

**Accessing Venture Capital in India**  
**Report of a Conference Held June 1, 1999**

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## Preface

In recent years, India has made good progress in the export of information technology (IT) software and services. Many other countries now look to it as a model. At the same time, India's concentration of low value-added services, the near-absence of technology development, and the total absence of hardware development suggest that IT exports are not fulfilling their potential, either in terms of innovative content or of possible sustainability. The Indian government has set aggressive targets for the high technology industry, including an annual export growth rate of 33 percent for the next decade, compared with 50 percent over the past five years. These goals will translate to substantial dollar increases in software and IT services exports—from \$3 billion in 1998 to \$50 billion in 2008. Can this ambitious figure be achieved? Or, perhaps, is it too low, given India's current growth trajectory?

To discuss these issues, 110 scholars, practitioners, regulators, multilateral agencies, and policymakers from India and abroad (including Israel, Taiwan, and countries in Europe and Latin America) met on June 1, 1999 at Stanford University in a one-day conference. The program had the following stated objective: to inform and educate India's IT policymakers and practitioners about India's enabling environment as it relates to regulation, governance, access to capital, and technological capabilities. The title of the conference, "Accessing Venture Capital in India," used the word "capital" in the broadest sense, to include both human and financial capital. The word "accessing" was used to mean facilitating the creation of capital through appropriate regulation and governance.

The conference schedule was as follows:

### **Keynote Speech: The Global Approach to Technology Development**

Dr. Eric Schmidt, Chairman and CEO, Novell

### **India as a Center of Innovation—Regulatory and Infrastructural Issues**

Speakers:

- Mr. L.K. Singhvi, Senior Executive Director, Securities and Exchange Board of India
- Mr. Nishith Desai, Nishith Desai and Associates Law Firm

- Mr. Gokul Agarwalla, Management Consultant, Technology Parks
- Mr. S. Vardachary, Centre for Technology Development, Government of India
- Mr. Ravindra Gupta, Secretary, Department of Electronics, Government of India
- **Discussant:** Mr. Kanwal Rekhi, Chairman, The Indus Entrepreneurs

### International Experiences with Innovation—Issues and Concerns

#### Speakers:

- Dr. Tzu-Hwa Hsu, Walden International Investment Group, Taiwan
- Mr. Yishai Laks, Economic Consul General, Government of Israel
- Mr. Robert Stillman, Former Administrator, SBIC program of the Small Business Administration (U.S.); President, Milbridge Capital Management
- **Discussant:** Dr. Harry Saal, Founder, Network General

### India as a Destination for Venture Capital

#### Speakers:

- Mr. Som Das and Mr. Sudhir Sethi, Walden International Investment Group, India
- Professor K. Ramachandran, Indian Institute of Management, Ahmedabad
- Dr. Sridhar Mitta, Wipro Corporation
- Mr. Jonathan Everett, Viewgroup India
- **Discussant:** Dr. Suhas Patil, Chairman *Emeritus*, Cirrus Logic

### Global Approaches to Innovation

#### Speakers:

- Professor Anna Lee Saxenian, University of California, Berkeley
- Professor Martin Kenney, University of California, Davis
- Mr. David Blumberg, Blumberg Capital
- **Discussant:** Mr. Sabeer Bhatia, Founder, Hotmail Corporation

Drawing from the framework developed by William Miller,<sup>1</sup> the conference analyzed India's ability to compete in the IT arena in terms of two primary factors. First, the supply of human and financial capital—measured in terms of quantity, quality, mobility, and attitudes towards risk-taking—must develop. Second, India must create an enabling environment for IT, characterized by openness across business networks, community collaboration, infrastructural availability (technology parks, telecom, international airports, etc.), institutional, regulatory and legal development, access to research, and government involvement. In the past, the overall environment has generally been considered constraining, but it is now in rapid flux. The key questions considered by the conference participants may be summarized as follows:

- Will future growth be driven by domestic or foreign demand?
- Given the direction of growth, can the supply of human capital be sustained?
- Is there a shortage of venture capital for start-ups? How should the regulatory, legal, and institutional environment be changed to help develop the venture capital industry?
- What are the best strategies to overcome the shortage of research facilities at universities?

- Is government policy relevant and has it been enabling, neutral, or disabling? If government policy is relevant, what should its future approaches be?
- Do the experiences of other countries offer a guide to policy?
- Are there any novel approaches that will combine Indian talents and environments with others around the world to enhance the performance of India's high technology industry?

This A/PARC report, prepared by Dr. Rafiq Dossani of the Asia/Pacific Research Center, presents a summary of the conference's findings on these questions. Please contact A/PARC if you have any questions about the conference, or about the Center's work in general.



## **Accessing Venture Capital in India**

### **Report of a Conference Held June 1, 1999**

*Prepared by Rafiq Dossani*

#### **The Human Capital Supply:**

#### **Quality, Quantity, Mobility, and Risk-Taking Attitudes**

In the 1970s, IT exports from India began with “body-shopping,” also known as contract programming. In such contracts, the amount of code was specified in the contract and there was relatively little risk. Until 1991, this was the main form of IT exports, and it was performed exclusively by Indian firms. Foreign firms were deliberately excluded as a matter of government policy. It was a difficult business environment. Indian firms that were exporting bodies, as well as firms that operated only in the domestic market, found themselves operating in a closed economy, featuring high tariffs on hardware imports and non-tariff barriers on software imports. Quite by accident, this situation led to a growth of skills that would be of great value to India a few years later. India’s UNIX talents, now globally in demand due to the growth of the Internet, developed because the country’s closed economy forced Indian computer makers to develop their own hardware and software design skills. Sridhar Mitta noted that, in 1983, the United States used an Intel 386 microprocessor as the base for a simple personal computer, whereas India employed the same microprocessor with the UNIX operating system to power mainframes that controlled large enterprises. India’s closed environment also spurred the country’s IT industry to develop advanced skills in system design, architecture, protocol stacks, compilers, device drivers, and boards.

