

TRANSPLANTING VENTURE CAPITAL IN DEVELOPING COUNTRIES: A CRITICAL RE-EXAMINATION OF EVIDENCE

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ABSTRACT

This paper picks up an important debate at the intersection of science and technology policy, entrepreneurship, and internationalization of venture capital, i.e. whether or not the tremendous success of venture capital industry in the United States can be transplanted within other developing countries and emerging markets around the world? A 1996 Report by USAID looked at performance of its venture capital investments across the globe and declared that perhaps Venture Capital was a “mirage” in the developing country setting. This paper re-examines evidence, generated since, to shed new light on that argument. It begins by asserting that venture (or risk) capital is not a monolithic concept. It looks at the experiences and lessons learnt from a number of venture capital-like variants, namely, public venture capital funds, community and rural venture capital, as well as some more evidence from efforts to create venture capital in developing and developed countries and asks the question: Is the perceived failure of venture capital a result of misplaced expectation? It concludes by calling for a better understanding of the structural pre-requisites and path-dependencies of the technology venturing process and regional innovation systems and explores ways through which public policy can bridge the gaps in developing countries.

Keywords: Entrepreneurship, Venture Capital, Public Policy, Developing Countries, Innovation System

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EXECUTIVE SUMMARY

This paper picks up an important debate at the intersection of science and technology policy, entrepreneurship, and internationalization of venture capital, i.e. whether or not the tremendous success of venture capital industry in the United States can be transplanted within other developing countries and emerging markets around the world? The debate about the need for risk and venture capital as an important constituent of the development process in developing countries and emerging markets is not new, but it is not very old either. A 1996 Report by US Agency for International Development (USAID) titled *“The Venture Capital Mirage: Assessing USAID Experience with Equity Investment”*, however, unequivocally paints a bleak picture of the instrument of venture capital as applied to developing country settings. Over the years, this report has shaped the debate on the issue and has come to represent the de-facto “conventional wisdom” on this important subject. Consequently, multi-lateral, government, and private investors have shied away from embracing, in any significant manner, the idea of developing venture capital markets in developing countries and emerging markets.

This paper represents a departure from earlier work in this area, which almost always starts with discussing the practices and virtues of the traditional venture capital model as it is practiced in the United States today, ponders over the difficulties of transplanting it in inhospitable environments, and concludes with the prognosis that it cannot be done. It takes a different view by emphasizing the diversity of workable, and often successful, models of risk capital that can and have been used around the world and tries to identify the environmental peculiarities that determine the choice of a model that is most likely to succeed in a particular set of circumstances. The paper motivates the case for using such an approach by stating two arguments. First, looking at the history of the venture capital industry in the United States, one can easily see that venture capital is a complex phenomenon that cannot and does not operate in isolation with the rest of the economic, entrepreneurial and innovation system of which it is a part and parcel. Second, despite the highly developed capital markets in Europe and Japan, the venture capital industry in these set of countries have taken a very different route than their United States’ counterparts, not only in terms of the institutional structures and public policy environment but also in their sources of capital, incentives systems, and investing philosophies etc. Clearly, something is amiss in a strategy that calls for the replication of US-style venture capital institutions around the world.

The paper then examines the experiences of multi-lateral institutions, especially IFC and USAID, in developing venture capital institutions in developing countries and emerging markets. It notes that while the jury is still out on IFC's investment in venture funds around the world (\$196 million in 49 funds during 1978-95) the later-year investments seem to be doing better than earlier ones hinting at some learning effects. USAID, on the other hand, has done much worse than IFC. Here too, as the paper points out, the fundamental flaw has been in USAID's understanding of the venture capital system and its management of the process (e.g. unfeasible and unsustainable structures, choice of wrong persons or institutions to manage the projects, putting excessive constraints on investment managers and rigid design etc.) rather than the instrument itself. The experiences of private-sector investors in Latin America, Australia, Asia, and Eastern Europe, on the other hand, present a not so bleak picture.

We look at various types of institutional arrangements for (risk) venture capital disbursements and develop a broad institutional typology to facilitate the process. The typology identifies several alternate institutional forms to deal with multiple objectives and incentives structures that include, among others, traditional venture capital, corporate venture capital, (public) non-traditional venture capital, and university-based venture capital etc. Looking at some new, yet still very preliminary, evidence on the performance of each of these institutional forms, we conclude that venture capital is not as monolithic a concept as it is often made to be. It also highlights the fact that there exists room for considerable diversity and flexibility in applying it to under-developed capital markets. We cite Israel, India, and US states as examples of the important role innovative and well thought out public policy can play in doing just that.

The paper concludes by suggesting that the perceived failure of venture capital in the developing countries is more an example of misplaced expectations than the failure of the instrument per se. It calls for a broader, more in-depth, understanding of the system of entrepreneurship and innovation, of which the venture capital industry is merely a part, to arrive at a well-designed series of public policies and institutional interventions. Clearly, the approach of putting together a "foreign" team of entrepreneurs and venture capitalists with little or no local knowledge or experience, putting them in an unfriendly business environment, and making them work under an incentive structure that does not reward risk taking, coupled with burdens of severe reporting requirement of donor agencies, restrictions of what can be funded and what funding instrument to be used etc. is a recipe for disaster. While this has largely been the story of venture capital in developing countries, it does not need to be. We reiterate the need for "good knowledge" to back "good policy advice". This paper hopes to present new evidence and re-interpret the old one to rekindle this very important debate in international venture capitalism.

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I – BACKGROUND & INTRODUCTION

The debate about the need for risk and venture capital as an important constituent of the development process in developing countries and emerging markets is not new, but it is not very old either. In fact, the very institution of venture capital as we know it--one of the well known instruments through which risk capital is disbursed--was formalized only a few decades ago in the United States when a firm called American Research and Development (ARD) opened shop in 1946 in Boston (Gompers and Lerner, 2002, pp. 88-89). The basic idea behind the establishment of ARD was to make high-risk investments in emerging companies that were aiming to innovate around the technology developed during the war effort. ARD was in fact the first formal venture capital organization of the world and has been subsequently immortalized for laying the foundations of a revolution that has not only become the hallmark of the American-style capitalism and innovation system but also has become an envy for the rest of the world (Beltz, 1994).

What many do not realize, however, is that ARD or the US venture capital Industry was not an overnight success. For the US venture capital industry to get to where it stands today, it was an uphill task all along, replete with, successes and failures, ups and downs. What is also sometimes forgotten is that ARD or the US venture capital industry was not operating in a vacuum. It was a closely linked component of an overall innovation, economic, and entrepreneurial system that was as much a cause of its success as it was an effect. Many a times, from 1946 till this day, did the institution of venture capital in the US undergo transformational changes as a response to environment. So did the environment, to better utilize the tremendous opportunities that this innovative financing instrument offered.

The story of the birth of American Research and Development, its interaction with its environment and subsequently the coming of age of the venture capital industry in the US, is truly the story of the birth and rise of an industry that is illustrative, to some extent, of the challenges faced in trying to develop similar institutions across the world. It is also a story that is often forgotten by “noble intentioned” yet “misguided” proponents and enthusiasts of venture capitalism who try to transplant the plant that grew up in the US environment after decades of experimentation, adaptation, and capacity-building elsewhere and expect, rather naively, that the same plant would take firm roots and deliver results in a totally different environment of a developing country without much adaptation and capacity-building. Before we delve deeper into this debate, it would be worth our while to, very briefly, navigate through the exciting history of venture capital industry in the United States. Indeed, a review of the early challenges faced by American Research and Development (ARD) and its contemporaries--some of the first formal venture capital organizations of the world--would be an apt introduction to a paper looking at ways to transplant this successful model elsewhere.

Although the roots of the venture capital-like investing can be traced back to 1920s and 1930s in formal and informal investment offices of the wealthy families in the US³, ARD was the first venture capital organization. The need for developing an ARD-like institution was being felt long before it came into being, perhaps, as back as 1930s and 1940s. The intellectual concept of ARD was first presented by Ralph E. Flanders—a President of Federal Reserve Bank of Boston—while commenting on lack of new company formation who later teamed up with General Doroit of the Harvard Business School to set up ARD. (Bygrave and Timmons, 1992) Despite many notables, business leaders, academics and lawyers on its board as advisors, directors, and supporters, however, fundraising proved to be a formidable task for this new close-end investment fund with an unproven concept; a primary mission that was less business and more patriotism and philanthropy i.e. “help build the economy” and; a founding team that would not be working full time and was led by a professor who planned to continue teaching. Targeting the \$5mn. mark, ARD’s management could only sell 139,930 shares netting a total of \$3.5mn by Oct. 1946. By the end of 1947, 45% of the fund was owned by its officers and 49.6% by a mixture of insurance companies, investment companies and universities (specifically, MIT, Universities of Pennsylvania and Rochester).

ARD’s first investment was in High Voltage Engineering Corporation (HVEC) founded by five physicists and engineers from MIT. By the end of 1947, ARD had invested in six startups and two existing firms. As a natural consequence of the business model, negative cash flows, and lack of profitability, liquidity and capital gains were the norm of the day. ARD sought additional capital in 1949 but barely managed to sell 43% of the \$4mn. Offering through private placement. By 1951, its fifth year in operation, ARD was beginning to see some light at the end of the tunnel as 10 of its portfolio companies turned profitable. ARD’s major lucky break – the “big win” – came from its investment in Digital Equipment Corporation (DEC) in 1957 that resulted in a 5000% return on its investment (now valued \$355mn.) by 1971. In 1960, ARD finally managed to convince Lehman Brothers to underwrite an offering at \$74.10 per share netting \$8mn. for the company. In 1972 ARD was sold for an equivalent of \$813 per share. It had achieved a compounded ROI of 14.7% since its inception in 1946— a rate that would have been a meager 7.4% without the DEC investment.

Illustrative as it is, the story of ARD from its inception in 1946 points at two important facts. *First* relates to the unpredictable nature of the process that goes into “seeding” a venture capital industry in an environment where none existed, specifically, in terms of the mammoth task of experiential learning that must go on as inexperienced professionals learn to “walk the ropes and talk the talk” of this new model of doing business as well as the tremendous challenge of educating an entire breed of stakeholders, for example, the capitalists, investment professionals, lawyers, accountants, regulators and above all entrepreneurs themselves.

³ Like the Rockefellers, the Carnegies and the Fords etc.

⁴ One study, Fenn et.al. (1997) puts this figure at 15.8% p.a. over its 25 year old history.

Second, relates to the interaction of the newly established venture capital model with other supporting actors in its environment and how the two influence and shape each other, hopefully for the better. It also relates to the need of building entire classes of institutions that never existed but are critical to survival and success of the newly formed venture capital industry. The story of ARD also hints at the importance of the role of strong leadership in trying to promote a new model and seed an industry in a new environment as well as the trust that needs to be established over time and linkages that are critical to its success. It is easy to overlook the importance of many of these factors while trying to replicate the success of US venture capital industry elsewhere, a path – one is forced to admit – often followed by those who have walked the road.

This paper represents a departure from earlier work in this area, which almost always starts with discussing the practices and virtues of the traditional venture capital model as it is practiced in the United States today. It takes a different view by emphasizing on the diversity of workable, and often successful, models of risk capital that can and have been used around the world and tries to identify the environmental peculiarities that determine the choice of a model that is most likely to succeed in a particular set of circumstances. Taking this approach to the problem in question, we believe, has the impact of changing the somewhat established rhetoric that has come to characterize this debate for quite some time now.

