CHAPTER 10

VENTURE CAPITAL INDUSTRIES

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Innovation is an increasingly knowledge-intensive activity, and the link between such activity, small firms with high growth potential, and their funding through venture capital has been vividly established during the recent technological boom. Venture capital has provided financing for some of the most dynamic, innovative firm clusters in the world. During the past two decades, the venture capital investing phenomenon has diffused internationally—there are now 36 national venture capital associations. A short roster of U.S. firms funded by venture capital includes 3Com, Amgen, Cisco, DEC, Federal Express, Genentech, Intel, Oracle, and Sun Microsystems. In Taiwan, China, the world's leading maker of notebook computers, Quanta, and the world's largest motherboard maker, Asustek, received financial support from venture capitalists. In Israel, firms receiving venture capital funding include Amdocs, Checkpoint, and Mercury Online. From this list, it is clear that venture capital has been an important contributor to economic growth. Yet, despite this diffusion, in most nations the venture capital industry itself remains fragile and of limited significance.

This chapter examines the development and current condition of the venture capital industries in 11 East Asian economies. Interest by East Asian nations in venture capital can be traced back to at least 1951, when a director of Nomura Securities visiting New York was quoted by the *Wall Street Journal* ("Japan's Recovery" 1951) as saying that Japan suffered from

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a scarcity of venture capital. Fifty years later, nearly every East Asian economy has some venture capital, although a great disparity exists among these economies in the level of development, practices, and sophistication of venture capitalists.

Despite the existence of venture capital in East Asia, to date no Asian venture capital firm has entered the first rank of global venture capital firms (which includes companies such as Accel Partners, Greylock, Kleiner Perkins Canfield & Byers, Sequoia Capital, Warburg Pincus, and Venrock). Leading Asian venture capitalists have attributed this gap to factors ranging from an endemic lack of experienced management to overregulation, problems in educational systems (especially at the postgraduate level), a need for better funding of research, and an unwillingness of entrepreneurs to cooperate and build firms (Hsu 1999; Tan 2001). These and other reasons have prevented Asia from creating venture capital firms that are leaders on the global stage. Neither has Asia, with the exception of Taiwan, China, given rise to a sufficient number of start-ups providing the extremely large returns necessary to justify the growth of vibrant, self-sustaining venture capital industries.

Any national venture capital industry is shaped by its institutional context. The supply-side variables affecting the successful development of a venture capital industry include the level of economic development, existence of national systems of innovation, levels of entrepreneurship, labor practices, corporate ownership regulations, educational achievement, and business cultures. Critical demand-side variables are new firms commercializing new business opportunities capable of justifying high-risk equity investments. Any economy sufficiently complex to have a viable venture capital industry is most likely to have forces both encouraging and discouraging the development of venture capital and, hence, the evolution will be punctuated rather than monotonic. Quite naturally, an institution such as the venture capital industry, which is so dependent on the national (and, in some cases, subnational) environment, will experience differing national evolutionary trajectories.

Our goal is to describe the evolution of the different venture capital markets in Asia. We begin by describing venture capital as a practice and then sketch the birth and development of venture capital in the United States. A history of the evolution of venture capital in Asia follows. To simplify this discussion, we separate the Asian venture capital markets into four groups: (a) Japan and the Republic of Korea; (b) Hong Kong (China), Singapore, and Taiwan (China); (c) China; and (d) developing Asia. The venture capital industries within these four markets share many common

features. We next examine some of the common institutional issues that cut across all the Asian venture capital industries. Then we briefly discuss the situation in Asia after the dot-corn collapse. Finally, the conclusion reflects on the development patterns of the venture capital industry in Asia and its future evolution.

HOW DOES VENTURE CAPITAL WORK?

Before answering the question of how venture capital works, we must define *venture capital.* The classic definition is that venture capitalists make equity investments in small firms. This definition is narrow. For example, in Japan, the bulk of "venture capital" disbursements have been through loans to established firms. A strict definition would largely omit Japan and Korea, two of the most important economies in East Asia. So we adopt an expansive definition of venture capital for the case studies, but we use a stricter definition in our discussion of the venture capital practice so as to create an ideal type as a reference point.

In the United States, venture capital as a practice is relatively easy to define, because venture capital and private equity are quite distinct. This distinction does not hold true in most of the world. For example, both the European Venture Capital Association (EVCA) and the *Asian Venture Capital Journal* combine venture capital and private equity investing in all of their statistics. As a professional investment activity, venture capital is an older practice than private equity (although it is possible to argue that today's private equity resembles the traditional role of Wall Street financiers—that is, using capital to organize and reorganize firms and industrial sectors). For much of the world, however, private equity and venture capital are combined both statistically and in the minds of policymakers. In Europe, a large proportion of what the EVCA considers venture capital is, by U.S. standards, private equity.

Classic venture capital investing requires business opportunities that have the potential for annualized capital gains of greater than 30 to 40 percent, because investments in seed or early-stage firms experience failure rates (that is, bankruptcy or negligible growth) of at least 50 percent. Successful investments must compensate for these failures. When such opportunities do not exist, professional venture capital organizations are difficult to sustain. Venture capitalists cannot survive by funding firms that do not appreciate rapidly; thus, investments are not evaluated on the basis of social goals such as reducing unemployment, increasing research and

development (R&D), or building a community's technological tax base. The sole relevant criterion is the potential for large capital gains.

In return for investing, venture capitalists demand a significant equity stake in the firm and seats on the board of directors from which they monitor the firm. Each investment is staged, and the entrepreneurs are given milestones to be achieved before they receive another tranche of funds. Experienced venture capitalists provide more than just money, which is a salient difference between venture capitalists and passive investors. Venture capitalists actively monitor, assist, and even intervene in their portfolio firms. A venture capitalist's experience, connections, and ability can contribute to the firm's growth. The objective is to leverage this involvement to increase the recipient firm's probability of success. This involvement extends to ad hoc assistance in a variety of functions, including recruiting key persons; providing advice; and introducing the firm's officers to potential customers, strategic partners, later-stage financiers, investment bankers, and various other contacts (Florida and Kenney 1988a, 1988b; Gompers 1995). These functions are what differentiate venture capitalists from other funding sources.

Investments are liquidated through bankruptcy, merger, or an initial public offering (IPO) of stock. For this reason, venture capitalists are temporary investors and, in most cases, are members of the firm's board of directors only until the investment is liquidated.' For the venture capitalist, the firm is a product to be sold, not retained. Nations that erect impediments to any exit paths (including bankruptcy) handicap the development of venture capital. We do not mean to say that such nations will not have entrepreneurship, only that it is less likely that venture capital as an institution will thrive.

Except in Taiwan, China, the predominant institutional format for venture capital is the venture capital firm operating a series of partnerships called *funds* that raise money from investors consisting of wealthy individuals, corporations, pension funds, foundation, endowments, and various other institutional sources. The general or managing partners are the professional venture capitalists, whereas the investors are passive limited partners. The typical fund operates for a set number of years (usually 10) and then is terminated. Normally, each firm manages more than one fund; one fund is usually fully invested, another one is being invested, and a third is in the process of being raised.

1. Exceptions do exist. For example, Arthur Rock, the lead venture capitalist in funding Intel, remained on the Intel board of directors for two decades. Donald Valentine, the lead venture capitalist in funding Cisco, continues on the board fully a decade after it went public.

THE ORIGINS OF VENTURE CAPITAL AS AN INSTITUTION

Before World War II, the source of capital for entrepreneurs everywhere was either the government, government-sponsored institutions meant to invest in such ventures, or informal investors (today, termed *angels).*[2] In general, private banks, unless heavily subsidized or compelled by law, have been unwilling to lend money to newly established firms because of the high risk and lack of collateral.' After World War II, a set of intermediaries emerged in the United States that specialized in investing in fledgling firms with the potential for rapid growth. From its beginnings on the U.S. East Coast, venture capital gradually expanded and became an increasingly professionalized institution. During this period, the locus of the industry shifted from New York and Boston on the East Coast to Silicon Valley on the West Coast (Florida and Kenney 1988a, 1988b; Gompers 1994). By the mid-1980s, the ideal typical venture capital firm was based in Silicon Valley, invested largely in electronics, and devoted lesser sums to biomedical technologies.[4] Until the present, in addition to Silicon Valley, the two other major concentrations of venture capital have been Boston and New York City. Internationally, other significant concentrations of venture capital include London, Israel, Hong Kong (China), Singapore, Taiwan (China), and Tokyo.