When India began to export its IT labor in the 1970s, most workers came from one city: Bangalore. The emergence of Bangalore as a suitable site for high technology work rests on two key factors. The first is the presence of several academic institutions and government-

sponsored high technology enterprises, such as the Indian Institute of Sciences and Hindustan Aeronautics Limited. The ongoing strength of the four southern states—Tamil Nadu, Andhra Pradesh (AP), Karnataka (which includes Bangalore), and Kerala—in supplying labor is helped by the fact that four hundred of India's six hundred technical colleges are located within them. In a recent presentation at Stanford University, the director of the Indian Institute of Technology (IIT) at Kanpur (one of India's five prestigious IITs) noted that Bangalore's Indian Institute of Science, as a research center for IT, has in fact overtaken the IITs as a center of technology research.<sup>2</sup> The second group of factors contributing to Bangalore's current IT dominance springs from its lower real estate costs, good weather, and the development of an international airport. Together, these attributes led an important high technology firm, Wipro, as well as several multinationals, to relocate from Mumbai to Bangalore in the 1980s.

Bangalore offers many advantages, but even these may not be eternal. Recent visits to its IT Park, a private venture funded by the Tatas, India's largest industrial group, and the Government of Singapore, suggest that Bangalore is losing out to Hyderabad. To be sure, Bangalore possesses a much stronger labor pool, but its severe power and water shortages, along with incentives from AP's state government to firms setting up in Hyderabad, are conspiring to make it a less popular choice than previously. A recent, prominent example of this phenomenon occurred when General Electric's finance division, after rejecting an initial decision to go with Bangalore, chose to take advantage of the AP Government incentives.<sup>3</sup>

From 1991 onwards, the Indian economy was opened to foreign investment. Almost immediately, U.S. high technology firms began outsourcing software development in India, leveraging local knowledge of English and lower labor costs, and adding value without risk. Indian firms which had until then focused on hardware and software design, and on products and services for the local market, were unable to compete with U.S. firms for labor. They shifted their focus to the export market. Meanwhile, those Indian firms which had become leaders in on-site body-shopping shifted into off-site work in India.

Since then, several Indian exporters have successfully entered the software support business. In some cases, their current revenues exceed those of many mid-tier, U.S.-based, public IT service companies. These companies continue to lead the Indian industry today. Interestingly, the domestic market for IT products and services has grown very slowly (less than 10 percent per year through the past decade), while the export market, by contrast, has done very well. In addition, though low value-added services still dominate the export market, the balance has shifted in the past two years from on-shore services to off-site services. According to the Pune-based Maratha Chamber of Commerce's IT group, about 50 percent of India's exports come from on-site body-shopping and 30 percent from off-site contract work. High value-added "next-stage" businesses, such as turnkey projects, consultancy, and transformational outsourcing, remain small, and branded product development for the export market is negligible. Nor is India yet a player in technology development or hardware products.

Though generally thought to be very high, the quality of labor is still a matter of debate within India. The head of training at Satyam Computers, a large IT firm with Level 5 training facilities (a European designation awarded to fewer than a dozen firms worldwide), stated that his firm found the quality of graduates from the software training institutes to be inadequate. He noted that the best students of the IITs (the top 10-15 percent) possessed outstanding ability, but most of them went abroad (primarily to the United States) after graduating. The remainder, in his view, were of poorer quality and needed substantial additional study to improve their skill-sets. At the middle levels of the IITs, similar perceived quality



problems, combined with the inability to recruit top level candidates, have dented IIT enrollment numbers. The proportion of IIT students at the Indian Institute of Management, Ahmedabad, the premier management institute in India, has decreased from 70 percent in 1990 to less than 30 percent today.

Holding aside for the moment the question of whether India has the talent and overall quality of labor for product development, it clearly possesses the quantity. Each year, 61,000 computer engineering graduates come out of Indian universities, as compared with the 30,000 graduates who complete the same degree in the United States. An even larger number of Indian students—215,000 per year—graduate in other engineering fields. Many of these graduates promptly shift to computer engineering because of the earning differential, or join the 200,000 people who annually enroll in private software training institutes. Still other Indian IT workers are trained in post-recruitment, in-house institutes, at firms such as Wipro and Satyam. This generally youthful population is also mobile, willing to move anywhere in India or abroad to pursue their jobs. Indeed, 50 percent of the H1-B visas issued by the United States in 1998 went to Indians.

The Indian IT industry now boasts a much more open environment, yet its production of high value-added business capabilities lags behind that of Israel and Taiwan. In his conference presentation, Mitta argued that software work remains limited to low-level programming jobs. He attributed this to an inability to understand market and technology trends from a distance, which in turn leads to problems in arriving at the desired product and engineering specifications. Gaps exist in user interfaces that prevent ease of use or quality of back-up documentation and technical support, and ultimately lower Indian software companies' ability to address investor demand and changing market scenarios. In contrast, while discussing the Israeli IT industry, David Blumberg noted that Israeli companies tend to pay particular attention to user interface. They recognize that, for companies based outside the United States, customer care and technical support procedures must maintain a quality as high or higher than that available in the American market.

The problems noted above relate more to smaller-scale structure and interface adjustments than to large-scale, innate problems of the Indian labor force. Nevertheless, in many quarters there exist concerns about software specialists' willingness to risk starting or joining a new company. Multinationals and large Indian firms remain the employments of choice. This may reflect the financially insecure background from which Indians come, or the country's long-standing culture of bureaucratic control. Either way, it has led to what Som Das and Sudhir Sethi called in their remarks the "51 percent ownership syndrome." Indian entrepreneurs are reluctant to allow a venture firm to supply capital that will reduce their personal ownership to below 51 percent at *any* stage of the financing process. This reluctance leads to the peculiar problem of project investments often being too small at the start-up stage to justify venture capitalists' attention. This may be why financing focuses on later-stage projects, which in turn accounts for the general shortage of seed capital for start-ups in India.

These concerns about risk aversion are transitional issues likely to disappear soon. As Blumberg noted, Israel went through the same experience in its venture capital industry. Once the "low hanging fruit" of late-stage firms is plucked and venture capitalists have shored up a reservoir of talent to advise start-ups, the situation changes quickly. This has been borne out by Indian entrepreneurs in Silicon Valley. Having started as "shopped-bodies," these workers rapidly became risk-takers. In her conference remarks, Anna Lee Saxenian noted that between 1980 and 1997, Indian entrepreneurs started 565 firms in Silicon Valley, or 6 percent of the total number of firms established in that time frame. The figure has likely

risen since then. By 1997, Indian start-ups in Silicon Valley were generating annual sales of \$3.25 billion and employment for 13,664 people. Das and Sethi noted that in India, the typical risk-averse mindset shows signs of positive change. Recently, they observed, the supply of young, technically qualified entrepreneurs has been increasing. At the same time, increasing numbers of internationally savvy, senior management have been leaving established multinationals and large Indian firms to start new companies.

