. They benefit tremendously from their university ties, giving them privileged access to new venture investment opportunities, as well as intimate information about the ventures. On the other hand,
they also suffer from some of the same weaknesses as the GVCFs. Specifically, their investment opportunities are in practice limited to those that emerge from the university, and they do not have the managerial expertise related to venture capital investing. Another weakness is that the universities usually are not cash-rich, so they depend more and more on other sources of investment capital; again, publicly listed and cash-rich enterprises have become their primary backers. Although there are examples of research institutes founding VC firms (e.g., the Chinese Academy of Science is a major investor in Shanghai New Margin Ventures (Shanghai Lianchuan Touzi)), they are too few to represent a major category of VC firm. They do, however, share the same advantages and disadvantages of UVCFs.

A wave of corporate VC firms (CVCFs) were founded in response to the “No. 1 Proposal” of 1998, and they now represent the majority of VC firms operating in China. Beijing High-Tech Venture Capital Ltd. and Beijing Venture Capital Ltd. were the first CVCFs, founded in October 1998. Their strong government backing, however, causes many to perceive them as firms under the Beijing government’s commercial holding company. From early 1999 there was a wave of true corporate-backed CVCFs, although they still sought local government support. Their managers typically come from securities firms, banks or industry.

Listed companies have been the primary source of funds for CVCFs (see Table 5 for examples). These firms had received massive infusions of cash when they went public, much more than they could use on productive internal investments. They were also looking for promising new areas of business. Many also thought that the Chinese government would soon establish a second board for listing new ventures (on the model of Hong Kong’s Growth Enterprise Market), and this would provide a lucrative exit for venture-stage investors. The media had also fueled popular interest in venture capital, although the coverage was shallow and did not educate the public about the inherent risk in such investments.

As a result, by the end of 2001, 132 public listed companies had invested in CVCFs, accounting for 11% of all listed companies. Additional sources of backing for CVCFs include unlisted firms with large cash flows, individual investors, and foreign firms. Often these investors are directly involved in the industries in which the CVCF invests, and are able to draw on their backers’ industry and managerial capabilities to assist ventures in which they invest. In addition to any financial returns to their investment, the CVCF can help the corporate investors identify related new business opportunities. At the same time, new ventures benefit from these links to potential suppliers and customers, in addition to the financing that they receive.

CVCFs and their backers, however, had invested in ventures with the expectation that the investees will list quickly. They have not proven themselves to be interested in long-term
development of the new ventures. As the government has postponed establishing a second
board, however, their timeframe for realizing a return on their investments is becoming
unexpectedly longer and longer. A number of these CVCFs have suffered heavy losses, pushing
some into bankruptcy.

Finally, foreign VC firms (FVCFs) have entered China and become a major source of
new venture financing. As of 2001, eight of the top ten VC investors in China were foreign
firms, and 14 of the top 20 (Table 5). Like the domestic CVCFs, most of the FVCFs are backed
by multiple investors, although a few (e.g., Intel Capital) are the investment arms of single
firms.

Several characteristics distinguish FVCFs from the other types of venture capital firms
operating in China, besides their legal form (usually limited partnerships). One fundamental
difference is their focus on high-growth or high-potential investment targets, not necessarily
high-tech. They also have greater expertise in venture capital management. Zhang and Jiang
(2002) found that the managers in domestic venture capital firms averaged 2.1 years of relevant
experience, while those of FVCFs operating in China averaged 11.9 years. These firms also
have stronger incentives that both retain managers and give them incentives to manage
investments for longer-term gains. The FVCFs are usually also able to provide linkages to
potential customers and partners in foreign markets.

Because of these differences, FVCFs are able to provide more value-added services to
their investees. They are also more active in terms of monitoring and top-level (but not usually
operational) decision-making. While FVCFs typically take part in board meetings at least once
per quarter (and often monthly), less than half of the domestic VCs participate so frequently.
On the other hand, FVCFs are more politically vulnerable and lack the intimate connections to
government bodies, enterprises and universities that benefit other types of domestic VC firms.

**New technology ventures**

The focus of all of the government and firm actors introduced so far is, of course,
China’s new technology ventures. Although this category includes a wide variety of firms, there
are a number of characteristics that they commonly share. First, a large number of ventures are
spin-offs from research institutes or universities. Until recently, these were the only sources of
entrepreneurs. Increasing numbers, however, are now coming from industrial firms. Linkages
to such organizations, and their tacit or explicit support, were a critical feature of China’s
earliest technology-based ventures founded in the mid-late 1980s; i.e., Stone, Founder and
Legend (Lu, 2000). They continue to be necessary in practice today, even if not a formal
requirement. These spin-offs range from small numbers of individuals, to sub-units within the source organization, to entire organizations in the case of corporatized institutes. The technology and capabilities that form the basis of the new venture are embodied in these individuals, sub-units and organizations. Individuals without linkages to such organizations, in contrast, often face an uphill battle in securing funding; in practice, they do not have access to most sources of venture capital unless they have special ties to industrial firms.

Another feature is the industries in which these new ventures, and most venture capital financing, are concentrated. They are insignificant in traditional industrial sectors, although FVCFs are more likely to invest in these areas, and more and more domestic VC firms are seeing such sectors as promising. Still, the majority of new ventures are in the information technology industry—hardware, software and services. Because IT has an impact on all sectors, however, the new technology developed and diffused by these ventures has a broad impact on the economy as it increases the efficiency and effectiveness of enterprises in all areas. More recently, biotechnology related ventures have emerged as a significant area, representing a recognition of the potential this area represents as well as a shift in investor attention since 2001 from disappointing internet projects. MoST now cites a somewhat expanded list of technology areas as priorities for development and commercialization: electronics and IT; biotechnology; new materials; integration of optical, mechanical and electronic components; new energy, high-efficiency energy, energy saving technology; and environmental protection (Chen 2002).

**VC FIRM INVOLVEMENT IN NEW VENTURES**

A comparison of domestic and foreign venture capital firms vis-à-vis their investees in China provides insights into not only the nature of the relationship between VC firms and investees, but also insights into the stage of development of China’s VC firms themselves. Zhang and Jiang (2002) find a number of key differences, supporting those uncovered by Bruton and Ahlstrom (2002) in a recent study.