In the United States, the government has played a role in developing venture capital, although, for the most part, this role has been indirect. For example, the U.S. government generally practiced sound monetary and fiscal policies, thus ensuring relatively low inflation with a stable financial environment and currency. Historically, U.S. tax policy has been favorable to capital gains, and there is some evidence that further lowering of capital gains taxes may have had a positive effect on the availability of venture capital. However, Gompers (1994) has shown that the most important government action in the late 1970s was a loosening of federal government regulations, thereby permitting pension fund managers to invest prudent amounts in venture capital funds.

2. On angels, see Robinson and van Osnabrugge (2000).

3. Normally, banks charge interest, a practice that, to be successful, requires the repayment of the principal. Banks cannot afford the loss of their capital when their return is only an interest payment.

4. There are, of course, important venture capital firms headquartered in other regions, and there is a diversity of venture capital specialists. For example, there are funds that specialize in retail ventures. Some of the largest venture capital funds, such as Oak Investment Partners and New Enterprise Associates, have partners devoted to retail ventures, although their main focus is information technology. So there is significant diversity and some specialization in the venture capital industry (Gupta and Sapienza 1992).

The U.S. Securities and Exchange Commission had a reputation, whether fully deserved or not, for strictly enforcing disclosure and probity. Investors perceived the NASDAQ (National Association of Securities Dealers Automated Quotation) stock market, which has been the exit strategy of choice for venture capitalists, to be strictly regulated and, in general, characterized by increasing openness, which allayed their limiting fears of fraud and deception. This general macroeconomic environment of apparent transparency and predictability reduced investor risk. Put differently, for investors, risks of fraud and other opportunistic behavior were believed to be minimized.'

Another important government policy was heavy and continuous support for university research funding that supported generations of graduate students' education in the sciences and engineering, producing trained personnel and innovations. U.S. universities, particularly the Massachusetts Institute of Technology (MIT), Stanford, and the University of California, Berkeley, played a particularly important role (for MIT, see DiGregorio and Shane 2003; for Stanford and the University of California, Berkeley, see Kenney and Goe forthcoming). In the United Kingdom, the most active region outside of London for venture capital activity is the Cambridge area, where venture capitalists draw on the university's excellent engineering and medical school faculty. [6] In Taiwan, China, the research institutes in the Hsinchu area have provided important support to start-up firms.

The most important direct U.S. government involvement in encouraging the growth of venture capital was the passage of the Small Business Investment Act of 1958, which authorized the formation of small business investment corporations (SBICs). The SBICs funded a wide variety of small firms. For the development of venture capital, the following features of the SBIC programs were significant. First, individuals could form SBICs with private funds as paid-in capital and then could borrow money on up to a 2:1 ratio. Second, there were tax and other benefits, such as income tax features, capital gains tax pass-through, and an allowance of carried interest as compensation. Third, the commercial banks could use the SBIC program as a vehicle to circumvent the Glass-Steagall Act's prohibition on bank ownership of more than 5 percent of industrial firms. The

5. The recent stock market scandals, such as the allocation of IPO shares to favored individuals by investment bankers, indicate that, at least to some degree, this transparency was more a perception than a reality.

6. The greater level of entrepreneurship in Cambridge than in Oxford is likely explained by Cambridge's emphasis on engineering and the sciences.

bank SBICs were especially important in the 1960s and 1970s. The final investment format permitted SBICs to raise money in the public market.

The SBIC program experienced serious problems from its inception. A series of government investigations found widespread misappropriation of funds, incompetence, and fraud (Bean 2001). Also, the Small Business Administration was a bureaucratic government agency whose rules and regulations were constantly changing. Despite the corruption and bureaucracy, from the venture capital point of view, something valuable also occurred. The SBICs allowed a number of individuals to leverage their personal capital, and some were so successful that they left the SBIC program and raised institutional money to become formal venture capitalists. The SBIC program accelerated their capital accumulation, and, just as important, government regulations made these new venture capitalists professionalize their investment activity, which had been informal prior to their entering the program.

The historical record also indicates that government action can harm venture capital. The most salient example was in 1973, when the U.S. Congress, in response to widespread corruption in pension funds, changed federal pension fund regulations. In its haste to prohibit pension fund abuses, Congress passed the Employment Retirement Income Security Act, which made pension fund managers criminally liable for losses incurred in high-risk investments. These investments were interpreted to include venture capital funds. As a result, pension managers shunned venture capital, nearly destroying the industry. This trend was reversed only after active lobbying by the newly created National Venture Capital Association (NVCA) (Pincus 2000; Stults 2000). In 1977, a gradual loosening of regulations commenced, which was completed in 1982. The new interpretation of these pension fund guidelines contributed to first a trickle and then, in the 1980s, a flood of new money into venture capital funds.

Israel is the nation that has most successfully adopted the Silicon Valley–style venture capital practice. The Israeli government played a critical role in the industry's emergence (Antler 2000; Avnimelech and Teubal 2002). The government has a relatively good economic record; there is minimal corruption, massive investment in the military (particularly electronics research), and an excellent higher-education system. The active interaction of Israeli entrepreneurs and venture capitalists with Israelis and Jewish individuals in U.S. high-technology industry provided an important conduit for learning and sharing knowledge. This synergy contributed to Israeli success. A well-known U.S. venture capitalist, Fred Adler, began investing in Israeli start-ups in the early 1970s and, in 1985, was involved in forming the first Israeli venture capital fund (Autler 2000,

p. 40). Nonetheless, the true creation of an Israeli venture capital industry waited until the 1990s, when the government funded Yozma, an organization encouraging the growth of venture capital in Israel. Yozma received US$100 million from the Israeli government and invested US$8 million in each of 10 funds on the condition that they each raise another US$12 million from an overseas venture capital firm (Autler 2000, p. 44). Yozma also retained US$20 million to invest itself. These sibling funds were the backbone of a now vibrant community that invested in excess of US$3 billion in Israel in 2000, although in the first three quarters of 2002 the total investment had declined to US$1.011 billion (Israel Venture Association 2004).

In the United States, venture capital emerged through an organic trial-and-error process, and the role of the government was limited and contradictory. In Israel, the government played a vital role in a supportive environment in which private sector venture capital had already emerged. In the United States, the most important role of the government was indirect, differing from the Israeli government's direct role in assisting the growth of venture capital and from India's situation, in which the government has had to be proactive in removing barriers (Dossani and Kenney 2002).

Measuring the importance of venture capital is quite difficult, because in terms of capital investment it is only a minute portion of the total economy. Moreover, the most powerful systemic benefits of venture capital come in the form of Schumpeterian innovations; however, a by-product is often the creative destruction of other industries, something that ordinary growth accounting would consider a loss. Also, it is possible that the firms backed would have come into existence without venture capital funding, because the entrepreneurs might have garnered investment from other sources or simply boot-strapped the firm by reinvesting retained earnings. For these and other reasons, accounting for the economic effect of venture capital is difficult, and any conclusions are provisional.

The anecdotal evidence of the economic importance of venture capital for the U.S. economy is powerful. In 1999, the U.S. venture capital firm Kleiner Perkins Caufield & Byers claimed that the portfolio firms funded since its inception in 1973 had a total market capitalization of US$657 billion, earned revenue of US$93 billion, and employed 252,000 persons (KPCB 2001). Although extrapolation from Kleiner Perkins Caufield & Byers, which is among the most successful venture capital firms in the world, is risky, it is safe to say that the cumulative effect of the now more than 600 venture capital firms in the United States has been substantial, even for an economy as large as that of the United States. In specific

regions, especially Silicon Valley and Boston's Route 128, venture capital has been a vital component of what Bahrami and Evans (2000) term the *entire ecosystem* (see also Lee and others 2000).

The U.S. General Accounting Office (GAO 1982, p. 10) studied the effect of the venture capital industry on the U.S. economy. Extrapolating from 72 publicly listed venture capital–funded firms operating in 1979 (there were 1,332 venture capital–funded firms in existence at that time), the GAO concluded that employment would increase by 1989 by between 522,000 and 2.54 million employees, depending on the annualized growth assumption. A recent study commissioned by the NVCA (2001) and conducted by the consulting firm WEFA estimated venture capital–financed firms had been cumulatively responsible for creating 4.3 million jobs and US$736 billion in annual revenues in 2000. Another indicator of the significance of venture capital investment is its effect on the innovation process. Kortum and Lerner (2000), using a sample of firms and patent filings, found that venture funding accounted for 8 percent of U.S. industrial innovations in the decade that ended in 1992. They believe that this percentage might have increased to as much as 14 percent by 1998. They found that venture capital investment produced more patents, because a dollar of venture capital was 3.1 times more likely to lead to a patent than was a corporate R&D dollar.