This paper is organized as follows: Section II is an overview of the development of entrepreneurship and venture capital in the US focusing on the various environmental factors, legislations and institutions that led to the development of the venture capital industry in the US as it stands today. It also carries a brief discussion of how and why is the venture capital industry in other developed countries like Europe, Japan and Israel, similar to or different from its US counterpart. Section III takes a look at the existing state of our understanding of how the attempt of creating the institution of venture capital in developing countries and emerging markets have fared? It also attempts at summarizing the academic debate and the final prognosis, as it stands today in theory and practice.

Section IV, in an attempt to bring fresh and new insights to this “almost closed” debate, takes a step back and asks the question: “Is venture capital, broadly construed, a monolithic concept?” It then goes ahead and answers the question as well. Section V presents a case for the role of public sector and government in aiding and jumpstarting venture capital industry in a particular country. Section VI reframes the debate by asking a question: Is the perceived failure of venture capital in developing countries and emerging markets, a case of misplaced expectations and misguided strategies? It presents what we call as a “systems” model of venture capital and maintains that any attempt to try to transplant it without regards to the overall system is bound to fail. It then presents some preliminary conclusions on a successful model of “seeding” risk/venture capital industry in developing countries and emerging markets.

II – ENTREPRENEURSHIP AND VENTURE CAPITAL IN THE US AND ELSEWHERE

Despite the success of ARD, during much of 1950s no effort was made to emulate it and hence very few other publicly traded venture capital companies were formed and many of the companies organized during this period worked on a rather ad-hoc (deal-by-deal) basis. The formal birth of the venture capital industry—as we know it—happened when the first of the Small Business Investment Companies (SBICs) were organized, about thirteen years after ARD's inception (Fenn et al., 1997, p. 11).

The passage of SBIC Act of 1958 allowed the formation of Small Business Investment Companies (SBICs) under the US Small Business Administration (SBA). The legislation allowed the organizer of SBICs to leverage low interest federal dollars in a ratio of 1:4. The availability of virtually unlimited sums of federal money to help build small companies and jumpstart entrepreneurship led to the creation of hundreds of SBICs. By 1962 alone, 585 SBICs were licensed – a number that grew to over 700 in mid 1960s – and came to dominate the risk capital industry at that time. The SBIC program, however, was not as successful as its creators had envisioned. It suffered from a number of defects. By 1966-67, 232 SBICs were classified as problems (Bygrave and Timmons, 1986, p. 21). According to an estimate the average ROI on the SBICs has been around a meager 4%. New regulations were imposed to limit the number of SBICs to 250. The SBIC experiment has been analyzed by many in a number of ways resulting in a number of important lessons and insights about the operation and management of such institution—mostly focusing on the “don'ts” rather than the “dos”.

What is however, often neglected is the fact that the SBIC experiment resulted in tremendous capacity building in the US venture capital industry. While the venture funds that were established under the SBIC regime themselves failed, they did “graduate” a large number of venture capitalists and investment managers who readily found a home in the emerging private venture capital industry. (Dossani and Kenney, 2001). In addition to the above-mentioned direct human resources development aspect, the SBIC program also resulted in the development of complimentary infrastructure that was essential to the success of the private venture capital industry, for example, venture lawyers, accountants, consultants as well as entrepreneurs and CEOs etc. It also played its part in educating a huge group of stakeholders about the venture capital process that included all of the above but also investors, fund managers, academia, regulators and policy makers etc. Above all, the SBIC experiment resulted in considerable “learning” for the institutional designers and the financial market itself vis-à-vis the best ways to create the most successful and resilient institutional structures for the new industry—including the coming of age of the LLP structure (Bygrave and Timmons, 1986, p. 23).

The second, and perhaps, single most important series of legislative changes that affected the flow of venture capital were the lowering of capital gains tax in the US. The maximum capital gains tax had risen to 49.5% from a low of 25% during the 1969-76 time frame and coupled with the twin recessions of 1973 and 1976 the venture capital industry had hit a sort of a plateau with total capital, measured at cost, remaining

unchanged at about \$2.5 to \$3.0 billion between 1969 and 1977 (Fenn et al., 1997, p. 15). Something needed to be done to revitalize the market. In a series of legislative actions aimed at incentivizing investments, the capital gains tax was reduced from its high point in 1976 to 28% in 1978 and then to 20% in 1981. While it is difficult to attribute the entire growth of venture capital fundraising to the changes in the tax code, it would be equally implausible to attribute the entire 10-fold increase in supply of committed capital in 1978 and another two-fold increase in 1981 to anything else but an incentive effect of the reduction in capital gains tax (McMurtry, 1986, p.143)⁵

Finally, another important legislation that affected the supply of venture capital was the Department of Labor's decision regarding the restrictions on the investment of pension funds in risky asset classes, venture capital being one of them. Commonly referred to in the industry as the "prudent man" provision of ERISA legislation governing pension fund investing, it allowed the investment fund managers to invest in small and risky companies as long as these investments do not endanger the entire portfolio" (Fenn et al., 1997, p. 16). This important piece of legislation also had a somewhat immediate and dramatic impact on the venture capital fundraising, something that has become more and more important over the years.

From a nascent industry in 1940s and 50s, venture capital had come of age as an established industry in the US. In 1969, the newly formed venture capital partnerships raised a record \$171 million⁶. Between 1969 and 1975, approximately twenty-nine limited partnerships were formed, raising a total of \$376 million. In 1973, the industry's association, the National Venture Capital Association was formed. The venture capital industry entered its fifth decade i.e. 1980s as a strong established industry on the path of rapid explosive growth that was triggered by the accumulated experience and legislative changes mentioned above. In 1980-82, for instance, venture capital commitments totaled more than \$3.5 billion, two and a half times the commitments to private equity during the entire decade of the 70s. In the next three years, these totaled more than \$4 billion annually. In 1986 and 87 commitments doubled each year peaking at \$17.8 billion⁷. The stock market shock of October 1997 put an end to this continuous upward climb in venture capital fundraising and since then it has been a cyclical trend. These historical trends in the growth of number of venture capital partnerships, the funds raised and funds invested are well documented in literature (e.g. see Gompers and Lerner, 2001) and hence not reproduced here.

During this period i.e. 1980-2000, private equity and venture capital underwent a number of changes, not only in terms of how the money was raised but also how and where it was invested. Clearly, we can see (figure VI) that what started as a predominantly "individual" investor-driven phenomenon soon came to be dominated by institutional capital e.g. private pension (share of individual investors fell from about 30% in 1978 to 10% in 2000 as institutional capital accounted for 40% of funds raised in 2000. Stage-wise make up

⁵ McMurtry, B. J (1986) p. 143 observes that "it would also be "foolish" to ignore the phenomenological evidence ex-post and argue that this differential could be eliminated without substantial disruption to the number of startups and flow of equity capital to growth companies"

⁶ Among the most important organizations that formed first-time partnerships in 1969 were TA Associates (later Advent), Patricof and Co., Mayfield Fund and Sprout Group (Fenn et al., 1997, p.14)

⁷ Fenn et.al. (1997), p. 18. These capital commitment figures are based on The Private Equity Analyst (PEA) and Venture Economics Investor Series.

also changed over with early stage capital that started at about 40% of the total in 1980 has gradually settled at above 20% and the expansion stage capital has increased from 30% in 1980 to around 55% now. So did the destination of venture capital with the unambiguous rise of four dominant sectors, namely, Internet-related, communications, computer software and services and semi-conductors and electronics in the late 1990s. Some other ways in which the industry has evolved to its present state include its industrial structure as well as the dominant industrial organization. Similarly, the industry structure that was considered quite homogeneous prior to the 80s (with about 200 or so funds) has become less so by mid-1990s.

This is, essentially, an abridged story of venture capital industry in the US. As clearly obvious from the above narrative, venture capital is a complex phenomenon that cannot and does not operate in isolation with the rest of the economic, entrepreneurial and innovation system of which it is a part and parcel. Indeed, some would argue that even within the asset/investment class that we are talking about, venture capital is only part of the story – and that too a minor and not a major one. One proponent of the above argument suggests that out of the approximately 800,000 new businesses incorporated in the US each year, venture capitalists only fund roughly 2000 (or one quarter of one percent!)⁸. Another White House report titled “Aspects of Performance in the High Technology Sector”, puts the investment by business angels at \$32.7 billion as against \$3.2 billion of average annual flow from venture capitalists during 1985-1988 (Beltz, 1994). Angel investing again, however, is part of a larger system and cannot flourish without the support of venture capital as it depends on the latter’s commitment to cash out⁹. Before we move on to discuss how might this model be successfully transplanted in developing countries, we would, for the sake of completeness and comparability, briefly look at the experience of venture capital in a couple more developed country environments i.e. Europe and Japan. It is difficult to do justice to this subject in a span of a couple of pages, and so the picture that follows is highly abridged, incomplete and often selective, it nonetheless, tries to bring out some differences even between developed countries that we must be mindful of as we move along.

II.1—VENTURE CAPITAL IN EUROPE AND JAPAN

Europe, after the United States, is the second most developed market for private equity in the world. In 2000 alone, approximately 35 billion Euros were invested by European private equity funds (Indhal et al., 2002). According to the European Venture Capital Association (EVCA) yearbook 2000, the largest growing and most developed of European private equity markets was UK (255 million Euros in venture capital and 11.246 billion in other private equity) followed by Germany (1 billion Euros in venture capital and 2.15 billion in other venture capital) and then France (519 million Euros in venture capital and 2.3 billion Euros in other private equity).

The key factors behind the growth of the EU market are concerns about competitiveness of the US market itself, opening up of new business opportunities in the unified Europe, improvements in political, fiscal, legal

⁸ Sahlman. W A., “Don’t Fix What Isn’t Broken” In Cynthia A. Beltz Ed., *Financing Entrepreneurs*, American Enterprise Institute, 1994

⁹ For more details on Angel Investing, Please see Roberts, M. J., & Morse, K. P. “Angel Investing”, Note # 9-800-0273, Harvard Business School, 2000

and entrepreneurial environment in Europe as well as opportunities of investment in existing poorly performing companies, all resulting in super returns delivered by European VCs themselves¹⁰. While there are many similarities between the American and European venture capital industries, namely, same organizational forms and general investing approach, responding to similar macro-cycles, overlapping sources of funds (in terms of type of funding sources, not necessarily the same proportions, though), similar fund management practices etc.; there are significant qualitative and quantitative differences as well.

To start with, the returns of the EVCA members that comprised 50% of the capital under management in Europe, although quite impressive as compared to alternative investments in Europe (Christofidis and Debande, 2001, p. 30), have been relatively ordinary as compared to their American counterparts, with later stage investments doing much better than early stage venture capital – a fact that is contrary to the US experience but is gradually changing in Europe (Christofidis and Debande, 2001, p.29). One contributing factors to this lower return profile is weakness at the “exit” front. The lack of secondary markets for high-growth small stocks that limits the “exit” options of the venture investors has been at the forefront of policy debate in Europe for quite sometime now. Many European countries have experimented with their own “secondary markets”, the most famous being UK’s Unlisted Securities Market (USM). Needless to say that many of these national “secondary” markets have failed to achieve either the market liquidity or the fundraising capability to support venture capital activity as desired. Attempts have also been made to develop one pan-European exchange e.g. EVCA-supported EASDAQ in September 1996 and more recently the EURO.NM network of national markets to jumpstart financing of SMEs and new technology-based firms (NTBFs). While EASDAQ has failed to deliver, the result of EURO.NM experiment remains to be seen.

The sources of funds in Europe are also different with individuals and small investors playing an almost non-existent or minor role as compared to the US Industry and investment banks and public sources being a relatively dominant source of funds to the private equity / venture capital industry in Europe (Dubocage, 2001). Additionally, from an operations standpoint, European fund raising and investment has been amazingly domestic, most of the funds are institutional spin-offs, the backgrounds of the partners is predominantly finance-oriented and there is a more heavy dependence on “relationship” and “network” based investing than in the US. Finally, one curious and very important feature of European venture capital that needs emphasis here is its inability to catch up on the early-stage and seed financing stages with its US counterpart – a discrepancy that becomes especially acute in the technology-related sectors (Murray and Marriott, 1998).