First, Chinese VCs are less active in their monitoring of investee management than foreign VCs. For example, foreign venture capital firms require financial reports more frequently. While almost all FVCFs require monthly financial reports, only two-thirds of domestic VCs required monthly reports. FVCFs also retain veto rights, while fewer domestic VCs obtain such rights.

Second, domestic VCs exercise weaker influence over their investee management decisions than do FVCFs. For example, they use staged investment in the same round of
financing less frequently than FVCFs. Also, they are less likely to make follow-on investment and cash flow rights of entrepreneurs contingent on the venture’s performance. While domestic VCs are beginning to introduce stock option plans more generally into investee firms and often only to top management, FVCs almost always introduce stock options into investee firms and for all employees.

Finally, the domestic VCs provide much less to investees in terms of value-added services. While FVCFs usually take part in board meetings at least once per quarter (and often monthly), less than half of the domestic VCs participate so frequently. Indeed, an underlying difference between these types of firms is that the domestic firms in general do not see addressing operational issues of investees as an important part of their development, or their role as investors. Instead, they concentrate their monitoring and participation on the financial aspects of the investee firms.

One reason for some of these differences, already alluded to in the description of FVCFs and domestic venture capital firms, is that domestic VCs are much less experienced than their foreign counterparts. This can explain their more restrained involvement in investee firms—they do not have the experience base to justify taking a leading role in many top management issues. It also explains the limited value-added services they provide to investees. Although capital has been raised quite quickly, the experience and expertise to invest, monitor and support investee firms takes much longer to develop.

FVCFs also tend to invest at earlier stages than domestic VC firms. Since mid-2001, as new investment funds became scarcer and domestic VC firms needed to generate profits, this divergence has become even more pronounced. VC in China has shifted from the development stage to latter stages, such as the growth and pre-IPO stage firms. Of course, the government policies of each region differ, and the investment strategies of VCs in different regions differ, in terms of timing, etc. For example, VC investments in Beijing are concentrated on post-development stage ventures, while in Shanghai start-up stage investments are more common. Similarly, VCs backed by universities tend to invest in start-up stage ventures. The CVCFs, however, are more focused on realizing returns sooner rather than later, and are increasingly wary of inherently risky and uncertain projects. Since they are the primary source of venture funds, this shift represents a contradiction between the desires of the government for VC to nurture early stage high-tech firms, and the logic of the market represented by VC firms’ decisions.

Both domestic and foreign venture capital firms, however, face the same challenge in interacting with management in new ventures. Although perhaps not limited to China, many
local entrepreneurs are extremely reluctant to allow “outsiders” (including investors) into the firm. They tend to perceive such outside involvement as a potential loss of control or power. This perception has been exacerbated by the media, which has tended to position “capital” and “knowledge” (venture capitalists and entrepreneurs, respectively) as opponents, rather than as working toward a common goal and mutual gain.

**CURRENT AND EMERGING ISSUES**

Venture capital and the commercialization of new technology has emerged as a major contributor to China’s development and sustained economic vitality. The government has played a key role in the development of both the venture capital industry and the new technology ventures it has supported. Rather than a systematically executed plan, however, the current state is better conceived as the result of an emerging process, the outcome of a co-evolution of bureaucratic structures (incubators, technology zones), policies, institutions, and new types of firms.

As such, it should not be surprising that there are still a number of critical issues facing China’s venture capital industry, some of a more fundamental nature and others specific to particular actors within the industry. One fundamental issue that is particularly relevant in the context of China’s system-wide shift in resource allocation mechanism from central planning to the “market” is reflected in one venture capitalist’s comment during an interview:

*Different new firms, first relying on their own capabilities, and then being selected for or against by the market. The appearance of VC represents one more selection mechanism, in that the VC makes the choice in place of the market. Whether or not the outcome of that type of selection mechanism [VC] is better depends on the relative capabilities of the VC firm and market to select. For example, in the case of dot-coms, the frenzied choice of VCs was not effective. Actually, besides the USA, Israel, Taiwan and a few other countries and regions where VC has been successful, in the larger number of places VC has not been successful, including Germany and the UK. Therefore, saying that VC is another selection mechanism is not equivalent to saying that it is right around the world… VC is essentially another way to distribute resources, one that may be better than the government, but not necessarily better than the market. That is why VC may not succeed in China, or might not even be necessary. It’s still a question.*

The fundamental concern is whether venture capital will act as an effective mechanism for allocating capital, given the particular institutional and other characteristics of China’s business system. In order for the answer to be affirmative, it will be necessary for China’s
domestic venture capital firms to make dramatic improvements in their operations. They must increase their expertise related to selecting, monitoring and supporting new ventures. They must also improve their internal structure and management systems to be more in line with their business activities and requirements as investment managers. Such improvements are critical if domestic venture capital firms are to compete with foreign firms operating within China. So far, they are far behind in all critical performance measures.

A key issue for both domestic and foreign venture capital firms is the government’s continued postponement of the establishment of a second board for new venture listings. Although vexing from the venture capitalists’ point of view, this delay has probably been fortuitous from a public policy perspective. During the period 1999 to early 2001, most of China’s domestic venture capital firms had just been established, and they had massive amounts of capital to invest. Without a second board, however, they were reluctant to invest in early stage ventures. This was in contrast to the foreign firms, who were much more aggressively targeting early-stage projects.

It is for this reason that while most of the investment in dot-com projects during this period resulted in losses for VC firms everywhere, including those in China, it was the foreign VC firms who suffered most in China. They brought their investment model to China, which was typically to invest in a returnee (a Chinese who had some technical or business experience abroad, and who returned to China to establish a new business) who had put together an attractive management team and business plan. Many of these FVCFs were themselves dot-coms who had tremendous resources from their own public offerings and valuable stock, such as Softbank. The Chinese VCs, however, were established rather late in the dot-com boom, and with hindsight were lucky not to have been able to make major investments in these extremely high-risk and eventual failed ventures. The fallout from the dot-com bust, therefore, was relatively minor for Chinese venture capital firms as a group.