In the United Kingdom, a survey by the British Venture Capital Association (BVCA 1999) found that private equity–financed firms grew at an annual compounded rate of 24 percent, or three times faster than firms in the Financial Times Stock Exchange (FTSE) Index 100 and 70 percent faster than those in the FTSE 250. This finding may not be entirely surprising given that private equity–financed firms are expected to grow faster than publicly traded firms. The BVCA estimated that 2 million Britons, or 10 percent of the current private work force, were employed by venture capital–backed firms. This estimate seems inflated, but it provides one possible indicator of how important private equity and venture capital have been to the growth of the U.K. economy.

In the case of Taiwan, China, there has been little study of the benefits of the venture capital industry. One study quantified the benefits of tax collections from venture capital investments from 1990 to 1992, finding that they were 10 or more times greater than the tax dollars expended (Wang 1995). For Israel, there has been no quantification of the benefits of venture capital, but in 2000, high-technology industry accounted for approximately 25 percent of the entire gross domestic product, and from 1991 to 2000, venture capitalists had backed a total of 1,802 firms (Avnimelech and Teubal 2002).

Venture capital (or, in the case of the United Kingdom, private equity) has made a significant contribution to the economies of Israel, Taiwan (China), the United Kingdom, and the United States and appears to be an efficient method for commercializing innovations. Although there has been only limited research on its macroeconomic effects, there is ample evidence that venture capital has had a significant effect in the United States. It certainly has been the key financier of the U.S. "new economy" firms. Also, in the United States, Israel, and Taiwan, China, it has become a part of the national system of innovation for commercializing **R&D.** Moreover, it has become a central component of the growth of regions such as Silicon Valley and Route 128.

BUILDING A VENTURE CAPITAL INDUSTRY

A successful venture capital industry is not easy to create. Of the 36 economies with a national venture capital association, fewer than 10 have industries of any significance. As an institution, venture capital is quite fragile and requires a number of preconditions for emergence and growth. The most important single factor for explaining the development of a vibrant venture capital industry is availability of investments capable of providing sufficiently large returns to justify the high risk. In other words, there must be a sufficient supply of opportunities capable of supporting a community of venture capitalists. If the number of venture capitalists is insufficient, a downturn in the economy and the failure of a few could lead to the collapse of the industry. In other words, without a sufficient number of deals, it might be possible to establish a venture capital industry, but the industry would not be sustainable.

Context is also important. There should be a relatively transparent and predictable legal system that offers some protection to investors. If foreign investors are to be encouraged, then currency convertibility is important. It is also necessary that a portion of the labor force be well educated and capable of managing start-up firms through the rapid growth process. All of these attributes appear to be in short supply in a number of East Asian countries. Venture capital requires that entrepreneurs be willing to sell significant amounts of equity to the venture capitalists and be prepared to share control.

In economies where many or most of these conditions are missing, it will be difficult to create a vibrant venture capital industry capable of supporting small start-up firms. There may be a financial sector that labels itself as venture capital industry, but it will differ significantly from our

ideal type. Moreover, this venture capital industry is unlikely to exhibit the dynamism experienced by the classic venture capital industries in economies such as Israel, Taiwan (China), the United States, and—more recently—India.

THE HISTORY OF VENTURE CAPITAL IN ASIA

Each Asian economy's venture capital industry has a different evolutionary trajectory, and in every case the government had a role in establishing the industry. The cross-national diffusion through institutions could be conceptualized as a convergence process; however, this perspective is problematic. As an institution, venture capital differs substantially in each of these environments because it is shaped by the political, social, and economic institutions within which it is embedded.

Each political economy thus has a venture capital industry that is shaped by the local economy and that differs significantly from the venture capital industry in other economies. For heuristic purposes, the venture capital industries in Asia can be divided into four groups: (a) Japan and Korea; (b) Hong Kong (China), Singapore, and Taiwan (China); (c) China; and (d) developing Asia, which includes Indonesia, Malaysia, the Philippines, Thailand, and Vietnam. The second category can be further subdivided into two categories, which can be termed the *export-oriented* venture capital industries of Singapore and Hong Kong, China (which most closely resemble the industries of New York and London), and the *technology-oriented* industry of Taiwan, China (which most closely resembles the industry of Silicon Valley):

Given the dramatic differences in the stage of development and the size of these economies, it is not surprising that the size of the venture capital industries should also differ. These national differences are substantial, as table 10.1 indicates. Overall, there has been significant growth in China, Hong Kong (China), Korea, Singapore, and Taiwan (China). The industries in Japan and Indonesia have not grown. In 2002 and 2003, Taiwanese venture capitalists have had difficulty raising new funds because the government removed a tax rebate incentive. Although no data are available for 2002, it is likely that only Hong Kong (China) and China experienced significant expansion; 2003 was a difficult year for venture capitalists throughout Asia, except in China.

7. For this distinction, see Florida and Kenney (1988a, 1988b).

Table 10.1 National Venture Capital Pools in Asia
(nominal US$ millions)

Year	United States	China	Hong Kong, China	Indonesia	Japan	Korea, Rep. of	Malaysia	Philippines	Singapore	Taiwan, China	Thailand	Vietnam	Total Asia
1991	30,100	—	—	76	15,352	1,547	75	16	868	412	64	10	18,604
1992	30,300	878	—	57	16,028	1,629	147	26	896	470	90	22	20,243
1993	31,600	1,422	—	99	17,750	1,687	160	58	1,013	508	98	131	22,926
1994	35,300	2,384	—	225	17,750	1,902	194	85	1,833	562	117	247	25,299
1995	40,200	3,458		245	14,851	2,567	437	123	3,164	696	165	303	26,009
1996	48,900	3,612	8,019	289	11,254	3,224	448	166	3,981	1,336	201	276	32,806
1997	65,100	3,500	9,632	426	7,722	1,857	406	169	4,468	1,913	177	292	30,562
1998	90,900	3,112	14,462	328	12,513	2,995	460	224	5,258	3,598	242	258	43,450
1999	142,900	3,735	21,203	333	21,729	4,986	667	292	7,791	4,447	265	318	65,766
2000	209,800	5,201	24,128	169	21,138	6,020	587	383	9,286	5,852	597	157	73,518
2001	—	6,044	26,019	153	21,515	6,251	811	291	9,754	6,261	580	114	77,793

- Not available.

Note: All Asian statistics combine venture capital and private equity.

Sources: NVCA, *National Venture Capital Association Yearbook* (various years); AVCJ, *Guide to* Venture Capital *in Asia* (various years).

In each economy, the sources of funds vary, and there are some striking differences between the United States and all of the East Asian economies. The first difference is that in the United States a large number of nonprofit institutional funding sources, such as university endowments and foundations, have long-term capital appreciation goals and will commit up to 5 percent of their capital to alternative investments. The second difference is that a number of the Asian governments are willing to invest directly in venture capital, whereas the U.S. government does not generally do so,' as evidenced in the aggregate statistics on sources of funds committed to venture capital (see table 10.2).

If one compares Asia with the United States, one finds that an important difference is in funding sources. In Asia, industrial corporations are the largest source of funds, whereas in the United States, industrial corporations have committed little to the private venture capital funds. For example, in Taiwan, China, industrial commitments constituted 53 percent of the total commitments to venture capital, an achievement no doubt fueled by a 20 percent tax rebate. Only in Malaysia were industrial commitments below 20 percent. In most of Asia, pension funds were of little significance. In the case of Hong Kong (China), Japan, and perhaps China, the total contribution attributed to pension funds is partially attributable to U.S. pension funds' investing in Asia. In Malaysia, the pension funds are controlled by the government and directed to invest in venture capital. Endowments and foundations were negligible sources of funds in Asia. In contrast, they provided 20 percent of the U.S. total. In all of the Asian economies, the government had some role in providing capital to the venture capital industry, and in Singapore, the government was the second-largest investor. The sources of funds differ among Asian economies and differ from those in the United States.

Japan and Korea

Japan and Korea share somewhat similar insertions into the global economy and, until recently, have had somewhat similar industrial structures.[9] In contrast to Korea, Japan had a much more vibrant small-firm manufacturing sector whose genesis can be traced to the Tokugawa Shogunate (Amsden 1992; Nishiguchi 1994). In Korea, until the 1980s,

8. The Small Business Investment Research grants do provide monies for start-up research projects and thus perform a function superficially similar to that of venture capital.