Many of these differences can be traced back to a number of historical and structural factors, for example, small market sizes (in pre-union Europe), stringent regulatory control over pension funds, tradition of family-ownership and “life-style” businesses and reluctance to relinquish control, technological lag, under-developed financial markets restricting opportunities for IPOs (and hence predominance of private/trade sales as an exit mechanism), cultural norms and legal regimes that discourage entrepreneurship and

¹⁰ Indahl et.al. (2002) put the figure around an average of 24.9% in the last few years.

stigmatize failure, more egalitarian wealth distribution (that leads to lack of angel investing), higher capital gains tax, heavy-handed government influence, market distortions, and bureaucracy etc. A recent White Paper by the European Venture Capital Association that spells out policy guidelines for its own members as well as Europe's policy makers for the development of venture capital industry puts down a series of long term priorities that are illustrative of the challenges faced by Europe's venture capital industry (EVCA, 2002).

In Japan, on the other hand, the history and nature of venture capital activity is again somewhat different, not only from the US but also the EU venture capital industry. The birth of Japanese Venture Capital industry can be traced back to the passage of Small Business Act and other laws in 1963 that gave rise to three public venture capital companies (Chusho-Kigyo-Toushi Ikusei companies) modeled after SBICs in the US. Soon, private venture capital started with eight private venture capital companies emerging between 1972-73 alone. The Japanese venture capital industry got a boost in early 1980s, coinciding with the easing of IPO standards on Japanese OTC stock market (Tento). From 1982-85, as many as 63 Japanese VC companies were set up, a number that touched 115 as recorded in a 1992 MITI Survey (Ono, 1995) and 238 in 2000 (Hamada, 2001). The total investment and loan assets in Japan's VC companies were 1600 billion yen at the end of 1993 (with almost a 50:50 split between equity and loans). Since 1994, the revitalization of the Japanese economy through venture-supported small business sector has been a focus of economic debate in Japan and while the performance of venture capital industry itself remains humble and affected by the severe economic recession that lasts till this day, it remains very much a part of economic gossip.

The organization of venture capital industry in Japan is quite different from that in the US and EU. For example, corporate venture capital has been a fairly popular mechanism¹¹ in Japan. A number of features in the investing style stand out in the Japanese context. In Japan, venture capital companies are more likely to hold onto stocks of their portfolio companies. 70% of VCs engage in lending business. Japanese VCs also receive a high percentage of investments by foreign investors (27.1% in Japan vs. 6% in US) and a high percentage of corporate funds (20.5% in Japan vs. 15% in US and 9.5% in EU) (Hamada, 2001, p. 18). Exit mechanisms have been limited but are easing up with the establishment of new stock markets, namely, MOTHERS and NASDAQ-Japan (established in 1999 and 2000 respectively).

Humble and distinctive that it is, the story of venture capital in Japan is set in the country's own history, culture, institutions, business practices and concept of national planning and public intervention, all of which can be seen at work in one form or the other. Much of this tension in policy and academic debate is documented by Hamada (2001b). One can appreciate the importance of these by considering simple facts as: heavy handed control of Japanese ministries towards blocking entry into some businesses; lack of an entrepreneurial culture in Japan; lack of an incentive for Japanese university professors and scientists to startup companies to commercialize their research; lack of culture of university-industry collaboration; and

¹¹ Ono, Masato (1995) notes that very few of the Japanese VC firms are independent with 70% of them owned by a parent company that is a financial institution, namely, a bank or a security company.

the setting up of entrepreneurship programs in Japanese universities only recently etc. All this, and much more explains Japan's quagmire in the present times, further aggravated only by perhaps the longest recession in its recorded history.

What comes out of the above discussion of the history of development of venture capital industry in the US and some discussion of the same in Europe and Japan is one simple fact: It is a grave mistake to think of venture capital as an isolated "ingredient" of entrepreneurial success and try to transplant the model in developing country contexts without thinking about the accompanying policy regimes, institutions, business environment and cultural norms. Neither is the US venture capital model the "only" workable model of venture capital development under all circumstances and environments. Indeed, had that been the case, it would have been readily and successfully adopted in both Europe and Japan.

III – IS VENTURE CAPITAL A MIRAGE? – THE CURRENT DEBATE

The central question of this paper i.e. Whether or not the venture capital model can be transplanted to developing countries and emerging markets, with somewhat similar degree of success as it has performed in the US, has been a subject of a number of academic investigations in the recent past. While one of the most widely cited report on the subject titled "*The Venture Capital Mirage: Assessing USAID Experience with Equity Investment*" published in 1996, expresses the generally "perceived wisdom" among both the practitioner as well as the investor/donor community on the subject as rather negative, we believe, there is more to it than that. In this section, we would review the results of some of these investigations with a view to identifying their key assessments as well as recommendations and remedies.

III.1—THE RATIONALE FOR VENTURE CAPITAL IN DEVELOPING COUNTRIES

The development of venture capital in developing countries is largely attributed to two series of changes. The first of this series of changes, coming from the developed world itself had the impact of making the developed nations a less attractive proposition for venture investors (Pacanins and Lerner, 1997). Among these were the rise of institutional investing in the west, especially the US, that brought with it huge amounts of money to the private equity pool being raised in the developed countries that brought about a "saturation effect" on the quality of business ventures that were available to be funded in the developed markets itself forcing many institutional investors to look more favorably at private equity funds specializing in Europe and elsewhere.

The above fact was aided and supplemented by a series of developments in the developing countries themselves. Firstly, while much of the developed world was going through a period of stagnant and low economic growth, much of the developing world, including many parts of Asia and Latin America, was going through explosive population growth and medium-to-high levels of economic growth. Many saw

countries like China, India, Malaysia, Korea and parts of Latin America and Eastern Europe as places where the major market expansion and growth potential was. According to one observer, while developed economies grew at an inflation-adjusted rate of 1.9% annually between 1990-1994, emerging markets grew at 5.2% (Pacanins & Lerner, p.3) with some (e.g. China) even hitting as high as 9% compounded. Secondly, the 1980s saw the beginning of a dramatic shift in a large number of countries around the world towards market reform and privatization.

A World Bank report listed 80 countries that made privatization their primary policy concern in late 80s and early 90s resulting in over 7,000 large-scale privatizations along with 100,000 SMEs being sold to private parties (Schwartz, 1994, p. 14). Thirdly, a number of these developing countries, either through free will or forced by multilateral agencies, undertook substantial macroeconomic reforms, for example, debt rescheduling relief for many Latin American countries brought through the Brady Commission in 1989, major tax reforms (e.g. lowering of capital gains tax), stock market growth, relaxing the restrictions on foreign investors and repatriation of profits, improving accounting and disclosure standards, strengthening credit and banking systems, reducing information asymmetries faced by foreign investors, opening up trade¹² and developing business friendly policies in general etc. (Pacanins and Lerner, 1997, p.3). Finally, the technological revolution played a significant role in making developing countries and emerging markets an attractive destination for venture capital and opened new avenues for investment in countries that had the potential to jump on the information technology bandwagon¹³.

Together, the above two series of forces produced a lot of interest among the private equity and venture capital community, not only investors but also fund managers, towards the opportunities in developing countries and emerging markets. In 1990 alone, more than half of the \$80 billion of new capital committed worldwide was outside the United States, up from almost non-existent in 1980. Schwartz (1994) reports a series of figures reflecting growth in the private equity / venture capital activity outside the US, including the creation of venture capital funds in developing countries like Malaysia, Indonesia, India, China, Mexico, Argentina, Russia and Ukraine. The development of venture capital industry can viewed from multiple perspectives, we would visit two of them, namely, that of multilateral donors and private sector. We will visit the public sector perspective in a future section.

III.2—THE EXPERIENCE OF MULTILATERAL INVESTORS

While systematic cross country studies of the performance of venture capital funds in developing countries and emerging markets are quite scarce, two of the relatively well-documented analyses come from International Finance Corporation (IFC) and the US Agency for Aid and International Development

¹² Both Exports and Imports by developing nations more than tripled between 1987 and 1995 (Pacanins, 1997, p. 3)

¹³ The basic argument here is that information technology, or more precisely, software development became a big business during this era and allowed countries (e.g. India, Ireland, Israel, Malaysia etc.) without huge capital investments in production capacity but adequately trained and cheap manpower to carve out their development paths as “mini software powers” of sorts.

(USAID). The IFC, starting in 1978 with the SEFINNOVA I Fund in Spain but later in over a dozen countries, has promoted venture capital funds in developing economies in an effort to improve SMEs' access to equity capital and managerial expertise. In most of these cases, IFC's role had ranged from advising the target governments to structuring, investing in, underwriting and placing funds to selection of fund managers and serving on the boards of directors etc. In total, between 1978 and 1995, IFC invested \$196 million in 49 venture capital funds¹⁴ whose cumulative size at the inception was \$1.5 billion (Barger et al., 1996). While the record of IFC's investments in has been mixed, with the early funds – on whom rate of return figures are available – performing rather poorly (IRR of 21 of these funds by June 1983 was –5.0 %).

Despite these early setbacks and “learning curve” effects, IFC has, over the years, expanded its venture capital-related activities, especially in Eastern Europe but also elsewhere. This is quite obvious through the fact that IFC's investments in venture capital funds between 1990-95 have been 8-times of what they were in the previous 12 years and have also attracted matching funding from the private sector at the ratio of almost 5:1. Alongside IFC's own investments, an enthusiastic private venture capital industry has often spawned in many of these emerging markets, especially in Eastern Europe where during the same time period (i.e. 1989-90 to 1995) over seventy-two private venture capital funds were created with committed capital of over \$4.5 billion (Barger et al., 1996). These IFC-sponsored venture capital funds invest in 150-300 companies a year, a number that is growing as the level of activity grows¹⁵. While the jury is still out in terms of rigorously establishing the efficacy of IFC's venture capital investments, some lessons that emerge are summarized in the Table I. The overall trend that emerges is that of “optimism” rather than pessimism.

Insert Table-I around here

The story of equity and venture capital activity sponsored by the USAID at a first instance appears somewhat different from IFC's. A 1996 evaluation and program assessment report by USAID (Fox, 1996) that looked at thirteen of the agency's investments geared at improving equity financing in developing countries as well as its experiences with Enterprise Funds in Eastern Europe. Most USAID projects were based on the assumption that although many of these countries lack the “rigorous” standards¹⁶ that venture capitalists set for themselves in the developed world, a non-market intervention (e.g. participation of USAID in the creation of the equity/venture capital fund etc.) might be able to jumpstart the process that would otherwise not happen. USAID's venture capital “adventures” tried to 1) directly transfer the US experience to developing countries by professionals using the techniques learned in the US and 2) use venture capital development as an instrument for stock market development. They were unpleasantly surprised! The report comes up with an unambiguously critical conclusion that “*USAID's venture capital projects have almost uniformly failed...at the project level, USAID's approach clearly appears flawed*”.

¹⁴ Barger et al. (1996) report the average size of the fund to be \$30 mn. although some of them have been as big as \$100 mn.

¹⁵ By mid-1995, thirty-nine IFC funds had invested in a total of 679 companies with average investment size of \$0.7mn. for a 5-20% stake of the company.

¹⁶ Like 1) Prior knowledge and expertise to “pick winners”; 2) Ability to manage those investments; and 3) put some of their own money at risk, among others.