Thus, the delay in establishing the second board in China can be seen as perhaps appropriate, given the relatively immature state of both domestic venture capital firms and the new technology ventures in which they would invest. If the second board were established, they may have too strong an incentive to pursue early-stage investments before they have the necessary experience and expertise to manage such projects. The venture capital firms still have considerable learning to do before they are able to manage the risk inherent in such investments. There are already signs that Chinese VC firms are moving in this direction. For example, they are taking longer in studying investment proposals, and more often pursuing joint investments with other VC firms as well as industrial firms. They have also essentially stopped investing in
start-up stage projects, and instead shifting their portfolios to almost exclusively expansion and pre-IPO projects. They will gain valuable experience through these relatively lower-risk investments and strategies.

Although the more subdued environment is difficult for investors and investees alike, it does provide a calmer environment in which the government can study and develop policy. The results to date have not been completely satisfactory, and there have been major problems between venture capital firms and investees. The government still has much work to do in strengthening and clarifying China’s entrepreneurial finance system. This includes issuing relevant laws regulating VC firms, as well as carefully considering the types of policies for promoting venture capital and new ventures. This also includes increasing coordination among government bureaus and reducing dysfunctional competition between, for example, MoST and the State Planning Commission.

A fundamental issue that is still not limited to the venture capital industry is the question of the proper role of government in the business system. Critics have argued that the central government was too directly involved in the VC industry. That its own (and the first domestic) venture capital firm went bankrupt does not speak well of the government’s capabilities as a venture capital investor. The same limitations are ascribed to local governments, who have also been quite directly involved. Their weakness is one cause of the lack of competitiveness of most government-backed GCVFs. As of yet, there is no clear answer regarding the optimal role and degree of involvement of the government in the further development of the venture capital industry. The consensus, however, seems to be calling for a less interventionist and supportive role in terms of creating appropriate institutions.

CONCLUSIONS

China’s venture capital system is still immature in terms of the resources and capabilities of most of the constituent organizational actors, as well as the institutional environment in which they operate. Therefore, while the indicators of the system’s ability to support the development of new technology ventures and the commercialization of China’s S&T resources are impressive, there are number of major weaknesses. Currently, venture capital firms do not have the expertise or operational mechanisms to adequately select and manage new technology ventures, nor have they been able to add much value beyond financing. Because their incentive structure biases them towards late-stage investment projects, these venture capital firms are not acting as a channel of funds to true start-ups, in contrast to the governments hopes in promoting
venture capital. After an initial spike of activity in the late 1990s to 2001, the system is not in a stage of consolidation and evolutionary change. This period should allow domestic venture capital firms to build up necessary experience and expertise, and also allow government actors to introduce appropriate policies, regulations and incentives to support the venture capital industry so that it has a positive impact on new technology venture development.
REFERENCES


TABLE 1

Status and performance of elements of China’s VC industry(1)

**Technology-based new ventures**(2)
- approximately 86,000 nationwide (8.3% increase yoy)
- employ 5.6 million (14% increase yoy)
- combined revenues of RMB 1.5 trillion (40% increase yoy)
- reported profits of RMB 100 billion, remitted taxes of RMB 78 billion (39% increase yoy)
- exported RMB 214 billion (US$26 billion; 64% increase yoy)
- spent RMB 41 billion on R&D (5.7% decrease yoy)
- main categories of ownership form: 7.3% SOEs, 16% collectives, 24% private/individual firms, 6% joint stock companies, 37% limited liability companies, 5.5% foreign-invested (from other countries, Hong Kong, Macau and Taiwan)

**Venture capital firms**
- 160 domestic VC firms, 50 foreign VC firms
- no new VCFs founded since July 2001
- several have gone bankrupt

**Science and Technology Industrial Parks, High-tech zones**
- 53 nationwide
- housing 20,800 high technology-based firms (primarily technology-based SMEs)
- employ 2.51 million
- combined revenues of RMB 921 billion
- taxes and profits of RMB 106 billion
- exports of RMB 153 billion (US$ 18.6 billion)
- location of approximately half of the projects funded by the Torch Program

**Incubators**
- 465 technology business incubators nationwide
- house 788 intermediary service agencies
- 15,449 tenant firms, employing 292,000, including:
  - 130,000 with Bachelor, Master or PhD degrees
  - 4,100 returnees from study abroad
- combined sales income of RMB 42 billion
- 3,887 firms had “graduated” and moved out of the incubators
  - 32 of these listed on the stock market

**Torch Program**
- Torch Program Projects
  - approximately 1,000 projects selected each year
  - funded by bank loans or self-raised funds
    - 2,870 national-level projects had sales of RMB 83 billion, taxes and profits of RMB 15 billion, and exports of RMB 16.5 billion (US$ 2 billion).
- Innovation Fund for Small Technology-based Firms
  - 2,900 projects funded during 1999-2002
  - RMB 2.3 billion disbursed (supplemented by RMB 22.5 billion from local governments, banks, VC etc.)