9. For a discussion of Japanese venture capital using roughly the same sources, see Kuemmerle (2001).

Table 10.2 Sources of Venture Capital Commitments in Asia and the United States, 2000 (percent)

Economy	Corporations	Individuals	Banks	Insurance firms	Pension funds	Government	Other
China	41	3	18	18	12	7	1
Hong Kong, China	37	2	11	32	13	5	0
Indonesia	49	3	15	8	7	10	8
Japan	48	2	25	13	9	2	1
Korea, Rep. of	45	2	23	12	6	10	2
Malaysia	13	5	12	9	50	10	1
Philippines	53	11	20	8	0	6	2
Singapore	37	5	16	12	9	20	1
Taiwan, China	58	9	14	10	4	4	1
Thailand	29	2	38	14	13	4	0
Vietnam	47	4	27	6	5	8	3
United States	3	11		22	37	20	7

Sources: For Asian economies, AVCJ (2003). For the United States, NVCA (2001).

the government actively determined the direction of the economy through direct intervention and subsidization. Only in the 1980s did this dirigiste style of economic planning gradually loosen and give way to a market-driven economy. The venture capital industries in both nations, although similar on many dimensions, do differ in the amount and level of government involvement.

Japan was the first nation in Asia to attempt to create a venture capital industry. In 1963, the Japanese government authorized the use of public funds to create firms like the U.S. SBICs, establishing one firm in each of three cities: Tokyo, Nagoya, and Osaka. These firms supported some existing small and medium-size enterprises (SMEs) by providing stable, long-term capital, but they funded few start-ups (Niimi and Okina 1995). Through March 1996, these three firms cumulatively invested 69.2 billion yen[m] in 2,500 companies, of which 78 had had public stock offerings.

The first private venture capital firms were created in the early 1970s. In 1972, Kyoto Enterprise Development (KED), whose express model was American Research and Development, the first U.S. non-family-funded venture capital firm, was established through investments by 43 prominent Kyoto companies. However, KED failed and was liquidated only 4 years later (Ono 1995). At the same time, in Tokyo the Nippon Enterprise Development was formed by a group of 39 firms. In 1973, Nomura Securities and 15 other shareholders established Japan Godo Finance, which was the precursor to the present JAFCO (Japan Associated Finance Company). Also between 1972 and 1974, other important financial institutions, including major banks (such as Sumitomo, Mitsubishi, and Daiichi Kangyo) and major security firms (such as Yamaichi and Nikko), formed venture capital subsidiaries. This first wave ended following the 1973 oil crisis, when the number of investments declined and the industry stagnated. Of the eight firms formed during this period, six still exist.

In the 1980s, a number of new initiatives to create venture capital industries were launched. From 1982 to 1984, the city banks, security firms, and regional banks formed 37 new venture capital subsidiaries. Their goal was not to fund entrepreneurial start-ups, but rather to use "venture investments" to build relationships with small and medium-size firms in an effort to sell them other services. In terms of their investments, the Japanese venture capitalists did not seek capital gains; rather, they

10. At an average conversion rate of 150 yen to the U.S. dollar over this period, this amount would be in excess of US$400 million.

wanted to develop long-term banking relationships with their portfolio firms. The normal investment techniques such as due diligence were not overly rigorous, because they lent to established firms, not new firms. In 1982, JAFCO introduced the limited partnership format (Hamada 1999, pp. 38-41). This venture capital boom also subsided because of a recession in 1986 and 1987, and investment activity declined substantially.

Beginning in the mid-1990s, interest in the role of venture capital was renewed because of the Internet boom in the United States. This time, however, the new venture capital boom coincided with heightened concern on the part of Japanese industrial and government leaders about the continuing stagnation of the economy. So to facilitate new business creation and start-ups in knowledge-intensive and high-technology industries, the Japanese government created a variety of new incentives. For example, in 1995 SMEs were made eligible to receive financial as well as informational support. New laws also encouraged the formation of venture capital firms, and another wave of regional banks and corporations established venture capital affiliates. Also, many independent venture capital firms were formed.

The emergence of Softbank as a funder of new firms was a significant change. Softbank was a Japanese software distribution firm owned by Masayoshi Son, who had made early investments in U.S. Internet start-ups including Yahoo!, Geocities, and E*Trade. When those firms went public, Softbank reaped enormous capital gains, which it invested in 292 Japanese Internet start-ups, as well as in other start-ups around the world. By January 2001, Softbank had invested US$8.8 billion in more than 600 start-ups (Softbank Investment 2001). Softbank was not alone; a number of other Japanese firms such as Hikari Tsushin plunged into venture capital by investing in Internet firms. Moreover, traditional venture capital firms switched from providing loans to established firms to investing in equity in start-ups. During this period, it was also easy to undertake public stock offerings, and many firms went public on two new Japanese markets: MOTHERS (Market for High-Growth and Emerging Stocks) and NASDAQ Japan, which were created to ease the listing of SMEs. In the collapse of the Internet bubble in 2001, Japanese venture capitalists such as Softbank experienced enormous losses, and there has been little investment in new firms.

The first Korean experiment in developing venture capital was in the 1970s. In 1974, the Korean government created what it termed a *venture capital firm,* Korean Technology Advancement Corporation (KTAC). KTAC's funding came from government research institutions, and its objective was to be an intermediary financial institution that assisted in the

transfer of research results from government-supported research institutes to technically competent SMEs. This effort does indicate the Korean government's awareness of the venture capital industry, but by U.S. standards, KTAC would not be considered a venture capital firm.

The 1980s were a tumultuous time for Korea, as the country moved from dictatorship to democracy. This political sea change was punctuated by a number of changes in government, resulting in shifting policies. The Korean environment was much more complicated than that of the United States because of the pervasive and often distorting government effort to establish the venture capital industry. Korea returned to the idea of creating venture capital in 1981, when the Korea Technology Development Corporation (KTDC) was incorporated under a special law aimed at supporting industry R&D projects (KTB 2001)." KTDC was meant to fund R&D and its commercialization (Choi 1987, p. 352); therefore, it did not operate like a classic venture capital firm, supporting entrepreneurial teams capable of creating businesses. In 1982, the Korean Development Investment Corporation (KDIC) formed a joint venture between seven Seoul-based short-term financing companies, a number of international development institutions, Westinghouse, and JAFCO (KDIC 1986).12 KDIC was organized as a limited liability venture capital firm, with the purpose of fostering and strengthening Korean technology-oriented SMEs through equity investment or equity-type investments. In 1984, yet another venture capital firm, Korean Technology Finance Corporation, was established by the Korea Development Bank." Of these, only KDIC emphasized equity investments and was not an arm of a government agency. Put simply, KDIC was the beginning of Korean private venture capital.

In 1986, the government enacted the Small and Medium-Size Enterprise Start-up Support (SMESS) Act to support the establishment and growth of small enterprises. Also in 1986, the New Technology Enterprise Financial Support (NTEFS) Act was promulgated to support the four earlier venture capital organizations (AVCJ 1992). With these two laws, the Korean venture capital firms were divided into two types, each having different roles and characteristics. The first four venture capital companies

11. In July 1992, KTDC was renamed the Korea Technology and Banking Network Corporation.

12. In 1996, KDIC changed its name to Trigem Ventures after it was acquired by Trigem Computer Inc., Korea's largest PC manufacturer. See http://www.tgventures.co.kr.

13. The Korean Technology Finance Corporation was renamed KDB Capital after it merged with the Korea Development Lease Corporation in 1999. At present, KDB Capital is a subsidiary of the Korea Development Bank. See http://www.kdbcapital.co.kr.

were now called *new technology enterprise financial companies* (NTEFC). NTEFCs were permitted to invest their funds with less government oversight; however, they were required to provide consulting services to the government, especially with respect to directing government funds to SMEs.

The firms covered by the SMESS Act were required to invest in start-up and early-stage enterprises that were fewer than 5 years old. This division of labor reflected the interests of the Ministry of Trade and Industry (MTI), which administered the SMESS Act, and the Ministry of Finance (MOF), which administered the NTEFS Act. However, because of this division, SMESS Act venture capital companies under MTI administration were in a disadvantageous position. Han-Seop Kim (2001), who was a director in KTB at that time, said, "SMESS Act venture capital companies were so restricted, because they were at the boundary of the financial industry that traditionally had been under MOF administration." This situation would become further complicated in 1992, when KTDC, the largest NTEFC, was transferred to the control of the Ministry of Science and Technology and changed its name to Korea Technology & Banking (KTB).[14] The predictable result was confusion and overlap.