Insert Box-I around here

While the results are unambiguously disappointing with 10 of the thirteen projects failing to reach the “generic venture capital scenario” as planned and the remaining three not even implemented, a number of interesting observations stand out from a detailed look at the design and implementation of USAID projects – a fact that is often overlooked in comparison to the more catchy title of the report. These include, unfeasible and unsustainable structures (even on the paper!), choice of wrong persons or institutions to manage the projects¹⁷, putting excessive constraints on investment managers, rigid design and lack of built-in adaptability to local conditions and inadequate demand for venture capital itself etc. Many of these problems, except the final one, can be traced back to an unfortunate lack of understanding of the venture capital model on the part of USAID itself rather than any flaws in the basic concept of venture capital that might make it especially inappropriate for developing country / emerging market environments. Similar mistakes are being made in USAID’s Enterprise Funds in Eastern Europe.

In short, the record of USAID in creating equity and venture investing institutions in developing countries as well as emerging markets is quite suspect. The report raises concern for two interesting problems encountered in this kind of activity. The first, the difficulty of making these projects work in often punishing economic environments that are not ready for these kinds of sophisticated instruments. Second, the agency’s “one-size-fits-all” bureaucratic approach that led to “program over-design” where instead a lot of flexibility and initiative was required. It also highlights the difficulties in running an inherently private sector activity within public and semi-public domains. Compared with IFC’s investments in somewhat similar situations, it also raises some very intriguing questions about program design and expectations management. Specifically, what constitutes “success” for USAID’s Enterprise Funds – a question essentially similar to what we asked for SBICs before? As well as what are the differences in terms of fund design and structure that enabled IFC-sponsored funds to leverage a 5:1 investment portfolio but did not do the same for USAID’s. The answers to many of these questions are critical to our understanding of how might the venture capital work in developing countries and emerging markets.

USAID and IFC are not the lone actors in their attempt to introduce equity and venture investing in the countries and regions of our interest. A number of other public, quasi-public and development-oriented private actors, namely, IADB, ADB, CDC etc., have also walked this road. All of the above four donor-supported “benevolent” programs, in one way or the other, failed to make a noticeable impact in terms of venture capital development in their intended markets. Coupled with the “bleak” picture elsewhere, the

¹⁷ Quite typical of USAID’s blunders in this class of investment, for example, was its attempt to first capitalize a fund and then look for somebody to manage it – a process that is the other way around in the private venture capital industry. This approach, apparently worked for other types of USAID investments, and was therefore a funds disbursement feature of the agency, but was especially unsuitable for venture capital type investments. If anything, it distorted incentives for investment managers, hastened the process of management team selection and often compromised on the quality of the management team in an attempt to avoid “delays” in setting up the fund.

above led James W. Fox (1996) of USAID to conclude that “*there is no basis for believing that equity funding – either as venture capital or some other form – is a high payoff activity for donors. Experience suggests the opposite*”. Report recommends that USAID should leave this activity to others – an advice that seems to have come to represent “status-quo” on the subject at least in the international donor community.

III.3—LIGHT AT THE END OF THE TUNNEL – A PRIVATE SECTOR PERSPECTIVE

While the case for multilateral intervention of the equity / venture capital variety appears to have gone sour – at least in terms of perception, if not in reality – there is a glimmer of hope, nonetheless, for those who refuse to accept that venture capital is a uniquely American phenomenon. The story on the ground, apparently, defies the pessimism shared by USAID and its contemporary multilateral and donor agencies and institutions. This glimmer of hope, we argue, comes from participation of private sector actors in many of the developing countries and emerging markets. A 1999 survey of 204 largest U.S.-based institutional investors conducted by Goldman Sachs and Frank Russell Capital found more than half of the respondents looking favorably at international venture capital as the most attractive of the subclasses of private equity investing in the next three years (Gompers and Lerner, 2001, p. 199).

The perception was also adequately supported by statistical evidence that shows a fairly dramatic growth in international investing on the part of US-based venture capital funds and institutional investors. A 1998 World Bank study of venture capital financing trends in developing countries that looked at 53 private venture capital funds in 19 countries observed that venture capital financing in developing countries have seen a “steeply rising” trend in [then] recent years with probably more than 250 funds operating in Eastern Europe and Asia and as many as 400 in developing countries worldwide (Alyward, 1998). A deeper look at this private sector venture capital activity in some of these markets reveals not only the reasons behind the sense of optimism but some interesting insights into the peculiarities of these regions/countries.

In Asia and Australia, for example, venture capital fundraising has experienced an almost unequivocal growth over their base values at the start of the 1990s. The outstanding stock of venture capital funds in developing Asia¹⁸ stood at \$6 billion¹⁹ in 1995, a nineteen-fold increase in real dollars terms over 1990 (Alyward, 1998, p.2). In the seven-year period between 1992 and 1998, venture fund-raising doubled in Australia, grew from almost nothing to \$1.2 billion in Hong Kong, increased twenty times in Taiwan and experienced several hundreds of percent growths in Israel, Singapore, Thailand, Korea, China and India (Gompers and Lerner, 2001, p.201). Central and Eastern Europe also presents a dynamic, though highly concentrated picture. The total pool of funds raised had grown to \$3 billion in 1995—majority in the last two years—with three countries, namely, Poland, Hungary, and Czech Republic representing two-thirds of the

¹⁸ Developing Asia, here, includes China (excluding Hong Kong), India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand and Vietnam.

¹⁹ This figure compares with \$38 billion venture capital pool for all of Asia combined in 1995 which includes Hong Kong (\$7 billion), Japan (\$19 billion), Korea (\$3 billion), Singapore (\$3.6 billion) and Taiwan (\$837 million)

capital (Alyward, 1998, p.3). Latin America, on the other hand, presents a mixed picture partially reflective of the changing interests of the US investors. \$3.5 billion were raised by 1998 as against only \$100 million of private equity raised for 1992 and 1993, but with its fortunes fluctuating in 1990s the fundraising fell by 50% to \$1.7 billion in 1999 (Gompers and Lerner, 2001, p. 204).

Two interesting points emerge from the above analysis. First, despite some high profile failures of donors'/multilateral agencies' efforts to develop venture capital in developing countries and emerging markets in Asia, Eastern Europe and Latin America, there seems to be quite an indigenous private sector-led private equity and venture capital market emerging in most eligible parts of developing world. This can either be interpreted as a confirmation of the "market ultimately works!" argument or the fact that earlier efforts of multilateral funding agencies like USAID, IFC and ADB paved the way for markets in the target countries to work better by reducing informational asymmetries, educating stakeholders and developing infrastructure in the same way as SBICs did for the United States in 1960s and 70s. Looking from this lens, the marginal performance of IFC and USAID funded venture programs can be seen as a capacity building investment that seems to have paid off in the increased venture capital activity that we observe in the three target regions.

Second, considerable diversity exists, not only between different regions under consideration, but also between countries within the same region, vis-à-vis fund-raising capability, types of investments made, investment rates, sources of funds, funding destinations (industry sector and location) as well as policy regimes and prominence of various actors etc. What this suggests to an astute observer is the necessity to undertake the local conditions into account while planning to jumpstart venture capital process at a given location. This brings us to the next logical step of our analysis i.e. looking at the various models of venture-risk capital with a view to understanding their strengths, weaknesses and contributions under various regimes in question.

IV – IS RISK-VENTURE CAPITAL, A MONOLITHIC CONCEPT?

Is risk-venture capital a monolithic concept? Is the US-style private venture capital firm the only "successful" vehicle for providing the risk capital for an economy's business finance needs? The answer to both of these questions is firmly in the negative. One need not go far beyond the US context itself to nullify the above statements. Even within the overall entrepreneurial/innovation system in United States, there exists several alternate "models" of risk-capital disbursement, all of these might not get the same type of visibility as the private limited-partnership venture capitalist firm gets, but the cumulative effect of this variety actually gets attributed to venture capital. Indeed, there is fair reason to believe that perhaps without the support of these "other" models of risk capital disbursement—that share the various techno-market risks with the private venture capitalists at various stages of the new business—the traditional venture capital might not be as successful as it apparently seems to be. Beltz (1994)'s example of angel investing that outweighs venture capital by a ratio of 1:20 is a case in point.

IV.1—A SUGGESTIVE INSTITUTIONAL TYPOLOGY

To carry the argument forward and further support it with empirical evidence, we argue that the following schematic partly captures some elements of the diversity and richness that is the hallmark of the risk-venture capital industry, broadly construed.

Insert Figure-I around here

Figure VI, although illustrative of what we are taking about, is surely not the only way of looking at the phenomenon under question. To begin to briefly introduce the various terms that enter into the above 3x3 matrix, let us start from pondering over the axes. The horizontal axis represents the ownership-management structures with a privately held and managed funds on the left to public-sector funded and managed funds on the right. The vertical axis represents management style with active management at the bottom to passive management on the top.

Following through the above axes definitions, the bottom-left corner represents private sector funded and managed active funds, for example, traditional venture capital funds and corporate venture capital funds. The top-left corner represents private sector funded and managed passive funds, for example, fund-of-funds arrangements. The top-right category is the public sector funded and managed passive fund e.g. public sector business development and entrepreneurship funding programs like SBIR/STTR. Finally, the bottom-right corner represents publicly funded and managed active funds. This is inherently an oxymoron since active public management of venture funds is seriously out of favor not only with the private venture capital community but also in the literature and experience in public management. We therefore prefer to leave this slot open. Some real-life venture capital-like arrangements fall between these four extremities. Some of the initiatives that occupy a place on the figure are Massachusetts Capital Resource Company (MCRC); Massachusetts Technology Development Center (MTDC) and Connecticut Innovations; In-Q-Tel and the Army Venture Capital Fund (AVCF); Oklahoma Capital Investment Board (OCIB) and Oregon Resource and Technology Development Fund (ORTD).

IV.2—THE FOUR DOMINANT MODELS

While the above typology illustrates the diversity of a continuum of existing models—one can short-list the risk-venture capital models into four dominant categories for a more detailed inspection. These are: traditional private venture capital funds (both individual funds and fund-of-funds options), corporate venture capital funds (both active and passive, strategic or financial), non-traditional public venture capital funds (both general funds and rural/community venture capital), and university venture capital and incubators.

This, as obvious even from the nomenclature and the missions, is a particularly diverse list of institutional forms and hence a difficult set to compare.

The various types of models are created under differing circumstances and institutional arrangements to satisfy different needs (e.g. *corporate venture capital* seeks strategic or financial advantage (Chesborough, 2002) for the parent large company, *non-traditional venture capital* aims to address venture capital needs and/or enhance economic development objectives of communities, and *university venture capital* mainly for providing experiential learning opportunities for faculty and students, creating an entrepreneurial and/or technology culture, spin-offs, and generating financial returns for the university etc.) Consequently their objectives and focus varies considerably ranging from maximization of shareholder return, to development of technological and strategic options for parent companies, spurring economic growth, new business formation and venture capital development within a region. Sometimes these competing objectives also create their own special problems that these organizations have to deal with

In keeping with their different objectives and organizations, the investing strategies and approaches vary too, ranging from traditional direct investing, fund-of-funds arrangements, passive investing, syndication, relationship investing, incubation, “leveraging only”, and outsourcing etc. The choice for a particular type of arrangement depends on the nature, resources and objective of the funding models (e.g. traditional VCs generally prefer direct investing, while non-traditional funds tend to concentrate on leveraging and universities on incubating). The objective and investing strategy must also then be supported by the appropriate and flexible organization structure. Again, different models generally have different structures to suit their unique requirements. Traditional funds are LLPs, corporate funds—depending on the needs e.g. type of expertise required, degree of control possible, risk and return profile, competition with the VC community and conflicts within the organization—are organized as separate entities or subsidiaries²⁰, non-traditional venture funds, often formed through legislation or conversion of a state-run institute, are generally non-profits (although for-profit model is becoming more popular with time), and university funds are wholly owned subsidiary or an office within the organization. These differing organizational models come with their own management styles and compensation-incentive structures that suit best to the model in question.