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(1) As of the end of 2000, unless otherwise noted.
(2) Small and medium enterprises in which at least 30% of the employees are S&T personnel, and R&D expenditures represent at least 5% of sales.
### TABLE 2
Key developments in China’s VC industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Government policy and regulatory</th>
<th>Enterprise and business</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>National Research Center of Science and Technology for Development (under State Science and Technology Commission, SSTC) first organizes research effort on “New Technology and China’s Countermeasures”, and suggests that a venture capital system be established to promote the development of new and high-technology.</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>The Chinese Communist Party (CCP) and State Council release “The Decision on the Reform of the Science and Technology System” that notes that venture capital could be used to support high-tech R&amp;D in areas of rapid change and high risk.</td>
<td>SSTC and Ministry of Finance (MoF) establish and fund China New Technology Venture Investment Corp., the first limited corporation in China focused on venture capital.</td>
</tr>
<tr>
<td>1986</td>
<td>863 High-Tech Program started, (10 years, over RMB 10 billion in funds for scientific research).</td>
<td></td>
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<tr>
<td>1987</td>
<td></td>
<td>China’s first incubator established by local government in Hubei: Wuhan East Lake Entrepreneur Service Center.</td>
</tr>
<tr>
<td>1988</td>
<td>Torch Program launched to promote spin-off ventures from research institutes and universities, including the government’s direct investment.</td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>State Council and Ministry of Foreign Trade and Economic Cooperation (MOFTEC) permit China Merchants Holding (Hong Kong), SSTC and Commission of S&amp;T and Industry for National Defense to establish Kezhao High-Tech Ltd. China’s first Sino-foreign joint venture in venture capital, with the mission of funding the industrialization of R&amp;D results from national high-tech plans (863, Torch).</td>
<td></td>
</tr>
<tr>
<td>1990</td>
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<tr>
<td>1991</td>
<td>State Council announces “Authorization of National High-Tech Zones and Related Policies”, allowing relevant departments to set up VC funds in high-tech zones to support risky high-tech industry development, and mature high-tech zones could set up VC corporations.</td>
<td>SSTC, MoF and Industrial and Commercial Bank of China establish the Technology Venture Development Center.</td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td>Technology Venture Development Corporations established by local governments in Shenyang, Shanxi, Guangdong, Shanghai, Zhejiang.</td>
</tr>
<tr>
<td>1993</td>
<td>Standing Committee of the NPC approves “Science and Technology Promotion Law of China”.</td>
<td>ChinaVest invests in Zindart, a new venture (but not high-tech) that listed its ADRs on NASDAQ in 1997.</td>
</tr>
<tr>
<td>1994</td>
<td></td>
<td>The Pacific Technology Venture Investment Fund of the US firm International Data Group (IDG) establishes 3 VC companies with the local S&amp;T commissions of Beijing.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
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</tr>
<tr>
<td>1995</td>
<td>CCP and State Council announce “The Decision on Accelerating Scientific and Technological Progress”, emphasizing the development of VC and establishing a technology venture capital system.</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>State Council policy document “On Further Improving China’s S&amp;T System” emphasizes the need to actively investigate and develop a VC system to promote China’s S&amp;T outputs. National People’s Congress passes “Law Promoting the Industrialization of China’s Technological Achievements”, the first legal statement allowing VC as a commercial activity and funds to be raised from national or local governments, enterprises or other organizations, or individuals to support technology ventures. SSTC sends delegation to USA to study laws and policies related to small company investment, intellectual property rights, and VC, and results discussed at meeting of local science commissions along with heads of finance departments of People’s Bank of China, 4 other state-owned banks, and other bureaus of the SSTC. At least 20 VC firms established by S&amp;T commissions and finance departments of local governments.</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>DENG Nan (daughter of Deng Xiaoping and Vice Minister of SSTC) appointed to oversee study of VC system, and directed a group from the School of Economics and Management of Tsinghua University to deliver a report with practical recommendations for a VC system structure, the relationship between VC and capital markets, and plan for establishing a VC system. 973 Program (RMB 4.5 billion) initiated to support basic research. China’s first VC firm, founded in 1985, was declared bankrupt and closed by the People’s Bank of China. Zindart, a toy manufacturer that received investment from ChinaVest in 1993, is first new Chinese venture to list ADRs on NASDAQ. New tech-based venture AsiaInfo receives US$18 million investment from 3 foreign VC firms. Sohu.com predecessor firm receives US$6.5 million investment from foreign VCs, and is first new venture in China’s IT industry to receive investment.</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Prime Minister LI Peng chairs a meeting of China’s leading policy group on S&amp;T, concluding that a general plan for a VC system be made and implemented. Vice Prime Minister ZHU Rongji forms a coordination group including the State Planning Commission, People’s Bank of China, China Securities Regulatory Commission and relevant government departments, supported by the finance research centers of the Academy of Social Sciences and the Bank of China. DENG Nan (vice minister of the Ministry of S&amp;T (MoST), formerly SSTC) discusses VC system and mainland high-tech firm listings with president of the Hong Kong Stock Exchange. After vetting with the Education Commission and Finance Commission of the NPC, MoST submits “Report on Establishing China’s S&amp;T Venture Capital System” to State Council. Proposal on developing China’s VC industry by the Central Committee of the Chinese National Democratic Constructive Association, presented at the Ninth Conference of the NPC, created a wave of VC firm foundings, including local governments’ direct investments in VC firms. Sohu receives US$2.2 million investment from foreign VCs. Kingdee receives RMB20 million investment from Guangdong Pacific Investment Corp. and joint investment by IDG and Guangdong’s S&amp;T Bureau. IDG signs cooperation agreement with MoST for IDGVC to invest $1 billion over 7 years in Chinese new high-tech ventures and promote Chinese high-tech industry. Approximately 92 VC firms active in China, with RMB 7.4 billion under management.</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>Prime Minister ZHU Rongji accepted final report of MoST.</td>
<td></td>
</tr>
</tbody>
</table>
but directed that S&T VC should be primarily support small and medium-scale enterprises (SMEs).
> Group formed by NPC to draft a VC law, on which 7 ministries would provide input and opinion before the "Procedure for Managing the Industrial Investment Fund" would be debated by the CCP and State Council and supported in their document "Decision on Strengthening Technological Innovation, Developing High-Tech and Realizing its Industrialization".
> First international discussion held regarding the drafting of the Investment Fund Law.
> Technology-based SME Innovation Fund established, overseen by MoST.

| 2000 | Beijing VC Association (formed in 1999) formally registered with government, followed by associations in Shenzhen and Shanghai.  
> First incubator funded by a private enterprise, Jinghai Business Incubator, established in Zhongguancun Science Park.  
> AsiaInfo and UTStarcom become first Chinese tech-based new ventures to list shares on NASDAQ, followed by Sohu, Sina.com and Netease. |
|------|--------------------------------------------------|
| > Shenzhen enacts the first local regulatory statutes for VC: “Temporary Regulations for VC Investing in High-Tech Industry in Shenzhen”.  
> NPC holds second international meeting to discuss the Investment Fund Law.  
> State Council announces “Policy for Encouraging the Software Industry and Promoting the IC Industry”. |