To increase Korea's technological capabilities, the government rapidly increased the amount of targeted funds, which the NTEFCs helped direct. The result was that the NTEFCs were also able to expand rapidly. However, these targeted funds were in the form of loans because the government was not interested in equity. The SMESS Act venture capital firms were meant to operate like Western venture capital firms. The passage of the SMESS Act sparked the formation of many new venture capital firms, and in 1990 there were 54 such firms. Despite the rapid growth in the number of venture capital firms, most investments were loans. Most damaging were the inexperienced professionals in these firms, whose poor investments and inability to assist their portfolio firms contributed to the failure of the portfolio firms and of the venture capital firms themselves.

The early 1990s were difficult, though a few start-ups that had been financed in the late 1980s showed some signs of success. The venture capital firms that were formed in response to the regulations promulgated in the mid-1980s experienced bankruptcies among their portfolio firms. In response, the venture capital firms tightened their investment criteria. In August 1993, to counteract this investment slowdown, the government loosened regulations and expanded the industries permissible for

14. For further discussion, see Kenney, Han, and Tanaka (2002).

investment, extended the age limit for investment-eligible firms from under 5 years old to under 7 years old, and removed the investment ceilings for fund investors. With the 1994 economic recovery and the reduction of regulations, investment once again increased, although it remained subdued until the Internet mania arrived.

During the late 1990s, the Korean government added yet more incentives for the venture capital industry by changing a number of laws to promote innovative small firms. Also, in 1997, the government launched its own venture capital funds and established a program to provide matching funds for venture capital limited partnerships. In August 1997, the government permitted pension funds to invest up to 10 percent of their capital in venture capital partnerships. In May 1998, the restrictions on foreign investment in Korean venture capital partnerships were lifted, and tax benefits for venture capital were increased. Also, measures were adopted to increase tax benefits for venture capital partnerships. Those efforts catalyzed the establishment of a number of limited partnerships. The Korean experience was remarkable because it went from the depths of the Asian financial crisis to the Internet boom and then the collapse of the "new economy" in 3 years.

In both Japan and Korea, the development of a Silicon Valley–type venture capital industry appears elusive. Policymakers have found it difficult to create a policy mix conducive to entrepreneurial activity, and most managers are unwilling to resign to establish smaller firms. The entrepreneurship that was sparked by the Internet boom has been forgotten in the aftermath of the collapse.

Hong Kong (China), Singapore, and Taiwan (China)

Hong Kong (China), Singapore, and Taiwan (China) share many commonalties, including size, strong ties with Western nations, and industrial structures that are based on exports. In each of these economies, the venture capital industry was established in the early 1980s. The most important difference between them is that the venture capital industries in Hong Kong (China) and Singapore have a financial orientation, whereas the industry in Taiwan (China) has a technology orientation. Moreover, the venture capital industries in Hong Kong (China) and Singapore are dominated by large foreign financial firms, whereas the industry in Taiwan (China) is largely indigenous.

Taiwan, China. The inception of the venture capital industry in Taiwan, China, can be traced to government involvement. However, the strategy

adopted by top government officials was quite different from that adopted in Korea. In 1983, after officials and businesspeople from Taiwan, China, made a study trip to the United States and Japan, the government passed legislation providing attractive tax incentives to individuals who were willing to invest in professional venture capital firms. The core of the 1983 legislation was a tax rebate of up to 20 percent for individuals who maintained an approved venture capital investment for at least 2 years. To qualify, the investment had to be made by a venture capital fund approved by the Ministry of Finance (Asian Technology Information Program 1998; Taiwan, China, Ministry of Finance 1996, pp. 9-10). In addition to offering the attractive tax rebate, the law also allowed investment abroad. In the vast majority of cases, the investment was in the United States, where a number of expatriates from Taiwan, China, worked in Silicon Valley. In 1991, the statute was revised to allow corporate investors the same 20 percent tax rebate (Liu 2001). This change dramatically increased the amount of capital available for venture capital when corporations rushed to secure the rebate.

The tax rebate was by far the most important incentive, but there were others. The other incentives included making 80 percent of the venture capital firms' investment income tax exempt in the current fiscal year, providing a grace period of one year. Also, those choosing to reinvest the earnings garnered from a venture capital investment were allowed to deduct the venture capital income from their tax return in that year. This provision encouraged the investors to reinvest their earnings, thereby increasing the capital pool.

The first venture capital firm in Taiwan, China, was an Acer subsidiary, Multiventure Investment Inc. That firm was formed in November 1984 and made its first investment in a Silicon Valley start-up that year (Shih 1996, p. 35). However, the firm that received the most attention was formed by the Silicon Valley investment bank Hambrecht and Quist (H&Q). H&Q launched its fund with investments from major industrial groups in Taiwan, China, and from government-controlled banks and agencies (Kaufman 1986; Sussner 2001). H&Q's first investment was in the Taiwan, China, subsidiary of Data Corporation, a Santa Clara manufacturer of disk drive controllers and floppy disks (Kaufman 1986, p. 7D). This fund was the beginning of what would become H&Q Asia Pacific, which now operates throughout Asia. In 1987, the Walden Group—a San Francisco–based venture capital firm that was owned by Asian Americans—established a fund called International Venture Capital Investment Corporation with investments from various private and government entities and citizens of Taiwan, China. This fund evolved into the Walden International Investment Group. Its first two investments were in

Northern California (Besher 1988, p. C9). As significant as the funds were, important also was the fact that the venture capital firms in Taiwan, China, were learning by doing in Silicon Valley.

The 1990s were a period of rapid growth for the venture capital industry in Taiwan, China. In policy terms, the most important change was the revision of the statute that originally provided tax rebates only for individuals so that corporations could also benefit (Liu 2001). Of course, the most significant factor was the success of the high-technology electronics industry in Taiwan, China, which became the world's major producer of many components used in personal computers, the leading center for outsourcing personal computer assembly, and the location of the two largest semiconductor foundries in the world. These industries were the source of many spin-offs. Despite the great difficulties the venture capital industry in Taiwan, China, has experienced, there is little question that it will survive the current downturn.

Hong Kong, China. The first non-Japanese venture capital operation in Asia was a Citicorp Venture Capital subsidiary that was established in Hong Kong, China, in 1972. By the mid-1980s, Citicorp, which was soon to discontinue venture investing and become a private equity firm, had been joined by six other firms, including two U.S. insurance companies. Those early firms drew on the territory's status as the major Asian financial center and formed the roots of its venture capital industry. For large banks and financial institutions, Hong Kong, China, operated as a headquarters for their Asian venture capital and private equity operations, although the preponderance of investments were in other nations.

The government in Hong Kong, China, has generally adopted a laissez-faire attitude toward the economy, and it displayed little interest in venture capital until 1993, when it formed a government-operated US$32 million venture capital fund to invest in SMEs. However, this fund was not very successful. After the Asian financial crisis, the fund received a further appropriation of HK$750 million (US$96 million) in November 1998. Also, because of the lackluster performance of the government-operated funds, the government changed its strategy and appointed four private sector fund managers (Applied Research Fund 2001, p. 1). During the Internet bubble, Hong Kong, China, established an indigenous venture capital industry focused on investing domestically. However, these firms were experiencing difficulty in the continuing downturn and are unlikely to be able to survive on deals in Hong Kong, China.

During the 1990s, Hong Kong, China, functioned as a window to mainland China and, more generally, a convenient Asian headquarters for Western venture capitalists and private equity firms. The venture capital

under management in Hong Kong, China, grew rapidly and, by 2000, rivaled that of Japan (see table 10.1). Despite the large amounts of capital, in 2000 only 9 percent was invested in Hong Kong, China, because of a lack of deals. The importance of Hong Kong, China, as the headquarters' location for global venture capitalists seems quite safe, though recently there has been concern that Shanghai might replace it as the de facto "gateway to China."

Singapore. Venture capital emerged later in Singapore than in Hong Kong, China. In 1983, South East Asia Venture Investment Fund, which was administered by Boston's Advent International, was established in Singapore with investment from the International Finance Corporation (Wang 2002). In 1983 and 1984, Singapore Technologies, a former government-owned industrial conglomerate, informally began investing in start-ups. In 1988, the venture capital activities of Singapore Technologies were spun off into a firm called Vertex Management, and it began investing globally, especially in Silicon Valley (Hock 2001).