Financial performance and returns associated with various risk capital models also present an interesting picture and even nullify some industry myths. While the traditional private venture capital is beyond doubt the most successful model (academic studies²¹ put average ROI figures between 10-25% range, with most funds in teens, a few in 20-30% range and some occasional spikes above 30%), non-traditional funds—despite their dual bottom lines and restrictive investment criteria—have not done that bad either. A study that looked at some best-managed non-traditional funds found ROIs ranging from high-teens to lower thirties (e.g. Connecticut Innovations, Heartland Capital of Nebraska and Mid Atlantic Ventures – 20-30%, Massachusetts Technology Development Corporation and Oregon Resource and Technology Development –

²⁰ CSB (2000) discusses various organization options for corporate venture capital.

²¹ Bygrave and Timmons (1992), p. 151

10-20%.) (Daniels and Lynch, 1998). Corporate venture funds, although more volatile in terms of their response to business cycles, also have grown remarkably over time, both in terms of staffing levels, presence and deal flow and have achieved above normal returns on their portfolios. For *university-based VC funds*, the case for returns has been somewhat unclear and often controversial, although exceptions exist. The Community Technology Fund of Boston University is a 26-year old evergreen fund that has made 173 investments to date. Harvard and Yale's endowment funds have shown impressive results of around 30-35% p.a. over extended periods.

IV.3—DIVERSITY OF OBJECTIVES → HETEROGENEITY OF INSTITUTIONS → INNOVATION

What is quite obvious from the above snapshot of four dominant models of provision of risk-venture capital is that there is considerable diversity, heterogeneity and innovation in the way risk capital institutions are organized around the world and under various circumstances even within the same country thus lending credence to our original hypothesis that risk-venture capital is not a monolithic concept. Recognizing this and planning to develop structures that meet the requirements of the environment, objectives and circumstances that a particular 'intervention' is placed in is an important policy insight that is often lost on initiators and evaluators of the venture capital programs in developing countries and emerging markets. The diversity and heterogeneity of purposes, institutional forms and evolution mechanisms can be best described by Table-II.

Insert Table-II around here

Briefly summarizing some of the facts gleaned from the above analysis, one can make some generalized statements about the organization and evolution of risk-venture capital under different set of circumstances:

- ***Risk-venture capital provision does not depend on a monolithic institutional form.*** Indeed, as the discussion on the four dominant organizational forms indicates, risk capital can be organized in a variety of ways. Starting from the traditional private venture capital model (active and fund-of-funds), to various corporate venture capital organizational forms, to public sector capital and business development and modernization companies, to university entrepreneurship forums and incubators to stand-alone incubators etc. The debate on venture capital in the international context, therefore, must incorporate this institutional diversity too.
- ***Risk-Venture Capital has been successfully organized in private as well as public sectors.*** While the public sector venture capital has its own organizational forms, peculiarities, and challenges, e.g. dual bottom lines, agency issues etc., the best managed of these venture funds have not done as bad as commonly perceived. In fact, keeping in view the requirements of dual bottom some of the best-managed funds have done remarkably well providing a rich tradition from which best practices can be gleaned and applied while setting up venture funds in the testing environments of developing countries.

- ***Various models of risk-venture capital might be appropriate at various phases of market development.*** Many public sector venture capital funds have been created to fill the void produced by the absence of well-developed venture capital industries. These use innovative ways to attract venture funding in their regions (e.g. syndication, leveraging, networking, competitions, and “show and tell” conferences) They act as lead investors for out-of-area investors (e.g. ATV), initiate leveraging arrangements (e.g. OCIB), act as guarantors for future funding (e.g. MTDC) and trainers and incubators for new firms (e.g. ARCH). Many have been attributed for jumpstarting venture capital industries within their regions.
- ***Various models of risk and venture capital require different incentive and institutional arrangements.*** Public sector venture capital funds have a different set of institutional and incentive issues associated with them as compared to private sector venture capital institutions. These varying institutional and incentive requirements primarily arise due to different environments in which they operate and the different constituencies that they serve. Any attempt to try to think of and implement a “venture capital model” that is applicable to all types of venture capital institutions and under all circumstances is therefore an exercise in futility. A better approach is to be cognizant of the differing institutional requirements of these different models and to plan accordingly.

While the evidence presented above makes a convincing case for thinking about the unique requirements and circumstances of an individual country or region while selecting the right risk capital model to work with, the case for whether or not there is really a public sector role in creating a risk-venture capital industry (either direct, in terms of creating and managing the institution, or indirect, in terms of creating an enabling environment for the venture capital industry to flourish) in developing countries and emerging markets is a trickier question. The following section tries to shed some light.

V – PUBLIC SECTOR AND VENTURE CAPITAL – IS THERE A ROLE FOR PUBLIC POLICY?

The issue of whether or not there is a role for public sector/policy in the development of venture capital industry is one that invites strongly argued and defended positions from both sides of the isle. Needless to say that it remains undecided. In the context of the developing countries, this debate takes on an even more interesting twist. Even if one takes as a valid argument that for a well-developed capital market, there is little that government intervention can do “well enough, or better than” what would have happened if the market actors were left alone to decide for themselves. Should the government, then, play a role in countries and regions where capital markets are not properly developed? What sort of roles best suit governments of developing countries and emerging markets that are aiming at creating a venture capital industry?

The proponents of government intervention usually use the argument of existence of “funding gaps” in the capital markets, especially for new and risky businesses (technology-oriented or otherwise), that

governments might step in to fill. This position that generally rests on the strongest form of the pro-government argument in economics---the existence of a market failure---runs like this: *since new businesses are inherently risky yet important from the standpoint of developing a robust economy, and the traditional capital market instruments like leasing and bank lending are either not willing to take this additional risk or not capable of evaluating it properly, there is a role for public sector to step in and take on some of this risk, either as direct providers of capital, as primary buyers of the new product/service, as co-financiers (to lower the risk for capital markets), or as guarantors of a pre-defined return.* A second implicit assumption here is that the government can really do what it seeks to do—namely, encourage venture capital activity (Lerner, 2002).

The claim for public intervention through the “funding gaps” argument has sometimes been rebutted in the literature through systematic analysis of capital availability. A 2001 study that took this approach claimed that the perception of widespread capital gaps “was simply not true” (Buss, 2001). The study argues that those who succeed in finding capital are likely to represent the most promising of the investment opportunities and it is possible that a public sector intervention to provide any additional capital may result in poor investment choices. The former position is often strengthened with an “in-equity of distribution (of venture capital funds” argument. While there is some truth to this line of argumentation, whether or not it represents a strong enough imperative for public intervention in otherwise well-functioning capital markets is a fairly difficult intellectual challenge. Indeed, opponents of the above line of argumentation point at the numerous failures of public sector interventions in venture capital markets. Public sector bureaucrats, they argue, neither have the capability nor the incentive structures to do what a private venture capitalist would as exemplified by the failure of Small Business Administration in regulating the SBIC Program in the 1960s and 1970s. (Bates, 2002)

While the above argument remains unresolved, it has recently taken a more constructive tone in the sense that there have been some attempts to systematically analyze the experiences of failed public venture capital experiments to try to develop some generalized principles about institutional design of public venture capital programs. Notwithstanding the lack of conclusiveness of the intellectual debate, there are a number of examples of successful and unsuccessful attempts of public sector intervention in the venture capital markets e.g. the SBIC Program in the US and ICFC in the UK—and increasingly more are being conceived around the world by the day. Germany’s example of success and failure is fairly stereotypical of such efforts. The German Venture Capital Fund called “Deutsche Wagnisfinanzierungsgesellschaft” (“WFG”) was created in 1976 to develop venture capital in Germany. Right from the first year of its inception, WFG was an outright failure and ended up recording a rate of return of –25% on government investment and was finally disbanded in 1984 (Hellman, 2000). Ironically, the dissolution of WFG coincided with the creation of WFGneu (“The New WFG”). A number of other programs have since been attempted.

In the UK, the government has moved in a similar direction through the creation of The Enterprise Fund in order to address biases in size, stage and geographical distribution of investment activity of venture capital

funds. The European Seed Capital Fund Pilot Scheme (1988-95) is another example of a program to try to intervene on the pretext of attempting to correct regional disparities in risk capital supply (Murray, 1998). In the US, as recent as in the National Competitiveness Act of 1993 (HR. 820, S.4) made an attempt to create a “venture capital czar” in Commerce Department with the responsibilities of intervening in the venture capital markets. Other such efforts during the Clinton Administration included proposal of creating New Market Venture Capital Companies (NMVCs)” (Bates, 2002), CIA’s In-Q-Tel Initiative (BENS, 2001), and US Army’s Venture Capital Fund (Held, 2003).

In the case of developing countries and emerging markets as well governments have taken a variety of facilitative (e.g. Hong Kong) or directive (e.g. Taiwan, Singapore, South Korea and Japan) roles (Yu, 1997). While the literature is far from a place where an unambiguous case for or against public intervention in entrepreneurial markets, especially through venture capital industry, can be made, our approach here would be to identify some examples—success stories--of public sector involvement in venture capital markets to identify appropriate and inappropriate role of government in venture capital markets. We look at a venture capital development program in Israel, a policy-bundle in India, and a set of policies experiments in the US states.

V.1—YOZMA PAR EXCELLENCE: PUBLIC POLICY AND ISRAEL’S VENTURE CAPITAL INDUSTRY

Israel has long enjoyed strong economic linkages not only with the US financial community in New York but also the technological community in the Silicon Valley and elsewhere. However, the Israeli venture capital industry did not really mature until quite recently. As late as 1986, Israel’s venture capital industry was almost non-existent. In 1986, there were only two venture funds in Israel with the total investable capital of \$30 million in Israel. This number soared to 80 firms managing \$3 bn. in venture capital in 1999 to 150 firms managing \$6 bn. in venture capital in 2000 (Pfeil, 2000). The seeds of this many orders of magnitude change in invested capital in the Israel’s venture capital industry are believed to sowed in creatively designed and executed public intervention in venture capital industry.

In June 1992, the Israeli government started the *Yozma* Venture Capital Program (“*Yozma*” means Initiative in Hebrew) as a catalyst to help spur venture capital industry in Israel. Yozma Venture Capital Ltd. was a \$100 mn. venture fund wholly owned by the Israeli government. It was established with three goals in mind: 1) to promote the growth of promising high technology firms in Israel, 2) to encourage the involvement of major international corporations in the Israeli technology sector, and 3) to stimulate the development of professionally managed, private sector venture capital industry in Israel (Anapolsky, 1998). The creative design of the Yozma Program proved to be its greatest strength. Yozma Program offered an attractive proposition to international venture funds and corporations to set up venture capital companies in Israel. By co-investing in the newly formed funds, Yozma shared the risk with the foreign entities, however, it also offered to maximize the upside of the investment by offering to buy its share of investment within five years at very attractive interest rates (LIBOR + 1%). The legislation that created Yozma capped the amount of

money it could invest in a particular fund at \$8 mn. (to be matched by the foreign party with \$ 8mn. of its own) to create several \$16mn. funds. The Yozma fund had a considerable impact on the venture capital business in Israel and soon became the showcase for state-led emergence of a well-functioning venture capital and high tech. industry (Pfeil, 2000, p.13). The Yozma fund was privatized at a profit in 1997 – just 4 years after its creation – with a broad based recognition that it had done its job by transforming the venture capital industry in Israel.