| 2001 | First limited partnership VC corporation in China established in Beijing (Beijing Tianlu VC Center), a joint venture of Tianye Corporation and the Economic Construction and Development Corporation, both of Xinjiang, and Beijing’s Sinotrust, with the chairman and President of Sinotrust appointed as CEO; closed the same year.  
> 465 incubators registered nationwide, funded by government, universities, research institutes, SOEs, private and foreign enterprises.  
> Kingdee becomes first Chinese high-tech venture to be listed on Hong Kong’s new Growth Enterprise Market (GEM). |
|------|--------------------------------------------------|
> Beijing enacts its VC regulations (“Byelaw of Zhongguancun Science Park”), regulating VC operation, organizational structure, registered funds, and means of return. Also releases “Management of Limited Liability Corporations [no.69]” to promote and regulate the development of limited VC corporations in the Zhongguancun Science Park.  
> MOFTEC, MoST and the National Industry and Commerce Administration release and enact the “Temporary Regulations for Establishing Foreign Venture Capital Corporations”.  
> VC Investment Committee of the S&T Finance Promotion Association, a semi-government organization, is established in Beijing and is the first truly cross-regional, national organization focused specifically on VC, with mission to promote linkages between government and private VC, study government environment for successful VC industry, exchanges within the VC industry, consolidate activities and experience, and develop training. Currently 132 companies and 160 individual members. |

| 2002 | Approximately 160 domestic and 50 foreign-funded VC firms active in China, but no new VC firms founded since July 2001 and investment activity considerably slowed.  
> China Venture Capital Association (CVCA) registered in Hong Kong, and now includes over 50 VC firms with a total of US$60 billion in funds and annual investments of $300-500 million annually in Greater China. |
|------|--------------------------------------------------|
| > Beijing VC Association (formed in 1999) formally registered with government, followed by associations in Shenzhen and Shanghai.  
> First incubator funded by a private enterprise, Jinghai Business Incubator, established in Zhongguancun Science Park.  
> AsiaInfo and UTStarcom become first Chinese tech-based new ventures to list shares on NASDAQ, followed by Sohu, Sina.com and Netease. |
## Table 3
### Comparison of Government, Corporate, University and Foreign Venture Capital Firms in China