In addition to risk aversion, K. Ramachandran pointed out another kind of human capital deficiency—one that operates within its domestic venture capital firms—with which Indian IT must contend. For reasons that will be covered more fully later in this summary, most Indian venture capital firms are staffed by personnel seconded or transferred from public sector banks, or recruited fresh from management institutes. Their income is unrelated to performance, and they bring with them the baggage of undeveloped management skills and high risk aversion. Firms employing such personnel typically do not possess the industry knowledge that can help a start-up, particularly in the high tech field. While this, too, may be a transitional problem, it has led to inefficient outcomes. Ramachandran reported a typical example of inefficient board strategy. The CEO of one of the largest venture capital firms in India sits on the board of six companies belonging to six different industries, including firms from the pharmaceutical, textile, and IT industries. Similarly, India's largest venture capital firm, ICICI Ventures, has a portfolio of two hundred and fifty companies, in a wide range of industries located in different parts of the country, managed by fourteen managers. Many of the ICICI Ventures-financed firms are not in the high technology field, and a risks they often carry is that of finding a market in a competitive industry. Examples include Gum India, a manufacturer of bubble and chewing gum, and Asian Peroxides, a manufacturer of hydrogen peroxide.

In summary, the conference concluded that change in human resources for IT, though underway, is too slow. India's software and services exports are unlikely to meet the government's expectations for a ten-year annual growth rate of 33 percent in the absence of an environment more conducive to skill development.

## **The Financial Capital Supply:**

### **Quality, Quantity, Mobility, and Risk-Taking Attitudes**

The "private" venture capital industry in India started in 1990, on the recommendation of the World Bank (WB), when four funds, all promoted by public sector undertakings, were begun. Overseas and truly private domestic funds only began investing in India in 1996, after the venture capital regulator, the Securities and Exchange Board of India (SEBI), announced the first guidelines for registration and investment by venture capital firms.

The venture capital supplied to India remains small and dominated by foreign investors. Domestic pension funds, insurance firms, and mutual funds are not permitted to invest in venture capital firms. International Finance Corporation (IFC) data supplied at the conference show that of the twenty private equity funds in India classified as "very active," three are subsidiaries of development financial institutions (DFIs), or long-term debt suppliers. Seventeen are foreign funds. There are no domestic funds in this category. Of the seventeen

funds classified as “moderately active,” four come from the DFI group, four from domestic private funds, and nine from off-shore funds.

Data presented by L.K. Singhvi for SEBI, and corroborated by IFC data show that about \$1 billion has been committed from off-shore funds, of which less than half has been invested to date. The fourteen registered domestic funds have committed 3.8 billion rupees, of which 1 billion rupees (U.S. \$23 million) have been invested across 108 projects. While these figures are very low, Singhvi estimated that the total pool will grow very quickly to 200 billion rupees (U.S. \$4.6 billion).<sup>4</sup>

Data from the Indian Venture Capital Association (IVCA) for 1998 show that, among the domestic funds, 64.3 percent was invested in equity shares, 19.8 percent in convertible debt and 7.6 percent in preference shares. Of the 719 start-ups financed, only 166 were late-stage financings; the rest were start-ups, seed stage, and other early-stage financings. Interestingly, the software industry took 19.9 percent of the money disbursed, second only to industrial products machinery at 23.5 percent.<sup>5</sup>

## **The Financial Capital Supply:**

### **Legal and Regulatory Issues**

Indian law does not allow for the formation of limited partnerships, which are the common international method of organizing venture capital firms. Since the limited partnership law does not exist in India, SEBI has laid down special guidelines permitting the tax department to provide incentives, for venture capital firms registered with SEBI, that mimic the tax pass-through available to U.S. limited partnerships. For this to be possible, venture capital firms must be organized as limited companies or trusts, and may create, if they desire, separate asset management companies. All long-term capital gains earned (defined as capital gains on investments held for more than one year) are exempted from tax. Since dividend receipts in India are tax-exempt in the hands of all recipients, the combination of the two rules effectively means almost complete tax exemption for venture capital firms and their investors. Venture firms have to pay tax only on two occasions: if their gains are short-term or in the form of interest receipts (38.5 percent for companies and 33 percent for trusts), or if they organized as companies rather than trusts, thus requiring them to pay dividends (10 percent withholding tax).

This structure for venture capital firms has the following advantages and disadvantages:

- 1) The trust form of the venture capital firm is more tax-advantageous than the company form. In fact, in the typical case, it allows for complete tax exemption in the hands of both trust and investor. However, Nishith Desai noted in his conference remarks that the kinds of securities a venture capital trust firm may acquire are limited mainly to equity securities under the Indian Trusts Act. This means that investing in equity-linked securities, such as convertible preference shares, would cause the trust to lose its tax-exempt status. Further, an important aspect of equity-linked securities—their voting rights, the essential mechanism through which a venture capitalist controls an investee firm’s management—is not available.