In the mid-1990s, the government recognized that, because of rising labor costs, manufacturing could no longer be the driver for Singapore's economy. Its response was to launch an initiative to transform Singapore into a knowledge-based entrepreneurial economy. Policymakers believed that venture capital could assist in this transformation. To accomplish it, the government used tax and various other investment incentives to attract venture capital firms from around the world. For that reason, the 1990s were a period of extremely rapid growth for Singapore's venture capital industry, and assets under management increased from US$830 million in 1991 to US$9.286 billion in 2000 (AVCJ 2001, 2002, 2003). As in the case of Hong Kong, China, international venture capital firms such as JAFCO, H&Q Asia Pacific, and 3i established branch offices in Singapore (Wang 2002). Because the growth of Singapore's venture capital industry was in large measure based on attracting foreign venture capital firms, the character of the industry resembles that of the industry in Hong Kong, China. However, in Singapore, the growth was encouraged by massive subsidies, such as capital investments in venture capital funds, and other incentives. The Technopreneurship Fund alone has invested approximately US$1 billion from 1998 to 2003. Singapore's venture capital industry was heavily dependent on these subsidies, the majority of which were made in 1999, and it is almost certain that Singapore has experienced enormous losses during the current downturn.

Singapore's small size is an important limitation on creating a strong venture capital industry, because internally it can generate only a small

deal flow. To overcome the lack of deal flow, the country established numerous programs to increase entrepreneurship. Singapore also is enhancing its role as a service center for entrepreneurs in the rest of the Southeast Asian region; however, these nations also have only limited deal flows. Moreover, Singapore-based venture capitalists must compete with the indigenous venture capitalists. Singapore is striving to enhance its role as an offshore service center for venture capital investors in India as well.

The government has fashioned a comprehensive strategy aimed at establishing a venture capital industry that will not require unending subsidies. Despite this effort, success is not guaranteed because of the lack of local deals. Singapore's strategy of becoming a service center for India seems the most precarious because the Indian government will likely also wish to attract the foreign firms. Ultimately, Singapore's location may not be as attractive as that of Hong Kong, China, which is closer to the most important Asian economies. The continued maturation of Singapore as a venture capital center is by no means guaranteed.

China

From the early 1990s onward, China has presented the most enigmatic venture capital investment opportunity." Because of the country's socialist legacy, the Chinese venture capital industry was established only recently. For example, the Chinese Venture Capital Association was inaugurated in 2002. The impetus for the development of the Chinese venture capital industry was government policy. In 1984, the National Research Center of Science and Technology for Development suggested that China establish a venture capital system to promote high technology (White, Gao, and Zhang 2002). However, it was only in the late 1980s that the Chinese government allowed the formation of the first venture capital firm, which was a government-foreign joint venture. It was followed in the early 1990s by a proliferation of venture capital operations backed by state and local government. Because of the lack of experience, not only among the government officials but also among the entrepreneurs, these early efforts failed (Oster 2001).

According to White, Gao, and Zhang (2002), distinct types of venture capital firms operate in China: local government firms, corporate firms, university firms, and foreign firms. Of course, those are ideal types, and in practice there are many relationships and joint ventures between firms in each category. This proliferation of forms and formats can be understood

15. This section draws heavily upon White, Gao, and Zhang (2002).

in two ways. First, it can be understood as a large-scale experiment in which there is a search for the format or formats that will be most effective in the Chinese environment. Second, it may be the case that there is not yet a proven methodology for operating a venture capital firm in the Chinese environment. It is safe to conclude that each of these types of venture capital firms has experienced difficulties. The foreign firms invested heavily in Internet start-ups, nearly all of which either have disappeared or do not allow the investors an exit. Moreover, with the recent inability to use NASDAQ as an exit window (because of investor resistance to IPOs), the disastrous performance of the Hong Kong Growth Enterprise Market, and the government's reluctance to open a second board in Shenzhen, there are few exit strategies. The current venture capital activity in China is predicated on a belief that sometime in the future exit vehicles will emerge.

In summary, despite the government's desire to see greater technological development, and notwithstanding its efforts to make the environment favorable to foreign investment in high-technology start-ups, investors continue to be subject to the vagaries of the Chinese legal and political system. The Western venture capitalists that were attracted to the Chinese market continue to experience marginal returns. The only ones to make profits were those that did Internet deals and were able to quickly list their investments on the NASDAQ. At this time, monies from the government (most often the local and provincial governments) appear to make up anywhere from 12 to 80 percent of the total venture capital invested (AVCJ 2001; "Hidden Risks" 2000). The massive investments by the local and provincial governments seem to be failing, but there is no English-language confirmation of this perception. The national government had abstained from venture capital investing until late 1999, when the Chinese Ministry of Foreign Trade and Economic Cooperation announced that it was establishing a venture capital fund ("China Launches New High Tech Venture Capital Fund" 1999). In 2003, venture capital investment in China continues to expand; however, its profitability has yet to be established. For this reason, the eventual role of the Chinese venture capital industry is not yet certain.

Developing Asia

The five nations (Indonesia, Malaysia, the Philippines, Thailand, and Vietnam) of developing Asia have relatively weak venture capital industries, though Malaysia, in particular, continues to strive to strengthen venture capital. Each of them have made various efforts to establish an

industry, but they have foundered on serious deficiencies in terms of their institutional structures, levels of technical and managerial proficiency, political and regulatory environments, and financial sophistication. In these countries, the International Finance Corporation and various other international donors have funded foreign venture capital firms, domestic venture capital firms, and partnerships between foreign and domestic firms in an effort to seed the beginnings of a venture capital industry. Also, national governments have made efforts in this direction. For example, in the early 1980s, the Philippine government established 17 bank-related venture capital firms modeled on the U.S. SBIC experience; however, these firms failed (Arana 2001). Despite these efforts, one or more of these impediments have stymied advancement: the institutional environment, the available human capital, or the infrastructure.

The Global Connections

In the past decade, there has been a significant globalization of the venture capital industry. Despite the spread of venture capital globally, the United States and, more particularly, Silicon Valley remain the center of both venture capitalism and the high-technology industry. In terms of business models and economic development, Silicon Valley was the inspiration for Asian policymakers, entrepreneurs, and venture capitalists. This attraction to Silicon Valley is not unique to Asia; other parts of the world have been similarly inspired. But for non-Japanese Asia, the inspiration seems to have been particularly profound. The reasons include Silicon Valley's location on the Pacific Rim, the massive numbers of Asian nationals trained in U.S. universities, and the seemingly inexorable movement of Silicon Valley manufacturing functions to Asia that began in the 1960s (McKendrick, Doner, and Haggard 2000; Saxenian 1999).

Three links between Silicon Valley and Asia have been especially important. The first was the Asian students who remained in the United States and were employed by Silicon Valley firms. They were rapidly assimilated into the Silicon Valley business structure and soon began launching their own start-ups. Not surprisingly, they maintained close relationships with their friends and family in Asia and frequently turned to them for seed money. The second was the Asian students and seasoned managers who returned to their various nations and joined the Asian operations of Silicon Valley firms or established firms that subcontracted with Silicon Valley firms. The third link was the Asians who were trained in their home country and then joined the overseas operations of Silicon Valley firms. Each of these links was a conduit for virtuous circles of learning

and information transfer. This interaction created an awareness of what was occurring in Silicon Valley, not only in terms of the technical and managerial skills that blossomed there, but also of the Silicon Valley worldview.

Taiwan, China, is the economy with the most explicit connections to Silicon Valley. These business ties can be traced to the efforts by firms in Taiwan, China, to become subcontractors to the U.S. personal computer industry and then to create semiconductor foundries. Venture capitalists in Taiwan, China, also used ethnic connections and, more important, their connections with manufacturers there as leverage for participating in U.S. deals. For example, these venture capitalists offered to help U.S. fabless semiconductor start-ups arrange production contracts with the silicon foundries in Taiwan, China. They offered more than money, thus creating value added for the start-up firm.