V.2—TEETERING ON THE BRINK OF SUCCESS: PUBLIC POLICY AND THE INDIAN VC INDUSTRY

Back in 1980s, someone looking at India-- with its underdeveloped economy and capital markets and state-led aversion to capitalism--would have perhaps frowned at the prospect of developing a homegrown venture capital industry. Yet, the rise of the venture capital industry lagged the rise of India as a software mini-super power of the world in the late 1980s and early 1990s. Prior to 1980s, a mix of interesting conditions dominated the Indian business and financial scene. Over time, however, gradual economic liberalization supplemented by active participation of non-resident Indians (e.g. Kanwal Rekhi of Excelan, Vinod Khosla of Daisy Systems, Yogen Dalal of Metaphor and Suhas Patil of Cirrus Logic) provided a pre-condition for the creation of a successful venture capital industry in India.

Prior to 1980s, venture capital was a lesser-known concept in India. A 1983 book titled “Risk Capital for Industry” written under the aegis of Economic and Scientific Research Foundation of India does not even mention the terms venture capital (Dossani and Kenney, 2001, p.21). Prior to 1988, the Indian government had no explicit policy towards venture capital. In 1988, the Ministry of Finance provided guidelines for the venture capital industry with extensive input of the World Bank and supported by a \$45 million outlay by the former to four public sector institutions in India to enable them to establish venture capital funds (Dossani and Kenney, 2001, p.23). These guidelines, although a departure from the past, were still quite restrictive and failed to implement many important recommendations (e.g. the tax pass-through provision). The investment approval process as specified was very cumbersome with multiple layers of oversight. This was nonetheless an important piece of legislation that heralded the birth of venture capital in India. The initial years of the industry were full of difficulties—typical of the early years of a venture capital industry in other countries as well—with a lot of learning and experimenting going on and were characterized by a number of failures and blunders. The performance of many of these initial venture funds was therefore quite ordinary. During this time, several successful private individuals also set up their own venture funds or joined those already present. Indian Venture Capital Association was also established in 1993.

While the initial progress was modest, slow and painful, by late 1990s, however, India’s nascent venture capital industry was beginning to take off and began to attract funds raised abroad. With the growth of private sector venture capital activity in India, the government took a back seat vis-à-vis active involvement in the industry and started to adopt a more facilitative role. A number of long-due policy and regulatory changes were made during the closing years of the 1990s, namely, creation of a regulatory body—the

Securities and Exchange Board of India (SEBI)—to oversee venture capital related regulatory functions. In 1996 SEBI put out its new guidelines for venture capital industry. In 1999, government also allowed banks to invest up to 5% of their new capital annually in venture capital investments.

Despite some encouraging progress, a lot of work still needs to be done before India would be able to declare victory in transplanting a venture capital industry at home. While the public policy regime has been somewhat supportive (starting from direct involvement in the earlier years to regulation in the late 1990s), there are still some grave policy challenges facing the Indian venture capital industry that are perhaps limiting its ability to grow as it should. The regulation is still quite cumbersome with a confusing array of statutes and government regulatory agencies²². The industrial sectors in which venture capital can invest remains regulated thus taking away the freedom of venture capitalist to invest at will and causing a potential distortion in the venture capital market. Corporate tax system adds another layer of complexity and distortion. The tax pass-through provision is still not in place, as desired by the venture capital community. India's corporate law does not allow formation of limited partnerships. The regulatory framework does not allow the use of equity to reward employees, as is the case in the US industry. The Indian venture capital industry, therefore, remains in a state of flux aided often by public policy intervention but in many ways hampered by lack of policy flexibility as well. While growth of venture capital in India has not been an overnight success as in Israel, it has nonetheless taken off on a solid trajectory with the venture capital institution and its environment co-evolving and adapting through innovations and policy initiatives.

V.3—A LABORATORY FOR POLICY INNOVATION: VENTURE CAPITAL IN AMERICA'S STATES

In many ways, looking at the US states is a very useful exercise because institutions, markets and opportunities in these states---many of them rural---are not very dissimilar to conditions in emerging markets and developing countries. Kansas, for example, is a case in point. Traditionally a rural state with agriculture--with the exception light aircraft industry--being the mainstay of its economy, it has come a long way in terms of developing a variety of other industries like heavy construction services, plastics and light electrical industry etc. We believe, the successful creation of public venture programs that not only go on to disburse vital and much needed risk capital in these under-developed markets, support themselves by earning a return on their investments, and pave way for the development of risk capital markets in such areas represents an interesting field of practice and body of literature that has received far less attention than it deserves. What follow are brief snapshots of some public sector initiatives²³ at the level of the US state to help spur local venture capital activity. These are by no means, the only programs but are representative of the considerable policy innovation—sometimes successful, sometimes not—that is found in these states.

²² Up until 2000, domestic venture capital firms were regulated by three different agencies, namely, SEBI, Ministry of Finance and Central Board of Direct Taxes. Foreign venture capital firms had additional oversight in the form of Foreign Investment Promotion Board and Reserve Bank of India.

²³ Details of these programs have been adopted from program websites as well as other sources.

In Kansas, for example, *Kansas Venture Capital Inc.*—a \$15 mn. for-profit SBIC was established by the state of Kansas to “provide venture capital loans and management assistance to Kansas-based small businesses having potential for significant growth and long-term equity appreciation”. The state money came with the requirement that investment be made only in Kansas businesses or those with significant percentage of their operations in Kansas. While KVCII has struggled trying to meet state’s economic development objectives, it has developed a small niche and demand for venture capital in Kansas. This has led the fund’s management to seek privatization of the fund that would allow it to operate as a region-focused for-profit entity and contribute towards venture capital development in rural Kansas.

Grupo Guayanacan Inc.—in what was the first resident venture capital partnership in Puerto Rico—was created in 1995 by the Government Development Bank of Puerto Rico to support entrepreneurial environment on the island. A non-profit corporation, it manages a \$55 mn. fund-of-funds with an international focus and \$2 mn. fund with domestic focus. Since its inception has helped build networks and linkages with the US and UK markets in a number ways. The fund-of-funds is invested in 15 US and UK-based venture capital partnerships that then provides access to deals and international expertise. Once a year, each of the partners is invited to Puerto Rico to a “show and tell” conference to show the entrepreneurial environment of the island and is strongly encouraged to invest. The local fund, on the other hand, makes investments in Puerto Rico-based companies. Grupo Guayanacan is an interesting model of public sector involvement in trying to create a market and an environment for venture capital.

Massachusetts Technology Development Corporation (MTDC) is the oldest state sponsored seed and venture capital fund in the US. Established in 1978 as a quasi-public agency of state government through a \$8.2 million initial capitalization²⁴, MTDC has achieved a fairly solid track record of successful investing and contribution to the state economy. Despite being constrained by legislation to invest only in those companies that find considerable barriers to access to venture capital, it has, over the years, leveraged funds at a ratio of more than 1:4 directly through its investment in 88 companies in Massachusetts and has operated an apprenticeship program that has graduated nearly a dozen professionals who have moved on to become successful venture capitalists in Massachusetts as well as all over the US.

Insert Table-III around here

Finally, another important and precedent setting instrument in the area of risk-capital provision in the US states was the creation of Louisiana Certified Capital Companies (CAPCOs) Program in 1983. While the Louisiana program was the first of its kind, CAPCOs have received widespread attention and implementation in other US states e.g. Missouri (1997), New York (1997), Wisconsin (1997), and Florida (1998) (Markley et al., 2001, p.45). In order to ensure the state economic development objectives, the legislation required that all CAPCOs must invest at least 50% of their certified capital in Louisiana businesses within three years. As of

²⁴ This number stood at \$27 mn. in 1998

December 1998, there were 22 CAPCOs certified in Louisiana that had raised \$517 mn. (1988-1998) in certified capital and invested \$149 mn. in qualified businesses during the same period. While the Louisiana CAPCO Program was supposed to expire in 1989, it has been repeatedly reauthorized by the state legislature since then.

These are not the only examples, successful or unsuccessful, of public sector interventions in the market for risk capital. Indeed, one can add many more to this list some of which are reviewed in great depth in some of the studies that are cited in this work (Markley et al., 2001, Daniels and Lynch, 1998). The trend has not subsided even in the last couple of years, as obvious from creation of similar funds in Alabama, Pennsylvania, Illinois, Missouri, Tennessee and Florida during FY99 to FY02 (see Table-III). While the jury is still out on many of these efforts, there are quite a few that can be declared successful in terms of attracting venture capital investment in the state, furthering entrepreneurship and new business formation and earning a somewhat handsome return along the way.

What does the above mean for the role of public sector interventions in risk capital markets in developing countries and emerging markets? While the arguments presented above, along with the case-study type analysis undertaken are far from being complete, they do hint at one fundamental fact. ***Direct public sector provision of venture capital and passive/facilitative policy interventions can work if designed properly, and are adequately supported by other important environmental factors.*** The above analysis also points out towards the fact that ***there is no one silver bullet for the development of venture capital industries around the world.*** Indeed the nature of intervention that worked in Israel was very different from the one that worked for India. The outcome of the intervention in Israel was also vastly different from the outcome of an intervention of quite similar nature and size in Louisiana. While part of this is due to the differences in the design of the programs themselves, but part of it has also to do with the environmental factors, state of readiness in financial, entrepreneurial and technological spheres, the culture of the region and interaction with other policies. What is needed is a detailed study of the various successful (and unsuccessful) public sector interventions in various countries and US states with an eye towards identifying the best practices and critical success factors that are common across the various initiatives as well as their interaction with other related policy regimes. This kind of an analytic undertaking would not only be an intellectually stimulating endeavor but also lead to a more informed policy advice.

VI – CONCLUSION: VENTURE CAPITAL IN EMERGING MARKETS – MISPLACED EXPECTATIONS AND MISGUIDED STRATEGIES?

Is venture capital in developing countries and emerging markets, then, a mirage? There are two answers to this question, a simple answer and a difficult answer. The simple answer to the above question is that it is far from as bleak as it is commonly projected in the literature in the developed world. Throughout the course of this paper, we have reviewed strong evidence to suggest that although some initiatives funded by development agencies have long been declared a failure (a la USAID's venture capital mirage) risk capital is

alive and gradually taking roots in many parts of the developing world and is going through the same kinds of phases and process that the US industry went through in 1960s and 70s. We have also seen examples of good and bad use of public policy. An imaginative program aided by other critical ingredients (e.g. Israel's Yozma Initiative) can be fairly successful in developing venture capital market in a country. Good use of public policy can even lead to slow but sure progress towards development of venture capital markets even under otherwise severely testing environments (e.g. in India and many other lesser developed US states). There is a certain aura of optimism in this conclusion.

The difficult answer to the question posed above is that our current state of understanding of risk-venture capital markets, specifically the instrument of venture capital, and its interaction with other factors that either hamper its development or aid it, is at best incomplete and patchy. The need for a small stocks market—often stressed upon as a pre-requisite for venture capital development—is a case in point. The EASDAQ episode points at the fact that venture capital success cannot be created simply by creating a vibrant small issues stock market. While there is considerable truth to the claim that venture capital activity is stronger in countries that have stock market-centered capital markets (e.g. US, Canada and Israel) against those that have bank-centered capital markets (e.g. Germany, Japan and other European countries) it is quite clear that a vibrant stock market is not the only pre-condition of a vibrant venture capital industry (Gilson and Black, 1999). Indeed, there are lots of other factors (e.g. culture, labor markets, operating styles, funding sources etc.) that might hamper the development of venture capital markets. The link, therefore, between venture capital success and stock markets is more complicated—a chicken and egg situation phenomenon, perhaps—than is often assumed to be (Gilson and Black, 1999, p.25).