- 2) While the tax status of dividend payouts in India is more advantageous than in most other countries, including the United States, the Indian tax code does not recognize marking-to-market of either unrealized capital gains or losses as taxable income or loss. Likewise, capital distributions to investors are not allowed, except in the event of the venture capital firm's termination. This is particularly important for new funds that may lose money in the initial years. Such losses cannot be passed on to investors to realize potentially advantageous personal tax losses.
- 3) When the tax rules were first announced, their chief feature—a tax pass-through, not available in any other corporate form—meant that investors had a strong incentive to abuse them. For example, a finance company that specialized in providing finance to textile retailers could reorganize itself as a venture capital trust, thus avoiding income taxes completely. The venture capital guidelines stated that the funds were to be used for new or untried technology, but the words “untried technology” lent themselves to wide interpretation. In an effort to limit the tax pass-through benefit to socially desirable activities only, the tax department restated the law in 1999, making tax pass-through available only for funds investing in software, information technology, production of basic drugs, bio-technology and agriculture, or the production of patented items from government-approved research laboratories. Obviously, this list of industries is meant to be a dynamic one, but it creates a new (and as yet untested) bureaucratic filter, discussed later in this summary. Other restrictions on Indian tax pass-through include:
  - At least 80 percent of the funds must be invested in equity shares or “equity-related securities” of unlisted or financially weak companies.
  - A venture capital firm may not own more than 40 percent of an investee company and may not invest more than 5 percent of its externally raised funds or 20 percent of its total paid-up capital in a single company.
  - To protect small investors, a “high net-worth” restriction requires a minimum investment of half a million rupees per investor.
  - All permitted listed investments are subject to tax at normal corporate rates for venture capital companies, and at normal trust rates for venture capital trusts.
- 4) Conflicts between the edicts of SEBI, the Ministry of Finance, and the Income Tax Department (ITD) remain unresolved. In order to claim tax exemption, the Income Tax Department only requires investment in unlisted equity shares, whereas SEBI permits limited investment (up to 20 percent) in listed equity, and in the listed equity of financially weak or sick companies. Another point of disagreement arises over quasi-equity securities within a trust: the ITD does not recognize them and will disqualify a firm that invests through convertible preference and other quasi-equity securities from tax pass-through. But SEBI will continue to recognize such firms as registered venture capital firms.
- 5) Since most venture capital funds call up capital as needed from investors, they initially have high proportions invested in the first few investee firms, making the 20

percent restriction untenable. Further, in the event of foreign shareholdings in divested firms, the central bank must approve the price of divestment. The Reserve Bank of India's (RBI) guidelines are the same as for listed equity and could be restrictive. They require a price that is the higher of 60 percent of the Bombay Stock Exchange P/E multiple or 60 percent of the firm's Net Asset Value (NAV). For companies developing intellectual property that have yet to make profits, neither guideline makes much sense.

- 6) For the on-shore investor, the above restrictions have led to the peculiar situation of not a single registered venture capital firm claiming the tax pass-through. For off-shore investors permitted to invest in domestic firms, these restrictions have led to a preference for direct investment in investee companies via tax havens such as Mauritius. This requires a simple bureaucratic filter in that each investment must be approved by the Foreign Investment Promotion Board, but there are no other significant restrictions. The tax haven treaty also guarantees complete tax exemption from Indian taxes, thus allowing foreign investors to create exactly the kind of capital structure they want off-shore. The result is an uneven playing field favoring off-shore venture capital firms over domestic ones.

## Policy Options

- **Allowing Limited Partnerships.** In his conference remarks, Ravindra Gupta stated that permitting limited partnerships is a major goal of the Department of Electronics, and that the government has approved a limited partnership law in principle. S. Vardachary also noted that legislation to provide for limited partnership is one of the Centre for Technology Development's key policy objectives.
- **Amending Trusts.** An alternative argument put forward by Desai proposed that trusts be given tax exemptions as above; that the tax department recognize marking-to-market, capital, and interest distributions; and that restrictions on venture capital portfolios and the kinds of securities they may hold be lifted.
- **Using General Partnerships.** India currently allows partnerships only as general partnerships, where partnership income is taxed once at the level of the partnership (the current rate is 38.5 percent), and the income distributed to the partners is tax-free. Losses can be carried forward only by the partnership and are not distributed to the partners. Clearly, a general partnership with unlimited liability would not work for venture capital firm structuring.

The primary tax advantage of the limited partnership structure is that income and losses are taxed in the partners' hands (as capital gains/losses, interest payments, or dividends) and not in the partnership. The partners' liability, excluding that of the general partner, is limited to the amount subscribed, and the partnership can have a limited tenure. Non-tax distributions of stock and other securities are also permissible.

The primary non-tax advantage of limited partnerships is that the liability of general partners is unlimited, thus allowing active risk managers to assume more risk than passive inves-

tors. Nevertheless, though such a risk-sharing arrangement may be desirable for passive investors, it is not an important factor for the success of venture capital firms. This is borne out by the fact that most venture capital firms' general partners are themselves structured as firms with limited liability, thus rendering the unlimited liability clause ineffective.

From the venture capital firm's perspective, the corporate form in which it operates should permit control of investee firms through an adequate number of seats on the board, regardless of the proportion of the investee company it holds. This arrangement can be negotiated independently of the venture capital firm's corporate structure, and does not require a limited partnership structure.

From the investee firm's perspective, its financial structure should allow venture capital firms to invest at a higher price than the founders and employees, in recognition of their so-called "sweat equity" (the typical ratio is 10:1). This scenario requires that the venture capital firm hold quasi-equity, such as voting, and preference shares convertible at prices different from shares issued to employees, without losing its tax pass-through status.

In summary, the key elements for venture capital are tax pass-through, capital distributions, recognition of marking-to-market, the ability to invest in an unrestricted variety of financial instruments, and the ability to disinvest without special approvals. According to Desai, allowing different risk-sharing arrangements between general and limited partners is not important for venture capital firms since the trust structure, duly amended as discussed, will do the job.

## **The Financial Capital Supply:**

### **Governance and Exit Issues**

As discussed earlier in this summary, the only "active" domestic venture capital funds in India are subsidiaries of government-related, long-term lending institutions. As the experience of the United States, Japan, and several other countries has demonstrated, such firms make poor venture capitalists. Problems arise from the risk aversion parameters they set and the quality of the human capital, described earlier in these proceedings, working within them.

In examining governance and exit issues in Indian venture capital, Ramachandran pointed out what he calls a "god to dog" phenomenon. After being treated like gods during the borrowing process, the venture capital firm is thereafter treated as a pariah dog, and tends to have no ongoing relationship with the investee firm once it has handed out the money. In most cases, Indian entrepreneurs, as in the United States, would prefer bank loans to venture capital, but do not have the collateral to secure them. They must, therefore, accept the venture capitalist's onerous terms. Since they receive no other support from the venture capitalist, they tend to view the cost of the money as unnecessarily heavy. Typically, the domestic venture capital firm imposes loans on a contingent basis: the venture capitalist will purchase equity-linked, unsecured debt that specifies a high interest rate (usually over 25 percent), provided the investee firm achieves certain turnover targets, with further upside depending on performance. Although board seats are allotted to venture capitalist, these are largely ceremonial posts. According to Ramachandran's findings, investee firms believe the cost of venture capital is too high, and feel that it should be 8 to 10 percent, compared with bank

loans, which cost 15 percent on average. While the basis for such expectations is not obvious, it helps to explain the high default rate.