The venture capital industries in Hong Kong (China) and Singapore share many similarities, though Singapore has a greater number of high-tech start-ups. Hong Kong, China, is almost purely what Florida and Kenney (1988a) termed a *finance-based venture capital center.* Table 10.3 indicates that Hong Kong, China, draws in capital from around Asia and the world, and then exports it. One underlying reason is that it operates as a window to China. Singapore also imports capital then re-exports it (see table 10.3). The difference is that the government in Singapore has invested much of its own capital in efforts to build international links. The most important program was the Technopreneurship Investment Fund (TIF), which was established in 1999. TIF has invested US$1 billion in venture capital and in related areas. As of 2001, TIF had announced 45 different investments in venture capital firms headquartered in Canada, France, Germany, India, Israel, Sweden, Taiwan (China), the United Kingdom, and the United States. In addition to diversifying risks, this investment helped Singapore's government to collect information about

Table 10.3 Import and Export of Venture Capital for Various Asian Nations, 2000 (percent)

	Source			Destination		
Economy	**Home**	**Asia**	**Non-Asia**	**Home**	**Asia**	**Non-Asia**
China	56	17	27	81	17	2
Hong Kong, China	9	20	71	13	84	3
Japan	76	20	4	82	7	11
Korea, Rep. of	68	8	24	94	3	3
Singapore	30	31	39	16	67	17
Taiwan, China	82	6	12	78	9	13

Source: AVCJ (2002).

venture capital practices globally. In return for the investment, these firms often agreed to open offices in Singapore. Singapore also boasts one of the most far-reaching venture capital firms, Vertex Management, which has offices abroad and invests globally.

The largest Korean venture capital firms also have operations abroad, and a number of the large U.S. and European private equity firms have operations in Korea, though the latter are almost entirely devoted to private equity buyouts (Kenney, Han, and Tanaka 2002). Except in Malaysia, the venture capital industries in Asian nations are largely importers of capital. The Philippines and Thailand have nationals working in Silicon Valley as engineers, but there are so many barriers to start-ups that these overseas engineers have not contributed to significant activity.

Venture capital in Asia is now globalized. One dimension of this globalization is the Asian venture capital firms that invest in the United States and, especially, Silicon Valley. Of course, Hong Kong, China, as a base for the import and export of capital has always been globalized. Another dimension is the U.S. firms, particularly those operated by Asians and investing throughout Asia. There is also a powerful intra-Asian investment network. For example, a number of the larger Japanese venture capitalists have operations throughout Asia. An even larger network is the firms espousing a "Greater China" strategy. The investment base of this network includes China, Hong Kong (China), Singapore, and Taiwan (China), as well as the Asian expatriates in Silicon Valley. In November 2001, the venture capital associations of Hong Kong (China), Indonesia, Korea, Malaysia, Singapore, and Taiwan (China) formed the Asian Pacific Venture Capital Alliance (APVCA). In the future, APVCA could contribute to a unification of the Asian venture capital industry.

INSTITUTIONAL ISSUES IN ASIAN VENTURE CAPITAL

The most important institutional issue today in Asian venture capital is whether to allow pension funds in Asian nations to allocate certain percentages for investment in alternative asset classes such as venture capital. The experience in the United States suggests that, as an economic policy, allowing pension funds to invest in venture capital could be a great success. In terms of investment returns, the outcome may not be as clear, because there is evidence that excellent returns are concentrated among only the top venture capital firms. Over the past 20 years, the average annualized return for U.S. venture capital firms was 20.3 percent (NVCA 2001). However, returns vary widely. The top quartile of venture capital firms

performed very well, but those in the lower quartile performed badly. For example, Barger (n.d.) found that from 1980 to 1995 the return for the lowest quartile was 6.9 percent—that is, nearly 15 percent lower than the annualized return of the top quartile. In nations where self-dealing or other practices might occur, or where either the venture capital industry or the pension managers may not be experienced, investing in venture capital is risky. Any decision to permit pension funds to invest in venture capital should be phased in gradually or a good possibility exists that there will be a glut of capital with a concomitant drop in returns.

Governance of Portfolio Firms and Venture Capitalists

In much of Asia, the development of venture capital has been hindered by the same type of corporate governance practices as those highlighted in chapter 7. These problems exist in terms of managing the entrepreneur and in the operations of the legal system. In the United States, the lead venture capitalists serve on the firm's board of directors. Investment contracts are structured so that the venture capitalists can force a reluctant entrepreneur to take the firm public. A Silicon Valley entrepreneur understands that, should the firm be successful, there will be a change in ownership through either a public offering or a trade sale; thus, control will shift. When receiving venture capital, the entrepreneurs also understand that venture capitalists will replace them if the investors are dissatisfied with the firm's progress. Entrepreneurs also accept that later rounds of financing will further dilute their ownership. In Silicon Valley, entrepreneurs know that their firm is an alienable asset.

In Asia, the relationship between the entrepreneur and the firm is more personal. For example, entrepreneurs see the firm as an expression of themselves and their family and thus are unwilling to part with significant blocks of stock, either to the venture capitalist or in an IPO. This desire of the entrepreneur to retain control prevents the venture capitalist from making a large investment, having a say in the firm's strategic decisions, or securing an easy exit, thus complicating the investment process and disrupting the ability of the venture capitalist to contribute to a firm's growth and secure a sufficiently large capital gain to make an investment sufficiently lucrative. Ta-Lin Hsu (1999), the founder and chair of H&Q Asia Pacific and dean of venture capitalists investing in Asia, summarized the situation in Asia as follows:

> Most [venture capitalists] over the last 14-15 years went to the passive late stage pre-IPO deals. There you gain 5 percent, 11 percent, or 17 percent of a family-controlled company; you have a board seat, but you don't have a lot

> to say. You can have a role in helping the company, but you cannot really add a lot of value because the family ultimately controls things. You can't tell the father to fire his son, or change the family business.

Throughout Asia, entrepreneurs see the firm as the fruits of their labor, and their goal is to pass the firm on to their children. In some economies, especially Taiwan, China, this pattern has changed at least to the point that venture capitalists have some voice.

Not only do these cultural features create governance problems, but also in many of the Asian economies the rights of minority shareholders or even outside shareholders are not strongly protected. For venture capitalists, these weak or nonexistent minority rights create a problem. For example, in Japan the Antimonopoly Law complicates the situation for venture capitalists by prohibiting any single investor (including venture capitalists) from owning more than 49 percent of the equity; further, when shareholding is greater than 25 percent, the shareholder is not allowed to be dominant. After Korea enacted laws to encourage venture capital, it implemented other regulations that limited venture capitalists to less than 50 percent of the total equity. This ambivalent policy makes it difficult for investors to replace the firm's managers even when they are incompetent. In Japan and Korea, the legal environment mitigates against Western-style venture capital monitoring. In other nations, the monitoring and control functions are often frustrated by cultural and legal impediments.

The legal position of the investor varies by economy. The issues of equity and the control that it provides are unresolved for Asian venture capitalists. The lack of control means that Asian venture capitalists have less at stake in their portfolio firm and, therefore, have less motivation to monitor and contribute than do U.S. venture capitalists. The only possible exception is in Taiwan, China, where there has been more experience with Silicon Valley and its methods of corporate control. Quite naturally, in environments where equity investments are not so desirable and there is an inability to closely monitor the firm, making low-risk loans is more sensible than offering equity capital.

Stock Markets and Exit Options

In Asia and around the world, there has been a proliferation of new stock markets specializing in the offerings of young, high-risk firms (see table 10.4). The stated goal of these markets is to provide exit opportunities for investors, and, oddly enough, they often place less emphasis on providing markets in which listing firms raise capital to expand the business. In addition to these new markets, it is possible to list on the U.S.

Table 10.4 New NASDAQ-Like Stock Markets in Asia

Economy	Name	Date
Hong Kong, China	GEM	1999
Japan	MOTHERS	1999
Japan	NASDAQ Japan'	2000
Korea. Rep. of	KOSDAQ	1996
Malaysia	MESDAQ	1999
Singapore	SESDAQ	1997

Note: GEM = Growth Enterprise Market; KOSDAQ = Korean Securities Dealers Automated Quotation; MESDAQ = Malaysian Exchange of Securities Dealing and Automated Quotation; MOTHERS = Market for High-Growth and Emerging Stocks; NASDAQ = National Association of Securities Dealers Automated Quotation; SESDAQ = Singapore Dealing and Automated Quotation.
a. Now closed.
Source: Authors' compilation.

NASDAQ, which is the preferred exit for most firms in Asia, except those in Japan and Korea.

The idea of forming specialized stock markets for small firms is not new. In 1961, the Tokyo Stock Exchange had already established a second section with looser listing requirements, and in 1962, it established an over-the-counter (OTC) market. By 1999, these markets were deemed inadequate for smaller firms, and two others were established. In 1986, the Korean government created the Korean OTC market in a bid to support firms that were unable to qualify for the Seoul Stock Exchange. After a strong start, the OTC market faltered, and in the early 1990s, a series of bankruptcies shook public confidence, frightening investors and driving down prices. Another difficulty was that firms were unwilling to make IPOs on the OTC market, because the registration process was onerous. The corporate governance issue also discourages the listing of firms, because after the stock is publicly held, management is no longer protected from investors who can control the board of directors. The Japanese Second Section and OTC markets continue to operate, but their regulations are too stringent for most venture capital–financed firms.