<table>
<thead>
<tr>
<th>Basic features</th>
<th>Government VCF</th>
<th>Corporate VCF</th>
<th>University VCF</th>
<th>Foreign VCF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>- Ownership or legal form</strong></td>
<td>SOE and Limited Corporation</td>
<td>Limited corporation</td>
<td>Limited corporation</td>
<td>Limited partnership</td>
</tr>
<tr>
<td><strong>- Initial/primary investor</strong></td>
<td>Local government</td>
<td>Listed companies</td>
<td>University industrial group, other firms</td>
<td>Pension or other funds, corporations</td>
</tr>
<tr>
<td><strong>- Top manager background</strong></td>
<td>Government bureaucracy and SOE</td>
<td>Securities firm or bank, industry</td>
<td>University's enterprise group or other firms</td>
<td>Foreign VC funds, investment banking</td>
</tr>
<tr>
<td><strong>- Primary motivation and objectives</strong></td>
<td>Promote local high-tech industry and commercialization</td>
<td>Higher ROI than alternative investments; related business opportunities</td>
<td>Commercialization of university's S&amp;T achievements</td>
<td>High ROI</td>
</tr>
<tr>
<td><strong>- Investment focus</strong></td>
<td>High-tech</td>
<td>High-tech</td>
<td>High-tech</td>
<td>High growth/potential</td>
</tr>
<tr>
<td><strong>- Preferred stage of investment</strong></td>
<td>Early</td>
<td>Late, expansion</td>
<td>Early</td>
<td>Growth</td>
</tr>
<tr>
<td><strong>- Investment time horizon</strong></td>
<td>3-5 years</td>
<td>3-5 years</td>
<td>Not clear</td>
<td>3-7 years</td>
</tr>
<tr>
<td><strong>- Follow-on investment</strong></td>
<td>No</td>
<td>Varies</td>
<td>Varies</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>- Geographic distribution of investment</strong></td>
<td>Local</td>
<td>Local, regional</td>
<td>Universities and regional</td>
<td>Major metropolitan areas (Shanghai, Beijing, Guangzhong, Shenzhen, etc.)</td>
</tr>
<tr>
<td><strong>- Internal incentive system</strong></td>
<td>Salary + bonus</td>
<td>Salary + bonus</td>
<td>Salary + bonus</td>
<td>Salary + carried interest</td>
</tr>
<tr>
<td><strong>Strengths</strong></td>
<td>Government base provides ready-made channels to government and access to or information about policies and projects.</td>
<td>Strong financial base (proceeds from listing, cash flow from operations) gives them investing flexibility. Industry base gives them management and operational expertise that they can draw on for selecting and monitoring investments, as well as form base for related diversification and pursuing new business opportunities opened up by a new venture.</td>
<td>Strong technology base benefiting from R&amp;D activities and concentration of personnel in university; access to primary source of science and technology in China. University link provides them preferential access to those resources.</td>
<td>Professional experience in financing and managing start-ups and high-growth firms. Can draw on experience in other markets, link Chinese firms to business partners and markets abroad through foreign network of investees and related business activities. Expertise in decision-making and VC cycle, especially exit decision.</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
<td>Objectives and incentives are split between financial and social returns to investment; weaker internal incentives than FVC. Investments influenced by policy objectives. Managers may not familiar with firm management practices, systems, procedures, etc.</td>
<td>Short-term investment horizon driven by need (in listed companies) to show annual performance; availability of funds subject to firm's current operational performance in core business. Corporations not experienced with managing high-risk investments represented by investee firms. Weaker internal incentives than FVC.</td>
<td>Lack of business management experience. Same problems of internal incentives as GVC and CVC. Investment opportunities limited to those emerging within the university.</td>
<td>No strong relationship with major organizations (government, enterprises, universities) in China, so no preferential access to domestic sources of related resources. Must expend time and effort on establishing relationships to access investment opportunities.</td>
</tr>
<tr>
<td><strong>Future issues</strong></td>
<td>Local governments will not inject additional capital, so short-term investment capacity depends on ability to find alternative sources of investment funds and, later, returns to investments and financing.</td>
<td>Role in financing tech-based firms will continue to be important, and corporations will continue to be primary source of funds if pension fund, insurance cannot enter venture capital industry.</td>
<td>Lack of key expertise (firm management, VC investment) will drive them closer to Corporate VCs and Foreign VCs.</td>
<td>Further opening of China and their own good performance will allow them to exploit their VC expertise even more in China. Such expertise and linkages outside China continue to make them attractive to potential investee firms.</td>
</tr>
<tr>
<td><strong>Foundation</strong></td>
<td><strong>Government VC</strong></td>
<td><strong>Government VC</strong></td>
<td><strong>Government VC</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Province A High-Tech Investment</td>
<td>City S Venture Capital</td>
<td>City C Venture Capital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Est. 6/2000, 100% government funded with RMB 600 million from Shangdong provincial government; as a limited corporation. To promote high-tech in the region, along with economic development; also, to “compete” with the efforts of other provincial and city governments.</td>
<td>Founded 1/1998, 100% government funded, with RMB 150 million from Shenyang city government; as a limited corporation. To achieve greater returns, promote local S&amp;T industry development, and stimulate the local economy.</td>
<td>Founded 1999, 100% government funded, with RMB 300 million as a limited corporation. To promote the commercialization of local S&amp;T achievements, provide support and added value services to develop firms.</td>
<td></td>
</tr>
<tr>
<td><strong>Management and staff</strong></td>
<td>Initial managers include 15 with MS or PhD degrees, 3 studied abroad; others from provincial government and Shandong Trust and Investment Corp.</td>
<td>Initial 10 managers all from the local government. Number of investments is large, but small staff.</td>
<td>Initial 10 managers from securities firms, investment banks and industry. Staff average 5-8 years of investment experience.</td>
<td></td>
</tr>
<tr>
<td><strong>Funds and portfolio</strong></td>
<td>17 investments, some related to Shangdong Technology Market, and investment in listed company. Funds to be increased to RMB 1.2 billion by end of 2002, later to RMB 2 billion. Planning a province-wide fund with local cities, and a joint fund with foreign VC firms.</td>
<td>NA</td>
<td>Currently 23 investments. Plan to increase funds under management, invest in other regions (particularly S&amp;T zones), and help develop the equity market. Funds increased to RMB 500 million in 2001 and RMB 600 million in 2002.</td>
<td></td>
</tr>
<tr>
<td><strong>Investment strategy</strong></td>
<td>Targeted growth and expansion stage and only in Shangdong. Investments concentrated in new materials for electronics, IT, precision processing, and traditional medicine. Seldom co-invest. Would like to restructure into an investment fund and management company, and eventually become a large-scale investment and management holding company focused on high tech and investments nationwide.</td>
<td>Targeted expansion stage in Shenyang, in new materials and biopharmaceuticals. Primarily evaluate management team, future cash flow and market prospects.</td>
<td>Targeted early and expansion stage investments in Guangzhou, in IT and biotechnology, and in areas of medical devices and instruments. Joint investments with US and Singaporean companies to establish a venture investment management consulting company and pursue joint investments.</td>
<td></td>
</tr>
<tr>
<td><strong>Relationship w/investee</strong></td>
<td>Involvement in investees through board membership, financial audit, visits, management consulting.</td>
<td>Involvement through board membership and provision of management consulting.</td>
<td>Involvement through board membership and provision of management consulting.</td>
<td></td>
</tr>
<tr>
<td><strong>Learning and networking</strong></td>
<td>Send managers to training, and host outside trainers and consultants. Involvement in Shandong Technology Market and cooperation with city governments for other investment funds; participate in national and foreign cooperative investment networks. Signed cooperative agreements with accounting and law firms; searching for outside intermediaries and partners to improve investment activity and management.</td>
<td>Learn by doing. Use links to government bureaucracies, shareholders.</td>
<td>Participate in study meetings, exchange associations, etc., sponsor training, and established joint venture investment consulting company. Founded venture capital promotion association, Guangzhou Industrial Rights Market, S&amp;T guarantee, and Guangzhou International Technology Park. Cooperative relationships with banks, brokerages, universities, research institutes, investment organizations, intermediaries and incubators.</td>
<td></td>
</tr>
<tr>
<td><strong>Performance measures</strong></td>
<td>No exits so far. Reputation and impact limited to Shangdong.</td>
<td>5 exits: 1 listing on the main board, 4 by acquisition. Not well known outside Shenyang.</td>
<td>No exits so far. Well known in Guangzhou.</td>
<td></td>
</tr>
</tbody>
</table>
## TABLE 4b