Though still in its nascent stages, and therefore untested, exit is likely to be a problem for venture capital firms. The record of government-promoted venture capital firms, which were established in 1990, is dismal. The private venture capital industry only began supplying finance in 1997, after SEBI issued guidelines. Similarly, the industry's performance record is unknown—bearing in mind that these are early days—but it is believed to be poor. All divestments so far have taken the acquisition route; none passed through the stock markets. This is due in part to India's sluggish economy since 1996, and a generally poor market for IPOs, but also to the restrictive RBI guidelines, noted above, which create problems for divestment through IPOs.

## **Indian Venture Capital and the Business Environment**

As summarized above, the conference participants addressed the legal, regulatory, and governance structures of Indian venture capital firms in some detail. The discussion then shifted to issues associated with the business environment for venture capital in India.

For Indian entrepreneurs, the costs of starting up a new venture are modest. Companies may be bought off the shelf and business begun relatively cheaply and quickly. However, the availability of infrastructure is weak as compared to developed countries. Gokul Agarwalla states that there are seven software technology parks (STPs), each with an average investment of \$3 million. The quality of habitat in these parks is considered to be poor, but entrepreneurs are attracted by good global communications infrastructure, which is made available at cost. The only STP that rises to an international standard is the International Technology Park in Bangalore, promoted by the Tatas and the Government of Singapore. Oddly, it has constructed less than half of its projected office space because it remains unable, as yet, to compete with downtown space in Bangalore (where there exists a prolonged recession in office space). Generally, the poor quality of STPs could contribute to the IT brain drain in India—a subject that conference participants discussed later in the session. Further, though the Indian business environment is open and encourages entrepreneurship, there is very little interaction between universities and other research centers and business.

## **Government Policy for Developing IT**

The Indian government's policy towards IT is captured in its 108 Point IT Program, approved in 1998. The key features are:

- 1) Infrastructure
  - Enhancing Internet access by opening access nodes countrywide, through the government-owned Department of Telecom
  - Bandwidth release as needed from both Intelsat and the Defence Ministry
  - Allowance of ISP services through cable TV networks
- 2) Corporate IT development

- Duty-free access to imported software and hardware
- Licensing exemption for IT service firms from excise, labor, and pollution
- Service tax exemptions
- Introduction of personal tax incentives for computer and software purchases
- Accelerated depreciation for business purchases
- Changes from asset-based to contract-based lending in bank lending norms
- “Priority sector” status for accessing bank loans for the IT software and services sectors
- Permission for banks to buy equity in venture capital funds, up to 5 percent of their incremental deposits
- Loss-carry backward allowed for venture capital firms
- “Sweat equity” allowed, including dollar-linked stock options
- Freedom to purchase overseas firms

### 3) National IT development

- Easy loans for buying computers and software
- Internet access for every educational institution by 2003
- Compulsory IT course module for all degree courses
- IT literacy for all government employees

This is an impressive list of policies. Since the program was announced in July 1998, the following initiatives have been implemented:

- Creation of a 1 billion rupee fund to finance venture capital, to be administered through the Small Industries Development Bank, a government-promoted undertaking.
- Bank investments in new high technology ventures are now recognized as “priority sector” loans, on par with loans to agriculture and small industries.
- Banks may now invest up to 5 percent of their incremental deposits in high technology ventures in any year.

Before discussing the implications of and gaps in the government’s new 108 Point Program, the conference participants considered the IT and venture capital experiences and regulations that prevail in other countries.

## **The Venture Capital Business Environment:**

### **America’s SBIC Program**

In his presentation on the U.S. venture capital experience, Robert Stillman noted that the Small Business Investment Corporation (SBIC) program’s basic objective is to induce private capital to invest in small companies that could not otherwise raise capital from purely private sources. In most cases, the Small Business Administration (SBA) that administers the SBIC program for the U.S. government agrees to provide two-thirds of the total capital, at a



cost linked to the central bank lending rate, thus reducing the cost of borrowing while providing easy credit access to the private investor. For example, equity lenders can put in their own capital of \$10 million, and the SBA will provide \$20 million, for a total investment pool of \$30 million. These arrangements can be structured in any way allowed under the law, though typically as limited partnerships. For SBICs that specialize as equity lenders, the SBA invests by way of participating securities that provide some small equity upside, along with a moratorium on interest payments until the SBIC is ready to make cash distributions to its investors.

The SBIC does not distinguish between types of businesses, although investments in buyouts, real estate, and oil exploration are prohibited. In 1998, the SBIC invested \$3.4 billion in 3,470 ventures, approximately 40 percent by number and 20 percent by dollar value of all venture capital financings. Over half that amount was given over to businesses three years old or younger. Companies such as Apple, America Online, Intel, and Sun stand as some of the SBIC's more famous past financings, but the lesson of its success lies in successfully financing thousands of small, unknown firms.

The SBIC program enjoys great popularity with politicians. Because the SBA guarantees loans and makes budget appropriations equal to the net present value of anticipated negative cash flow of the loans guaranteed, the budgetary implication of the program is small. In recent years, the budget appropriation has been about 1 percent of the loans guaranteed. In 1996, the budget appropriation was \$20.6 million, or less than a tenth of the taxes paid by corporate SBICs (\$242 million). Thus, the program makes money for the government even without considering the taxes paid by the businesses financed or by their employees.

The SBIC program undoubtedly has relevance for India, and it is possible a structure could be implemented in which Indian venture capital firms registered with SEBI could avail themselves of those funds. Were this to occur, the only major constraint would be the absence of an active capital market for debt. This obstacle could be overcome, however, by allowing such funds to be part of the banking system's statutory reserves. As discussed above, such a program would need to tie into overall reform of the venture capital environment.