As in other parts of the world, many of the new markets that opened in the mid- and late 1990s initially performed admirably. Firms were listed, the investing public drove their stock prices skyward, and volume grew. This exit path encouraged venture capitalists to invest in even more firms, creating what in many nations appeared to be an equity-driven economy. Vibrant high-tech regions sprang up, such as Bit Valley in Shibuya, Tokyo, or the Kangnam region of Seoul. For example, in 1999 and early 2000, KOSDAQ (Korean Securities Dealers Automated Quotation) grew to become the eighth most highly capitalized stock market in the world and

surpassed the Seoul Stock Exchange in value. This activity was good for the new-issues market.

Unfortunately, the Internet bubble collapsed in 2000. As a result, Asian markets experienced deep drops. For example, by the end of December 2000, KOSDAQ had lost 80 percent of its value. This fall effectively closed the KOSDAQ as a viable means of raising capital and as an investor exit. Similarly, the SESDAQ (Singapore Dealing and Automated Quotation) lost nearly two-thirds of its value, and NASDAQ Japan closed in August 2002. The Hong Kong Growth Enterprise Market earned the sobriquet of being the "World's Worst Bourse" (Chung 2000) and fell more than 80 percent from its 1999 high (Slater 2002). These bourses were created during the boom, but they soon became vehicles for speculation. Unfortunately, when the bubble burst, and there was a flight to quality, these exchanges were ravaged. In the stock market upturn of 2003, they recovered somewhat but are of little interest to most investors.

The proliferation of stock exchanges, which increased the number of exit possibilities, was not entirely positive. From a systemic perspective, the benefit of the venture capital process is not the enrichment of the entrepreneur and the venture capitalist; rather, it is the creation of new firms that stimulate Schumpeterian economic growth. Many governments viewed these stock markets solely as mechanisms for providing exits for venture capitalists, not as institutions for providing growth capital for real businesses and a viable investment opportunity for investors. As demonstrated by the announced closures of the German Neuer Markt and the NASDAQ Japan, stock exchanges cannot survive if their sole role is to provide investors with an exit path through which they foist low-quality firms on the investing public. Large numbers of failures and the concomitant losses drive even sophisticated investors from the market, thereby destroying liquidity and threatening the viability of the exchange.

The ongoing global stock market malaise plagues nearly every nation. In Asia nearly all of the new "second" markets for smaller firms are moribund. Many stock markets are thinly traded and illiquid. Even in the United States, where the U.S. Securities and Exchange Commission has been considered a comparatively strong regulator, the IPO market has been plagued by insider trading, shady pre-IPO allocations of stock, misleading analysis, and various other ethical lapses and criminal misdeeds. Unfortunately, recent evidence is emerging that individual venture capitalists were receiving stock kickbacks from investment bankers on the very firms they were taking public, thereby receiving benefits that they did not share with their limited partners. Until investor confidence in the fairness and transparency of public markets returns, exiting through public markets will be

quite difficult. In nations without equity cultures, restoring confidence will be even more difficult. Thus, regulators around the world must tighten rules, regulations, and enforcement to ensure that the excesses of the late 1990s are not repeated.

Because bad stock exchanges come to be viewed as casinos rather than as arenas for investment, rehabilitation is difficult. Governments must put in place measures ensuring that, when the IPO markets recover, the excesses will be controlled and the markets will become more transparent and less subject to manipulation. KOSDAQ, SESDAQ, and MOTHERS should survive because of the underlying strength of the national economies of Korea, Singapore, and Japan, respectively. However, as exit paths they may be largely discredited. There is little that the government can do to protect discredited exchanges from investor distrust beyond making increased efforts to protect the integrity of their market's operations by giving stock regulators stronger enforcement powers and requiring greater transparency.

After the Crash

Because the stock market difficulties beginning in March 2000 had not yet completely run their course even by 2004, the effect on venture capital is not yet fully known. In the United States, for the first time in stock market history, during the second quarter of 2002, more funds were disinvested and returned to investors than were raised (NVCA 2002). This trend continued through 2003. In 2003, capital overhang (that is, capital that likely would never be invested profitably) had become a global problem. In 2004, a number of the lower-quality venture capital firms were finding it difficult to raise new funds. After 2001 the growth of venture capital funds in Taiwan, China, slowed to less than 5 percent, after 5 years of greater than 30 percent per year growth. Most of the newer venture capital industries are experiencing the venture capital business cycle and a severe shakeout for the first time.

A recovery of the venture capital industry is predicated on a recovery of exit opportunities. What is most remarkable about this downturn is that, for the first time, globally both stock markets and acquisitions as exit opportunities have disappeared. In earlier downturns, if the stock market was unreceptive, it was often possible to arrange a trade-sale for firms with promising technologies. However, in the current crisis—with the exception of perhaps Microsoft, Intel, and Cisco in the United States; TSMC and Quanta in Taiwan, China; and Wipro, TCS, and Infosys in India—few firms are willing and able to increase their allocation to venture capital because of the low returns, and some have refused to meet already agreed-upon cash calls.

Although the situation is at the moment gloomy, it is also a natural process of purging the excesses from the system. Unfortunately, not only were the excesses large in terms of too many dollars chasing too few deals, but they also gave rise to corruption on a pandemic scale. The rehabilitation will lead to a continuing shakeout of venture capitalists and venture capital firms until at least the end of 2003 and likely well into 2004. Those firms and national industries that cannot survive this shakeout will disband, and, most unfortunately, the skills and experience purchased at the cost of so much capital will be lost.

PROSPECTS FOR VENTURE CAPITAL IN EAST ASIA

The venture capital industries in Asia have differing levels of development and quite different institutional characteristics. If one adopts a Silicon Valley definition of *venture capital,* then probably only Taiwan, China, would qualify as having a venture capital industry. In terms of funding high-technology firms, it is clearly the Asian leader. However, if we accept local definitions of venture capital, then we can conclude that a sustainable venture capital industry exists in Hong Kong (China), Japan, Korea, and Singapore. Venture capital in China continues to appear promising, though at this point the industry remains immature. In the remaining Asian economies, the prospects for venture capital are not as strong.

Except, perhaps, in Hong Kong, China, Asian governments have played an important role in both creating the macroeconomic environment and providing support for the emergence of a venture capital industry. Taiwan, China, is a textbook case for the ways in which the government can alter the risk-reward calculation but not eliminate it. The 20 percent tax rebate created a powerful incentive, but it did not eliminate risk. Moreover, the government created relatively simple and transparent rules that aligned the incentives for the fledgling venture capitalists with the government's objectives. In marked contrast, the Korean efforts created a system that encouraged micromanagement by government bureaucrats and aimed at encouraging the venture capitalists to undertake financial activities for purposes other than maximizing their capital gains from equity investments. These rules and regulations led to the development of risk-averse venture capitalists who concentrated on extending loans rather than investing in equity.

More general issues concern every Asian economy. The first is the concern with creating "exits" as the way to encourage venture capital. Nearly every economy has created a new stock market or section with loosened listing requirements. However, nearly all either began with low liquidity

or, after the bursting of the Internet bubble, dropped so precipitously that they now suffer from low liquidity. With such low liquidity, these new markets do not actually offer exit paths. This issue will be important in any recovery.

There can be no doubt that the U.S. venture capital model has worked well in the past and has been successfully transferred to certain nations. Whether it is an appropriate model for all nations can be determined only after examination of that nation's initial conditions. Unfortunately, few other models have proven to be strong substitutes for creating an entrepreneurial environment based on high technology. Thus far, there have not been many successful hybrid models—venture capital seems to be a fragile institution that does not hybridize well. The Asian economies that have been most successful in creating a venture capital industry are those with the closest human ties to the United States—namely, Taiwan (China) and Singapore. Also, these nations have largely adopted the U.S. model with specific changes to suit their environment. In each case, the governments developed policies that singled out venture capital as an important aspect of their efforts to mobilize entrepreneurship.

Despite the many obstacles to creating a vibrant venture capital community, during the past two decades the industry has taken root, especially in Hong Kong (China), North Asia, and Singapore. There are also reasons to be guardedly optimistic about the prospects for China. The current downturn is a major test for the industry in all of these economies, and it is likely that many firms will fail. Unfortunately, there may be little governments can and, indeed, should do to protect venture capital from failure. However, the venture capitalists and national venture capitalist communities able to survive without becoming wards of the government may be poised for growth during the next recovery.

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