### VC FIRMS: CORPORATE-BACKED CASES

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Corporate VC City B Venture Capital</th>
<th>Corporate VC City Z Venture Capital</th>
<th>Corporate VC Legend Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corporate VC</strong></td>
<td>Est. 10/1998 with RMB 500 million from 6 Beijing-based holding companies (utilities, investments, services, etc.) as a joint stock company.</td>
<td>Est.1999 with RMB 700 million by Shenzhen government’s holding company and listed companies; as limited liability company. To increase competitiveness of Shenzhen’s S&amp;T industry vis-à-vis other regions.</td>
<td>Est. 3/2001 with RMB 200 million, mainly from Legend Holdings and its employees as a limited liability company; single-company venture capital arm. Also manage HK$ 50 million fund</td>
</tr>
<tr>
<td><strong>Management and staff</strong></td>
<td>Managers from investor firms, with experience and affiliations with both government and enterprises. Currently 39 staff, 35% with PhD or MS, 18% with foreign study experience.</td>
<td>Top managers from major securities firms. 48 staff members, including 27 with MS, 8 with PhDs.</td>
<td>Four senior managing directors, 10 investment project managers and additional senior support staff.</td>
</tr>
<tr>
<td><strong>Funds and portfolios</strong></td>
<td>Currently 43 investments.</td>
<td>Funds increased to RMB 1.6 billion in 2000. 8 different funds: 3 specialized funds, 3 Sino-foreign joint funds; 7 regional investment management companies. 61 direct investments totalling RMB 530 million, plus 16 investments in other funds totalling RMB 320 million.</td>
<td>More than 7 investments; plan to establish a second fund.</td>
</tr>
<tr>
<td><strong>Investment strategy</strong></td>
<td>Investments in Beijing (with an exception in Xian) in IT, biopharmaceuticals, new materials, and modern agriculture. Target 30% seed capital, 60% growth/expansion, and 10% other activities, subject to adjustment. Working to increase investment scale and pay more attention to exit. Increasing co-investment. Government background makes some see company as having some characteristics of traditional SOE.</td>
<td>Most investment in Shenzhen, but also in Shanghai, Chengdu, Wuhan, Harbin, etc. Lead investor in approximately half of investments; co-investment cases increasing. Established Shenzhen Venture Investment Group in 10/2002 to capitalize on trends of internationalization, regionalization and specialization.</td>
<td>Concentrate in IT, esp. communications and network equipment, corporate software, IT services, semiconductor fabrication. Prefer to invest in start-up and early expansion stages, some seed and pre-IPO. Undertakes each stage of due diligence. Investment horizon 5-7 years.</td>
</tr>
<tr>
<td><strong>Relationship w/ investee</strong></td>
<td>Limited involvement in investees, but do help to establish management systems, linkages with relevant bureaucracies and tap other funds (esp. SME Innovation Fund).</td>
<td>Involvement in investee boards and post-investment monitoring. Consult on commercial scale, follow-on financing, risk management, and market development.</td>
<td>Only intervenes as board member (depending on the share percentage) or in operations if investee requests Legend’s help, although their involvement is greater than most other Chinese VC firms; for example, to introduce suitable suppliers or customers, or address management challenges.</td>
</tr>
<tr>
<td><strong>Learning and networking</strong></td>
<td>Internal training, reading materials, publishing industry news, etc. Cooperate with TianjinVC firm; promote internal investment expertise as a basis for cooperating with foreign investment funds. Receives some support from National Development Bank to further venture capital industry and policy; cooperation with China Construction Bank to develop new technology ventures; cooperative agreements with Beijing 10 strongest incubators, etc.</td>
<td>Training, strategic change, research, and joint development of venture investment companies with organizations outside Shenzhen. Participate in technology markets, cooperate with financial organizations, form Sino-foreign joint venture investment bank; other linkages with foreign venture capital; cooperate with leading corporate groups in particular industries.</td>
<td>Draws on Legend’s sources of technical and managerial expertise, links to industry actors.</td>
</tr>
<tr>
<td><strong>Performance measures</strong></td>
<td>No listing of investee companies, but 3 sales of partial stakes. Strong position in Beijing.</td>
<td>Largest VC in China, major impact in VC industry.</td>
<td>Currently the most representative Corporate VC in China, but still needs to develop expertise and experience.</td>
</tr>
<tr>
<td>Foundation</td>
<td>University VC: Tsinghua Science Park Investment</td>
<td>Foreign VC: IDG Venture Capital</td>
<td>Foreign VC: ChinaVest</td>
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</tr>
<tr>
<td>Est. 11/2000 with RMB 50 million as a limited liability corporation with 3 investors (Tsinghua’s Science Park Development Center, and 2 organizations in other regions). To meet the financing demands of start-ups in Tsinghua, and exploit opportunities created by Tsinghua’s S&amp;T capabilities and outputs.</td>
<td>Parent organization established in USA as subsidiary of IDG publishing; limited partnership. Created US$ 50 million region-focused Pacific Development Venture Fund in 1993; investments in 15 Asian countries. First entered China in 1994 with joint venture funds with S&amp;T commissions of Beijing, Shanghai and Guangdong.</td>
<td>Est. in 1983 by partners from the USA. To take advantage of human resources and new opportunities from China’s reforms, but also throughout Greater China.</td>
<td></td>
</tr>
<tr>
<td>Staff and offices</td>
<td>Most employees have MS or PhDs; managers have overseas study and work experience; investment managers have MBAs from Tsinghua, but limited investment experience.</td>
<td>Managers and partners are primarily PRC nationals with an international background. HQ for China in Beijing, with branches in Shanghai, Guangzhou, Tianjin, Shenzhen, in addition to US offices in Boston and Silicon Valley.</td>
<td>Partners from the USA, although each have more than 20 years of experience in Asia in investment banking and management consulting. Offices in Beijing, Hong Kong, San Francisco, Shanghai and Taipei.</td>
</tr>
<tr>
<td>Funds and portfolios</td>
<td>7 investments.</td>
<td>100% foreign funded. In 1998 established a fund of US$ 1 billion for investment in China. 85 investments in China.</td>
<td>5 funds under management, totaling US$ 300 million. Over 30 investments in Greater China.</td>
</tr>
<tr>
<td>Investment strategy</td>
<td>Main investment focus is IT related ventures. Non-controlling shareholder. Relatively many co-investments; usually not the lead investor.</td>
<td>Investments concentrated in high-tech industries, esp. global networks, information services, software, telecommunications, networking. Choose investments in ventures with strong prospects of providing products or services to growing markets.</td>
<td>Regional focus, but not an industry focus (high-growth, not just high-tech). Original focus on manufacturing, now services and high-tech since end of 1990s; diversifying into name brand consumer services, media, telecom and IT, distribution, and value-added manufacturing. Usually lead investor.</td>
</tr>
<tr>
<td>Relationship w/ investors</td>
<td>Involvement through participation on boards, financial audits, occasional visits.</td>
<td>No involvement in daily operations. Assist investees in strategy, financial planning, sales and distribution network, and market development; bring in outside consultants, introduce potential partners.</td>
<td>Help investees attract managers and capable board members, develop operations; develop M&amp;A opportunities.</td>
</tr>
<tr>
<td>Learning and networking</td>
<td>Established internal management system for project management, investment management, HRM, etc. and emphasize training, domestic and international conferences, encourage self-study. Tsinghua connection gives it access to research institutes nationwide. Cooperative agreements with a law office and 2 accounting firms.</td>
<td>Draws on IDG’s global network for resources.</td>
<td>Board members include public officials. Continuous study of Greater China markets, government policy, and developments; also attract top Chinese human resources. Act as a bridge between US capital and Chinese entrepreneurs.</td>
</tr>
<tr>
<td>Performance measures</td>
<td>Still developing, and no strong reputation or major impact on VC industry.</td>
<td>10 exits (8 by acquisitions, 2 by overseas listing—NASDAQ and Hong Kong GEM. One of the most influential VCs in China. By becoming involved in China early, has had an influence on the course of the industry.</td>
<td>Exits include 2 listings on NASDAQ and numerous acquisitions. Wide reputation inside and outside China as first and successful China-specialized fund; has attracted attention domestically and abroad.</td>
</tr>
</tbody>
</table>
**TABLE 5**  
Examples of listed company involvement in VC firms

**Neusoft (Dong Da A Er Pai Ruan Jian Gong Si),** a leading software firm, has invested approximately 70% of Liaoning East Information Industry Venture Capital’s RMB 100 million registered capital. That VC firm focuses on IT, especially software and digital technology projects.