## **The Venture Capital Business Environment:**

### **Taiwan's Experience**

In his presentation, Tzu-Hwa Hsu asserted that Taiwan's high rate of economic development, along with deliberate government policy, has engineered a much desired reverse brain drain from U.S. high technology. In this effort, Hsinchu Science-based Industrial Park is the showpiece of Taiwan's success. Forty percent of the firms established in this government-promoted park, which currently accommodates 3,000 expatriates, were begun by entrepreneurs from the United States. The revenue of firms located at Hsinchu Park was \$14 billion in 1998. Facilities at Hsinchu include English language teaching for the children of its expatriate entrepreneurs.

The Hsinchu experiment has benefited from the generally high quality of education in Taiwan, whose institutes produce 50,000 engineers annually. Taiwan has 74 technical schools, 36 colleges, and 24 universities, two of which are located near Hsinchu Park. The venture capital environment has also been a favorable factor. There are 110 venture capital firms in

Taiwan, including 38 begun in 1998. By the end of 1997, these firms had invested \$1.32 billion in 1,839 ventures, mostly in high technology. Unlike India's experience, these have earned good returns. Hsu reported that the Walden Group earned 200 percent on its initial capital between 1994 and 1998. Taiwan's active stock exchange has also been a good avenue for exit opportunities. Moreover, its accounting system, which imitates that of the United States, allows for easy listing of several Taiwanese firms on the U.S. stock exchanges.

Taiwan's government has been particularly successful in promoting its hardware industry through tax incentives for returning expatriates, low tariff barriers, large amounts of credit at cheap rates, good infrastructure facilities, and the establishment of research institutes. The Industrial Research Institute, owned by the government, was started with semiconductor technology purchased from RCA Records. The technology subsequently developed at the Institute led to two very successful integrated chip firms, United Microland Corporation (UMC) and Taiwan Semiconductor Manufacturing Corporation (TSMC), which were initially promoted by the government and ultimately privatized.

With a self-reliant, well-diversified industrial base in high technology, both in size and activity, future Taiwanese government policy is to facilitate rather than direct research. In particular, the government intends to focus more on infrastructure development, science, and engineering education. It has also set up a special fund to finance research and development in electro-optical and biosciences, which are currently identified as key technologies.

During the discussion of international venture capital environments, Saxenian argued that Taiwan has benefited from close ties with Silicon Valley. A transnational community of Taiwanese engineers has fostered a two-way flow of capital, skills, and information between Silicon Valley and Taiwan. The benefits that India derives from its expatriate community are, according to Saxenian, more limited. This is due partly to India's more constrained business environment and partly to its lower stage of overall economic development, which discourages repatriation. Many Indian entrepreneurs in Silicon Valley have linked U.S. companies to low-cost software expertise in India, such as Kanwal Rekhi did by opening offices for Novell in Bangalore. Saxenian suggested, though, that expatriate Indians have played a more limited role than expatriate Taiwanese.

Both Saxenian and Mitta noted an emerging trend: the meeting of Taiwanese and Indian high technology talents in Silicon Valley. Saxenian described the case of Ramp Networks, which was started by an Indian expatriate, Mahesh Veerina, in Silicon Valley in 1993. Ramp Networks develops low-cost devices that speed Internet access for small businesses. The firm set up software development operations in Hyderabad at costs that were one-fourth of Silicon Valley's. Although the firm was initially funded by an India-dedicated venture capitalist, Draper International, the founder, Veerina, happened to meet the principals of a Taiwanese venture capital firm, InveStar Capital. InveStar invested in Ramp and then convinced Veerina to visit Taiwan, where he subsequently established Original Equipment Manufacturing (OEM) relationships to manufacture its routers there. The price to do so was half that of the United States, and included substantially faster new product development in the bargain.

Given current trends in technology, which will be covered below, the Taiwanese experience of promoting high technology hardware industries within Taiwan may have limited relevance to India. However, India can learn important lessons from the Taiwanese government's focus on education and encouragement of small enterprises, via facilities such as Hsinchu Park, as well as a U.S.-style legal, regulatory, tax, and institutional environment.

## The Venture Capital Business Environment:

### Israel's Experience

Spurred by high levels of education, high technology expertise from Russian immigrants, and the peace process, Israel is undergoing a high technology boom. The Israeli venture capital industry has grown from one firm with a corpus of \$30 million in 1991, to eighty firms with \$3 billion in investible funds by 1998. Further, Israel's IT specialty is developing technology, rather than software or products. This focus has meant that new Israeli ventures are most typically acquired by larger technology firms, but the IPO route in the U.S. markets has also succeeded.

Like Taiwan, Israel is another country in which government policy fostered a successful, highly diversified, self-reliant industry. In the early 1990s, Israel restructured its legal, accounting, and regulatory framework to mimic that of the United States. According to Blumberg's conference presentation, the new Israeli framework guarantees U.S. investors parity with U.S. tax rates.

In 1984, the Israeli government passed a law to encourage industrial research and development (R&D) and created the Office of the Chief Scientist to implement government policy related to this area. The law's strategy is to encourage private companies to invest in R&D projects with the government sharing the business risk. Under the law, a Research Committee appointed by the Chief Scientist approves proposals for anywhere from 30 to 66 percent of given projects' funding (up to \$250,000). These proposals, when funded, also receive tax exemptions for up to ten years.

As an additional incentive to entrepreneurship, the Israeli government has created twenty-six technology incubators designed to allow start-ups to convert their ideas into commercially viable products. These IT incubators currently house two hundred firms with nine hundred employees, and government administrative staff provide administrative assistance and business guidance.

Israel's government participates in international cooperation, seeking to match the nation's technical skills with global markets, and to share start-up risks up front with later-stage activities such as marketing. The most successful of these ventures has been the Bilateral Industrial Research and Development Foundation (BIRD). Begun in 1977 as an equal partnership with the U.S. government, the BIRD Foundation was seeded with \$110 million to fund joint ventures between Israeli and U.S. firms. BIRD provides 50 percent of a company's R&D expenses, with equal amounts going to each partner. Its return comes from the royalties it charges on the company's revenue.

In practice, only 25 percent of the funded projects have been successful, but this is a satisfactory rate even for private funds. The monies BIRD has earned on profitable projects more than offset losses made by the rest, thus allowing the Foundation to maintain the value of its corpus. BIRD approves about forty new projects a year, with average funding of \$1.2 million for a duration of twelve to fifteen months. It has so far funded five hundred such projects.