VI.1—A WEB OF COMPLEX INTERACTIONS – A SYSTEMS MODEL OF VENTURE CAPITAL INDUSTRY

Extending the conclusions from the example of the venture capital – stock market connection a step further, one can clearly see that the venture capital firm is not a simple isolated entity but rather represents a complex web of interactions whose cumulative effect, both additive and non-linear, represents a system. A well—formulated policy advice would, therefore, require a greater level of understanding of the working and interactions of this fairly complex innovation or entrepreneurial system. What we need, therefore, is a systems model of the venture capital industry. Figure-II is a first order attempt to sketch a systems model for venture capital industry. At the heart of this systems model is the venture capital industry, represented by the circular core. The rest of the figure is divided in six categories of “influencing factors” that affect—directly or indirectly--what happens in the core.

These categories include: culture-traditions-institutions, capital-financial markets, entrepreneurship-human resources, technology-innovation system, economic-industrial structure and public policy-institutions. Within each of these six broad categories, there are more specific factors that, either directly or indirectly, affect the venture capital industry and affect each other through variety of cause-and-effect relationships. This results in a complex web of interactions between various institutions, policies and entities in an

economic-social system whose net outcome determines the health of the venture capital industry. What is needed for making well-informed policy prescription for venture capital development in the developing countries (and for that matter, anywhere in the world) is a good understanding of how this complex system of interactions works.

A research program aimed at carefully mapping these intricate relationship in an exhaustive manner followed by identification of the primary and strong influencers and establishing the exact nature of the cause-and-effect relationships would help policy makers and economic development practitioners to evaluate the readiness levels of a particular country or economic system vis-à-vis venture capital development. It would also help identify the weaknesses or “pain points” that might end up hampering the growth of entrepreneurship and venture capital in the area in question. A more careful analysis of such systems in various parts of the world might also help identify venture capital development strategies under different economic-societal regimes that take different development and maturation paths. It is only after such a detailed understanding of this complex system is reached that a useful multi-pronged policy regimen can be prescribed. While the above model provides a means to calling attention to the importance of these other supporting factors in the venture capital equation, this might not be the only one possible. Bygrave et. al. (1992), for example, present these multifarious factors and interactions in the form of a “genetic code for high tech economic development.” Schulpen et.al. (2002) provides another interesting policy framework that divides types of policy interventions into international or country level, macro or state level, meso- or local level, and micro or company level. Underlying the application of this policy framework, and for that matter a refinement of Bygrave et.al. (1992), is a system level understanding of various components and their interactions.

V1.2—TRANSPLANTING VENTURE CAPITAL IN DEVELOPING WORLD – THE WAY FORWARD

What then is the verdict on the rather myopic one-shot approach to venture capital development--the creation of a solitary x-million dollar venture capital fund to act as an oasis of entrepreneurial success--often attempted by development finance institutions in the past? While experience has shown that there is some value to creating such pilots in environments that are not ready for such investments, it is abundantly clear from the above analysis that a one-shot intervention in the absence of a broad based system-wide understanding of how the instrument works has little chance for bringing about a dramatic change in the entrepreneurial and venture capital landscape of developing countries and emerging markets.

A more comprehensive approach of looking at the venture capital and entrepreneurship development “system” is warranted that attempts a series of private and policy interventions aimed at identifying and bridging the institutional, human resource, policy and capital gaps that might hinder and inhibit the development of such a system. Until that kind of system-wide understanding is reached and we move beyond the haphazard and one-shot approach to policy making based on the “intuition, gut feeling and hunches”, venture capital in developing countries and emerging markets would remain little more than a roll of dice.

Clearly, the approach of putting together a “foreign” team of entrepreneurs and venture capitalists with little or no local knowledge or experience and putting them in an unfriendly business environment and making them work under an incentive structure that does not reward risk taking coupled with burdens of severe reporting requirement of donor agencies, restrictions of what can be funded, what funding instrument to be used etc. is a recipe for disaster and falls far short of an ideal strategy for creating a successful venture capital company. Ironically, this has precisely been the approach taken in the past by international development funding institutions. No wonder such approaches have delivered so little as compared to the misplaced expectations of their initiators.

One can readily identify some emergent themes from the above discussion by way of a conclusion, not the least important of which is that a successful “model” of venture capital development in developing countries and emerging markets remains illusive. In fact, there is no single “model” for venture capital development common across these countries as there is no global model of venture capital prevalent in the developed world (Meggison, 2001). One can point at a number of different models that have worked—to varying levels of success—under different circumstances and environments. This considerable diversity of circumstances requires and must lead to institutional innovations and differentiated strategies on the part of the initiators

A review of the DFI-based venture capital initiatives present a picture of failure that can be attributed to broad brush bureaucratic handling of a very intricate and complex instrument. Given the diversity and heterogeneity of conditions and readiness, “policy innovation” appears to be the name of the game. The examples of Israel, India, and the US states, emphasized the importance of a well-thought out and innovative policy regime. We reiterate the need for “good knowledge” to back “good policy advice” by presenting a “systems approach” to thinking about venture capital industry. Systematic cross-country research—both statistical and case study-based—is needed to understand and establish these various linkages and document best practices across different localities.

While the proposed research would take time to bear take place and bear fruit, policymakers and proponents of venture capital development in the developing world would continue to make efforts towards the achievement of their goals. The fundamental contribution that this paper seeks to make is to rekindle the long forgotten debate of the need and utility of creating venture and risk capital in the developing country and emerging market context and bring to forth the diversity and heterogeneity of models that are being used not only in the these environments but also in the developed world itself and a systems approach towards looking at the policy option space. This, we believe, would not only create an interest in development community but also among policymaking, entrepreneurial and venture capital communities in these countries and elsewhere and lead to well-developed policies and institutional innovations. A wisely designed mix of research (theory) and experimentation (practice) would hopefully lead the way.

REFERENCES

- Alyward, A. .1998. Trends in Venture Capital Finance in Developing Countries, IFC Discussion Paper # 36, The World Bank, Washington DC
- Anapolsky, J. 1998. The Advent of Israel Venture Capital Program, Harvard Business School Case Study # 9-298-072
- Barger, T., Carter, L, Kuczynski, I. 1996. “Venture Capital Funds in Emerging Markets – Lessons from IFC’s Investments”, In ***Public Policy for the Private Sector***, International Finance Corporation
- Bates. T. 2002. “Government as Venture Capital Catalyst: Pitfalls and Promising Approaches”, In ***Economic Development Quarterly***, Vol. 16, No. 1
- Beltz, Cynthia. A. 1994. Financing Entrepreneurs, American Enterprise Institute, Washington DC
- BENS. 2001. The Report of the Independent Panel on Central Intelligence Agency In-Q-Tel Venture, Business Executives for National Security (BENS)
- Buss, Terry F. 2001. Capital, Emerging High-Growth Firms and Public Policy: The Case Against Federal Intervention, Praeger Publications, Connecticut
- Bygrave William. D. and Timmons, Jeffrey, A. 1992. Venture Capital at the Crossroads, Harvard Business School Press, Cambridge: Massachusetts
- Chesbrough, H. W. 2002. “Making Sense of Corporate Venture Capital”, In ***Harvard Business Review***
- Christofidis, C. and Debande O. 2001. Financing Innovative Firms through Venture Capital, European Investment Bank Sector Papers
- Corporate Strategy Board (CSB). 2000. “Corporate Venture Capital: Managing Equity Investments for Strategic Returns”, In ***Executive Inquiry***
- Daniels, B. H., Lynch, J. 1998. Best Practices for State Sponsored Seed and Venture Capital Programs and Alternatives to Direct State Funding, Economic Innovations International Inc.
- Dubocage, E. 2001. The Financing of Innovation By Venture Capital in Europe and in the USA: A Comparative and Sectoral Approach, Working Paper ESSY, University de Paris
- Dossani, R., Kenney, M. 2001. Creating an Environment: Developing Venture Capital in India, BRIE Working Paper # 143, Berkeley Round Table on International Economy

- EVCA. 2002. White Paper on Policy Priorities for Private Equity Fostering Long Term Economic Growth, European Venture Capital Association, available at: http://194.7.124.176/html/euro/policy_paper.asp
- Fenn, G. W., N. Liang, and S. Prowse. 1997. "The Private Equity Market : An Overview." In *Financial Markets and Instruments*, 6: 1-106
- Fox, James W. 1996. The Venture Capital Mirage: Assessing USAID Experience with Equity Investments, USAID Program and Operations Assessment Report # 17, Center for Development Information and Evaluation, USAID
- Gilson. R. J. and Black, B. 1999. "Does Venture Capital Require an Active Stock Market?", In *Journal of Applied Corporate Finance*
- Gompers, Paul A., and Lerner, Josh. 2002. The Money of Invention: How Venture Capital Creates Wealth, Harvard Business School Press
- Hamada, Y. 2001. Summary of Venture Capital Year Book 2000, A Presentation
- Hamada, Yasuyuki. 2001b. VB Finance and Policy Assessment, University of Hokkaido Working Paper
- Bruce Held, Philip Anton, Elliot Axelband, Kenneth Horn, Athar Osama, Mike Stollenwerk & Ike Chang. 2002. US Army Venture Capital Fund Options, AB-610-A, RAND: Santa Monica
- Hellman, T. 2000. The Genesis of Venture Capital: Lessons from German Experiences, Research Paper # 1705, Graduate School of Business, Stanford University
- Indhal, R., Zinterhofer, E. with Lerner, J. 2002. "A Note on European Private Equity", In Lerner, J. & Hardyman, F., *Venture Capital and Private Equity Case Book: Volume II*, John Wiley and Sons
- Lerner, J. 2002. When Bureaucrats Meet Entrepreneurs: The Design of Effective 'Public Venture Capital' Programs, Working Paper, Harvard University
- Markley, Deborah M., Barkley, David L., Rubin, Julia S., Freshwater, David, Shaffer, Ron. 2001. Case Studies of Non-Traditional Venture Capital Institutions, Rural Policy Research Institute
- McMurtry, B. J. 1986. "Tax Policy Influence on Venture Capital" in Ralph Landau and Dale W. Jorgenson Eds. *Technology and Economic Policy*, Ballinger Publishing Company, Cambridge, MA
- Megginson, W. L. 2001. "Towards a Global Model of Venture Capital?", Working Paper, University of Oklahoma
- Murray. G. C. 1998. "A Policy Response to Regional Disparities in the Supply of Risk Capital to New Technology-based Firms in the European Union: The European Seed Capital Fund Scheme", In *Regional Science*, Vol. 32.5, pp. 405-419
- Murray, G. C. and Marriott, R. 1998. "Why the Investment Performance of Technology Specialist, European Venture Capital Funds been so poor?", In *Research Policy*, V27, pp. 947-976
- Ono, Masato. 1995. Venture Capital in Japan: Current Overview
- Pacanins, Gonzalos, and Lerner, Josh. 1997. A Note on Private Equity in Developing Countries, Case # 9-297-039, Harvard Business School
- Pfeil, Andreas. 2000. Venture Capital: New Ways of Financing Technology Innovation, Working Paper, Human Development Report Office
- Ramesh, S., Gupta, A. 1995. Venture Capital and the Indian Financial Sector, New Delhi: Oxford University Press

Roberts, M. J., & Morse, K. P. 2000. Angel Investing, Note # 9-800-0273, Harvard Business School

Schulpen, Lau and Gibson, Peter. 2002. "Private Sector Development: Policies, Practices and Problems" In *World Development*, Vol. 30, No. 1, pp. 1-15

Schwartz, Larry W. 1994. "Venture Abroad: Developing Countries Need Venture Capital Strategies", In *Foreign Affairs*

Yu, T. F. 1997. "Entrepreneurial State: The Role of Government in the Economic Development of Asian Newly Industrializing Economies", In *Development Policy Review*, Vol. 15, pp. 47-64

TABLE – I: LESSONS LEARNT : IFC’S VENTURE CAPITAL INVESTMENTS IN EMERGING MARKETS *

Challenge: Management

- Quality of Fund Management is the most important factor in success and the ability to find experienced, high-quality fund managers willing to manage relatively small funds in difficult economic environments has been a challenge

Remedies/Approaches:

- Develop “regional” fund management expertise encompassing several countries
- Identifying and retaining excellent international managers
- Helping develop partnerships between local and international fund managers
- Ensuring large enough fund size to attract an international partner or seeking additional donor support to defray the cost of hiring an experienced manager

Challenge: Size and Structure

- Fund size and structure have also been distinguishing factors in success

Remedies and Approaches:

- Create larger funds (> \$10mn.) that are more successful than smaller funds
- Create funds with Two-tiered mgmt. structure that avoids incentive problems
- Create funds of finite life (~8-10 yrs.) to align incentives of managers & investors
- Create innovative fund structures that get around problems like tax efficiency, legal form and domicile, legal status of investors, management incentives, investments strategy and exposure guidelines etc.