**Wanxiang Group (Wan Xiang Ji Tuan),** an automobile parts manufacturer, invested RMB 200 million of the RMB 300 million registered capital of Wanxiang Venture Capital Co., Ltd, which funds biotech and pharmaceutical, IT, environmental protection, new materials, and other technology-based projects.

**Ancai High-Tech Co. (An Cai Gao Ke),** a producer of key components for TVs, invested RMB 200 million, representing 97% of a new venture capital firm’s registered capital.

**China Youth Travel Service (CYTS, Zhongqinglu Konggu),** a diversified firm in the travel industry, is a major shareholder of Beijing Venture Capital Corp., having invested RMB 125 million.

**Beijing International Trust and Investment Corporation (Beijing Guoji Xintuo Touzi),** a diversified investment company, is also a major investor in Beijing Venture Capital Corp. (RMB 125 million), as well as in Tianjin’s Taida Venture Capital Corp.

**Capital Iron and Steel (Shougang),** one of China’s largest integrated steel manufacturers, is a major shareholder of both Beijing High-Tech Venture Capital Corp. and Tsinghua Venture Capital Co.

Nearly half of Shenzhen Venture Capital’s RMB 1.6 billion registered capital was from listed firms.

Of Tsinghua Unisplendor Venture Capital’s 12 shareholders, 11 are listed companies.
TABLE 6
VCF ranking by cumulative investment in China\(^{(1)}\)

<table>
<thead>
<tr>
<th>Ranking</th>
<th>VC firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>IDG VC</td>
</tr>
<tr>
<td>2</td>
<td>Chinavest Ltd.</td>
</tr>
<tr>
<td>3</td>
<td>Intel Capital</td>
</tr>
<tr>
<td>4</td>
<td>Shenzhen Venture Capital Co.ltd.</td>
</tr>
<tr>
<td>5</td>
<td>H&amp;Q Asia Pacific</td>
</tr>
<tr>
<td>6</td>
<td>WI Harper Group</td>
</tr>
<tr>
<td>7</td>
<td>Baring Private Equity Partners(Asia)</td>
</tr>
<tr>
<td>8</td>
<td>Goldman Sachs(Asia)Ltd.</td>
</tr>
<tr>
<td>9</td>
<td>Vertex Management</td>
</tr>
<tr>
<td>10</td>
<td>Walden International</td>
</tr>
<tr>
<td>11</td>
<td>Beijing Venture Capital Co.,Ltd.</td>
</tr>
<tr>
<td>12</td>
<td>Guangdong Technology Venture Capital Group(GVCGC)</td>
</tr>
<tr>
<td>13</td>
<td>Shanghai Venture Capital Co.Ltd.</td>
</tr>
<tr>
<td>14</td>
<td>NewMargin Venture Capital</td>
</tr>
<tr>
<td>15</td>
<td>Draper Fisher Jurvetson</td>
</tr>
<tr>
<td>16</td>
<td>Warburg Pincus</td>
</tr>
<tr>
<td>17</td>
<td>Government of Singapore Investment Corporation</td>
</tr>
<tr>
<td>18</td>
<td>Soft Bank China Venture Capital</td>
</tr>
<tr>
<td>19</td>
<td>The Carlyle Group</td>
</tr>
<tr>
<td>20</td>
<td>Transpac Capital</td>
</tr>
</tbody>
</table>

Source: http://www.zero2ipo.com.cn

\(^{(1)}\) as of 2001
FIGURE 1

Actors and flows in China’s VC industry

**TECHNOLOGY-BASED NEW VENTURE FIRM**

- **Government VC firm (GVC)**
- **University VC firm (UVC)**
- **Corporate VC firm (CVC)**
- **Foreign VC firm (FVC)**
- **Guaranty companies**
  - Corporate-backed guaranty companies
  - Govt.-backed guaranty companies

**Organizational spin-offs**

- **Incubators**
  - Hi-Tech Zone specific
  - Outside Hi-Tech Zones

**LOCAL GOVERNMENT**

- Science & Technology Committee
- Department of finance
- Ministry of S&T
- SME Fund
- Ministry of Finance
- Research Institutes Universities
- Bank
- Stock Market
- Venture Capital Firms
- Government VC firm (GVC)
- University VC firm (UVC)
- Corporate VC firm (CVC)
- Foreign VC firm (FVC)

**FLOWS**

1. Money
2. Infrastructure/support
3. Management know-how
4. Favorable policies
5. Grant
   - a: Equity
   - b: Dividends, capital gain
   - c: Principle, interest
   - d: Fees
   - e: Business opportunities
   - f: Social returns
   - g: Reputation
   - h: Tax refunds

**Central Government**

- Ministry of S&T
- Ministry of Finance
- SME Fund

**Guaranty companies**

**SME Fund**

**Bank**

**Stock Market**

**University**

**Corporate VC firm (CVC)**

**Domestic and foreign private investors**

**Listed and cash-rich enterprises**

**MINISTRY OF S&T**

- **High-Tech Zone administration department**
  - **Venture capital firms**
  - **Government VC firm**
  - **University VC firm**
  - **Corporate VC firm**
  - **Foreign VC firm**

**Local Government (Provincial/Municipal, City)**

- **Central Government**
- **Research Institutes Universities**
- **Government VC firm (GVC)**
- **University VC firm (UVC)**
- **Corporate VC firm (CVC)**
- **Foreign VC firm (FVC)**

**Science & Technology Committee**