Israel has also benefited from its close relationships with the United States. As Saxenian noted, the Israeli high technology industry enjoys the same kinds of transnational ties that have helped Taiwan. For example, Intel's investments in Israel were motivated by American Jews working in the company's U.S. location. Similarly, the Israeli venture capital industry was set up by a well known Silicon Valley venture capitalist, Arthur Rock, an American Jew

who moved to Israel. Because of this link, as Blumberg pointed out in his remarks, almost all Israeli venture capital firms have strong U.S. connections.

Blumberg Capital itself provides an interesting case study for the transnational Israeli community that Saxenian described. Blumberg characterized his company as half investment bank, raising venture capital for start-ups, and half consulting firm that, for a fee, works on strategic alliances, legal and accounting support, analyst contacts, vendor relationships, marketing, and other business development work that his clients outsource. By creating a virtual office with a Silicon Valley address, the firm allows its clients to work as a seamless part of Silicon Valley.

The conference participants determined that several of Israel's experiences have relevance for India. Government policy on incubators, the funding of R&D projects, and the BIRD project provide useful object lessons for the Indian government and business alike. The non-resident Indian sector in Silicon Valley can also learn from the Blumberg approach.

## Summary of Trend Analyses

Five trends emerged from the conference discussions. First, participants observed that India's most notable IT achievement to date has been the organic growth of a globally competitive software industry without any significant direct government support. Current government policy, as stated in the 108 Point Program, will affect positive change, yet it misses the mark on two counts: by failing to recognize emerging global IT trends, and by ignoring the needs of start-ups.

Future growth is never entirely predictable. It is clear, though, that India's IT development will be linked more closely with the growth of Silicon Valley than with other world centers. Many of the world's developed countries, including Britain, France, and Japan, have partially insulated economies that lead to technical developments with local uses to which India's IT growth cannot profitably be tied. For example, Deepak Satwalekar, in a presentation at Stanford University in December 1998, asserted that the quality of British, French, and Japanese bank software currently under development lags well behind that of both the United States and India, employing fewer open standards, as well as less ATM accessibility and networking.<sup>6</sup> If India succeeds, it will likely mirror the growth trajectories of Israel and Taiwan, countries which have also aligned themselves closely with Silicon Valley.

Eric Schmidt elaborated on this second growth trend by observing that, as IT companies become larger, they globalize their work forces. There are several good reasons for this tendency:

- **Cost.** The United States is short-supplied (including foreign workers) by at least 350,000 "knowledge" workers at all skill levels.
- **Diversification.** Despite the strong overall growth in the industry, there have been rapid changes in firms' market shares, leading to high firm-specific risk for employees. While strong growth in the IT sector ensures that employees can easily find other jobs, it also means that those firms in a downturn often lose employees rapidly. Novell faced this situation a few years ago, and overcame it via operations in Bangalore and Utah, where job options were fewer and work forces, consequently, were more stable.

- **Quality.** Although IT workers of all skills are available in the United States, the Internet has spurred particular demand for UNIX-related skills. India, for fortuitous reasons enumerated earlier, developed its UNIX capabilities several years ahead of the curve, and could thus capitalize on this growth in demand.

Customization or individualization of the Internet, the third trend identified by conference participants, will play a significant role in its so-called “next wave.” Eric Schmidt noted three particular components of this trend. First, akin to Metcalfe’s law of networks, he hypothesized that the value of a network is the square of the number of identities managed on that network. The key to the network, however, is the identification of relationships within it. His second point stated that the productivity gains companies enjoy are directly proportional to the number of secure identities on the network. Finally, he observed that the value of an identity increases in proportion to the number of platforms it can span. As customization on the Internet increases, transactions sites will become more ephemeral. Customers will migrate without cost (even in terms of search costs) to their most valued sites, which will themselves have limited stickiness. The growth of identity will allow advertising to be uniquely tailored, targeted, and effective, leading in turn to a resurgence in Internet advertising. Currently Web advertising is under question, given that click-through rates average less than one percent.

The fourth trend that conference participants foresaw might be called the “death of distance,” resulting from the growth of the Internet. The Blumberg Capital case study cited earlier demonstrates how operations in Israel and Silicon Valley may be seamlessly integrated to create a single operation spanning both countries. Saxenian presented evidence that suggests a similar phenomenon in Taiwan. Her case study of Ramp, summarized above, proves that the “death of distance” phenomenon can lead to multi-country integration, in this case, among India, Taiwan, and the United States. However, to the extent that the spreading of the Internet has been accompanied by an acceleration of the rate of change, participants such as Mitta and Blumberg argued that the problem of distance remains.

The fifth and final trend, posited by Blumberg, suggests that the quality of research performed in start-ups now rivals that of much bigger research projects undertaken by large firms. Previously, start-ups had focused on niche or innovative ideas not covered by the large firms. Schmidt noted, for example, that when Cisco started making routers, they were considered a small, niche market, neglected by major players in the industry, such as Lucent and Sun. Another example is Hotmail Corporation, described by Rafiq Dossani and Charles Holloway in their 1999 case study of Hotmail Corporation for the Graduate School of Business at Stanford University. At the time, Hotmail’s idea of a web-based email service was entirely new.

Today, a start-up can successfully pursue an idea even if it already has currency in the public domain and is being researched by large firms. To illustrate this development, Blumberg presented the case of Checkpoint, the market leader in firewall systems. Checkpoint was founded by three Israeli scientists who had come out of the army’s research group. They knew that Sun Microsystems was developing a competitive product, and since Sun was already the market leader in servers (on which firewalls reside), the success of their product depended on Sun’s acceptance of it. Moreover, they needed cash to develop their product. One option, of course, would have been to approach a venture capital firm for funding and to develop, independently, a marketing strategy to tackle Sun’s considerable competitive threat.

Instead, Checkpoint negotiated a financing deal with Sun with the following elements: (1) Checkpoint agreed to sell their product at a deep discount to Sun to match the cost of Sun's own internal development, and to offer Sun the right of "first to market;" (2) The deal was negotiated with Sun's marketing department, which agreed to sign a non-disclosure agreement (NDA) that covered its own internal departments (including R&D), thus ensuring that Sun researchers working on the same product could not access Checkpoint's intellectual property.

The Checkpoint case offers several interesting object lessons for India. First, it illustrates multinationals' growing acceptance of their responsibility to support outside product development, even when the same products are being developed in-house. To close the deal with Checkpoint, Sun was forced to erect a corporate wall between its marketing and research departments. Second, although the deal meant that Sun's own product might not be first-to-market, they paid a fair price for their competitor's product, matched their own product development costs, and got first-to-market rights in addition. Intellectual property that does not come with economies of scale in research made this win-win situation possible. Third, Checkpoint benefited hugely from the partnership. They protected their intellectual property through the Sun NDA (the alternative source of finance, venture capital firms, do not usually sign NDAs, as information from investee firms is a source of their competitive advantage) and they retained a larger share of their company than if they approached venture capitalists. Their alliance with Sun gained them a good reputation in the market, which would not have been forthcoming from venture capitalists. They also signed their financing deal within eight weeks of the start of negotiations, on par with venture capital timetables. Although Checkpoint did award first-to-market rights to Sun, they later sold their product to other firms and thus retained their market leadership.

What can India learn from Checkpoint? Multinationals already maintain a strong presence in India, far more so than the foreign venture capital community. As Blumberg put it: "Strategic investors are a great opportunity for India. Multinationals are geographically insensitive whereas American venture capital firms are very provincial. Your typical Menlo Park venture capitalist will not invest in a firm if he cannot ride his bike to its headquarters."

## Policy Options and Next Steps

Based on the above discussion, conference participants mapped out several desirable policy options for governmental and private sector policy with respect to IT and venture capital financing. Broadly summarized, these next steps include the following elements:

- The government should enhance access to the Internet wherever it controls such access.
- The government has removed, or has agreed to remove, most tariff barriers, but it must still create the right regulatory, legal, tax, and institutional environment for innovative start-ups to flourish.
- The government can play a positive role in creating financing and research initiatives that replicate both the U.S. SBIC and the Israeli law on encouraging R&D.

- To maximize India’s IT strengths, the private sector should consider multi-country approaches to IT development, as discussed by both Saxenian and Blumberg.

The Indian government’s 108 Point IT Program, as described above, contains several positive components. Unfortunately, it also displays several important gaps which must be filled before the Program can reach its full potential.

The first flaw in the 108 Point IT Program is that it benefits large companies while neglecting start-ups. Multinationals and large Indian firms supplying low value-added software services currently dominate the IT industry, whereas start-ups are relatively insignificant. The large players—particularly those that fall into the “corporate IT development” classification—will greatly benefit from the proposed reforms under the 108 Point Program.<sup>7</sup> Start-ups will benefit less from the 108 Point Program than large organizations because they require greater university and research support and finance, elements that the program does not cover. Large companies already have access to finance and can undertake low value-added activities that are not research-intensive.

The second gap in the 108 Point Program concerns potentially harmful expectations. These expectations will likely harm the IT sector because the government will seek greater and unnecessary control over IT processes and decisions. For instance, the Program dictates that the “procedure of keeping records in paper form in public and private software technology parks shall be restricted to a maximum period of two months after which the records shall be kept only in the electronic/magnetic/optical media.” What is the purpose of imposing such a condition on STPs? Who will monitor compliance? Why not allow the STPs themselves to decide such low-priority matters without government intervention? Another example stipulates that “all employees in all companies, public or private, are to be given the option of telecommuting, where feasible and efficient.” Conference participants suggested that the Indian government might profitably focus its attention on weightier matters.

A third difficulty of the Program is that it impels the government to spend unnecessary money to establish, for example, a “National Institute of Smart Government.” This money will have to be procured somehow.

Conference participants argued that the 108 Point Program fails on certain critical issues because Indian policymakers and large company practitioners remain largely ignorant of the real needs of IT development. The conference proposed the creation of a not-for-profit think-tank, independent of industry associations and government and headquartered in India, to be funded by private interested entrepreneurs and NGOs around the world. Among its objectives would be:

- To research and publish its findings on the IT sector with reference to global trends, and regulatory, legal, tax, and institutional reform.
- To monitor government reform in the Indian states and the central government, including reviewing teledensity benchmarks, Internet access nodes, etc.
- To propose changes in the enabling environment as it affects governance and access to capital. Such changes could include a study of possible financing and research initiatives that follow U.S. SBIC and Israeli laws for encouraging R&D.

## Notes

<sup>1</sup> William F. Miller, “Regional Comparisons of Centers of Innovation.” Unpublished document, Stanford Computer Industry Project, 1999.

<sup>2</sup> Speech given by Professor K.A. Padmanabhan at alumni gathering for the Indian Institute of Technology (IIT) at Stanford University, August 13, 1999.

<sup>3</sup> The G.E. division established a call center employing five thousand people, in Hyderabad.

<sup>4</sup> These data are drawn from the IFC Private Equity Fund Portfolio in India, March 1999, published by the International Finance Corporation and delivered at this June 1, 1999 A/PARC conference.

<sup>5</sup> “Venture Activity Report 1998.” Published by the Indian Venture Capital Association, August 1999.

<sup>6</sup> Deepak Satwalekar, “Urbanization Trends in India: Implications for the Future.” Paper presented at A/PARC on December 3, 1998.

<sup>7</sup> This inequitable arrangement validates the argument that democratic government policy assists those who are already powerful, and neglects those who are politically weak.



## About the Author

Rafiq Dossani is a consulting professor at the Asia/Pacific Research Center, responsible for developing and directing the South Asia Initiative. His research interests include financial, technology, and energy-sector reform in India. He is currently undertaking a project on the upgrade of information technology in Indian start-ups, and on the institutional phasing-in of power sector reform in Andhra Pradesh. He serves as an advisor to India's Securities and Exchange Board in the area of venture capital reform. Dr. Dossani earlier worked for the Robert Fleming Investment Banking group, first as CEO of its India operations and later as head of its San Francisco operations. He has also been the chairman and CEO of a stock-broking firm on the OCTEI exchange in India, the deputy editor of the *Business India Weekly*, and a professor of finance at Pennsylvania State University. He holds a B.A. in economics from St. Stephen's College, New Delhi, India; an M.B.A. from the Indian Institute of Management, Calcutta, India; and a Ph.D. in finance from Northwestern University.



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