Challenge: Deal Flow

- A mixture of instrument novelty, inexperienced management, cultural factors, macroeconomic stability, competing source of capital and lack of opportunities restricts deal flow required to harvest a fund

Remedies and Approaches:

- Education and awareness, better linkages and market intelligence etc.

Challenge: Exit Difficulties

- Less developed stock markets, extreme informational asymmetries, lax corporate governance standards result in restricted exit opportunities

Remedies and Approaches:

- Encourage Capital market reforms, corporate governance reforms etc.

* Adapted from: Barger et al. (1996)

BOX – I: USAID’S EQUITY INVESTMENT & ENTERPRISE VENTURE FUNDS*

EQUITY INVESTMENT VENTURE FUNDS – TIME FRAME (1971-1989)

- Latin American Agribusiness Development (1971, \$20mn.)
- Private Investment Encouragement Fund (Egypt, 1979, \$1mn.)
- Development Finance Corporation (Haiti, 1982, \$12mn.)
- Jamaica Agriculture Development Foundation (1984, \$21.2mn.)
- Private Investment Corporation (Costa Rica, 1985, \$26mn.)
- Appropriate Technology Inc. (Asia, 1985, n.a.)
- High Impact Agribusiness Promotion (E.Caribbean, 1986, \$40mn.)
- Cash Transfer for VC Lending (Ireland, 1986, \$50mn.)
- Loan to a new VC Firm (Thailand, 1987, \$3mn.)
- Establish a VC Firm (Jordan, 1987, \$0.7mn.)
- Fund 2 Equity Capital Cos. (Kenya, 1987, \$9.6mn.)
- Launch a VC Company (Sri Lanka, 1988, \$2.4mn.)
- Africa Growth Fund (Africa, 1989, \$2.4mn.)

EQUITY INVESTMENT VENTURE FUNDS – TIME FRAME (1989-95)

- Hungary (1990, \$70mn.**)
- Poland (1990, \$264mn.)
- Bulgaria (1991, \$55mn.)
- Czech-Slovak (1991, \$65mn.)
- Russia (1993, \$440mn.)
- Baltic (1994, \$50mn.)
- Romania (1994, \$50mn.)
- Western NIS (1994, \$150mn.)
- Central Asia (1994, \$150mn.)
- Southern Africa (1995, \$100mn.)
- Albania (1995, \$30mn.)

* Adapted from “Venture Capital Mirage” -- Fox (1996)

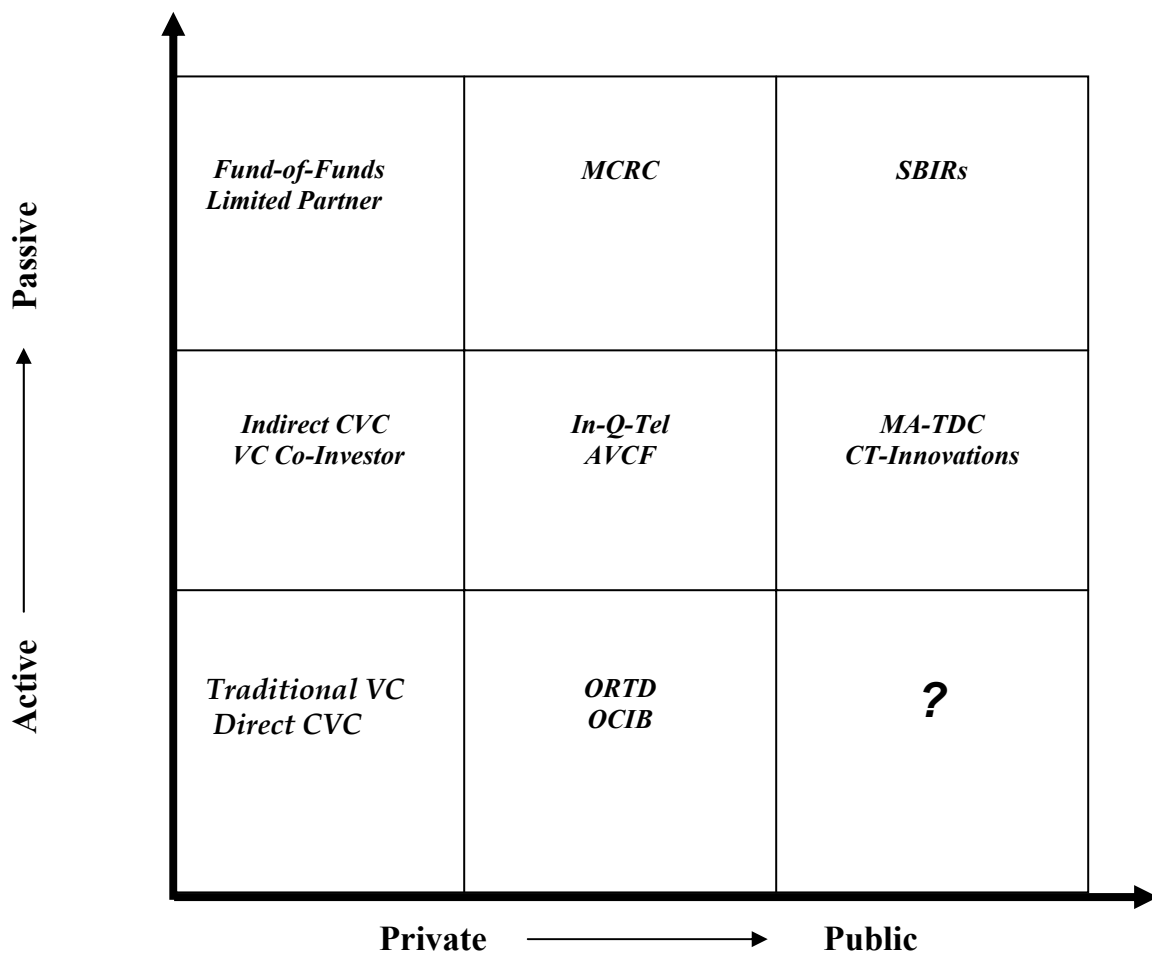


FIGURE I: RISK-VENTURE CAPITAL: A BROAD INSTITUTIONAL TYPOLOGY

TABLE – II: DOMINANT MODELS OF RISK CAPITAL – A SNAPSHOT

Type of Model	Primary Purpose	Institutional Structure	Policy Interaction	Financial Performance	Real Life Examples
Traditional Private Venture Capital	Maximize ROI (Active Mgmt.)	LLC/LLP Fund-Of-Funds	Gen. Business / Entrepreneurial	20%+, fluctuates with B-cycle	Brentwood VC, Kleiner Perkins etc.
Passive Private Investment Funds	Maximize ROI (Passive Mgmt.)	LLP/LLC (Intermediary)	Venture Capital Regulation	Mgmt. Fee (high) Returns >= PVC	University Tech. Fox Venture Partners
Corporate Venture Capital Co.	Strategic & Financial	Business Unit, Passive Investor	Taxation/Competition Policy	At times better than PVC	Dell, HP, Intel, 3M, GE, XEROX
Public Sector BD/ Investment Funds	Econ. Development Modernize Business	Investment Co. CAPCO etc.	State Legislation Bond Issue etc.	Renewal-focused	MCRC
Public Venture Capital Funds	Fund infra-marginal business	Investment Co.	Publicly funded State ED funds	Renewal + Growth in fund size	MTDC, CT Innovations etc.
University TTOs & Investment Funds	Tech. Transfer Endowment Growth	University or Non-Univ. Entity	University Commercialization	Some good returns Yale/Harvard >30%	Yale, Harvard and MIT
University Entrepreneurial Forums	Experiential Learn Spin-offs	University Entity	University Commercialization	Little direct returns to Univ.	MIT Enterprise Forum
University-based VC & Incubators	Spin-offs	University or Non-Univ. Entity	Univ. Academic & Commercialization	Some direct returns to Univ.	Boston University ARCH
Private Sector Incubators	New Business Generation	BD or separate Commercial Entity	Gen. Business / Entrepreneurial	Not Clear	3COM, ICGE, LabMorgan, idealab!

TABLE – III: A SELECTION OF STATE PUBLIC VENTURE CAPITAL INITIATIVES

State/Initiative	Year/Size	Organization	Policy Instrument	Remarks
<i>Mass./ MTDC</i>	<i>1978/ \$8.2 → \$27mn</i>	<i>Public Fund</i>	<i>Semi-public entity</i>	<i>17% IRR, 15% failure</i>
<i>Oklahoma/ OCIB</i>	<i>1994/ \$24mn.</i>	<i>State/Fund-of-funds</i>	<i>Tax Credit</i>	<i>Leverage 14:125</i>
<i>Kansas/ KVIC</i>	<i>1976/\$15 mn.</i>	<i>SBIC/ Subsid. KCDC</i>	<i>Legislation</i>	<i>For-profit fund</i>
<i>Puerto Rico / GGI</i>	<i>1995/ \$55 & \$42mn.</i>	<i>Bank subs. (FOF)</i>	<i>Semi-public</i>	<i>Not-for-profit</i>
<i>Louisiana/ LCCCP</i>	<i>1983/ >\$500 mn.</i>	<i>CAPCO</i>	<i>Tax credits</i>	<i>First CAPCO in US</i>
<i>Oregon / ORTD</i>	<i>1987/\$12.3 →\$24 mn.</i>	<i>St. Treasury/PMC</i>	<i>State Lottery</i>	<i>Leverage 1:13</i>
<i>Alabama/VC Fund</i>	<i>FY02 / \$80 mn.</i>	<i>CAPCO</i>	<i>Insurance Co. Tax</i>	<i>SB 130</i>
<i>Pennsylvania/PVC</i>	<i>FY01/N.A.</i>	<i>Venture Accelerator</i>	<i>\$ Inducement</i>	<i>Governor’s Office</i>
<i>Florida/VC Fund</i>	<i>FY01/\$450 mn.</i>	<i>CAPCO</i>	<i>Investment Co. Tax</i>	<i>SB 1130</i>
<i>Tennessee/Seed Cap</i>	<i>FY01/\$12mn.</i>	<i>Seed Capital Fund</i>	<i>SBIC (2:1 leverage)</i>	
<i>Illinois/ VC Fund</i>	<i>FY01/\$60mn.</i>	<i>Invest in PVCs</i>	<i>1% of State’s Portfolio</i>	<i>HB 3212</i>
<i>Missouri/Seed Cap.</i>	<i>FY99/\$20mn.</i>	<i>Seed Capital Funds</i>	<i>Tax Credits</i>	<i>SB 518</i>

** Adapted from Daniels et.al. (1998), Markley et.al. (2001), and SSTI website (2001-02)*

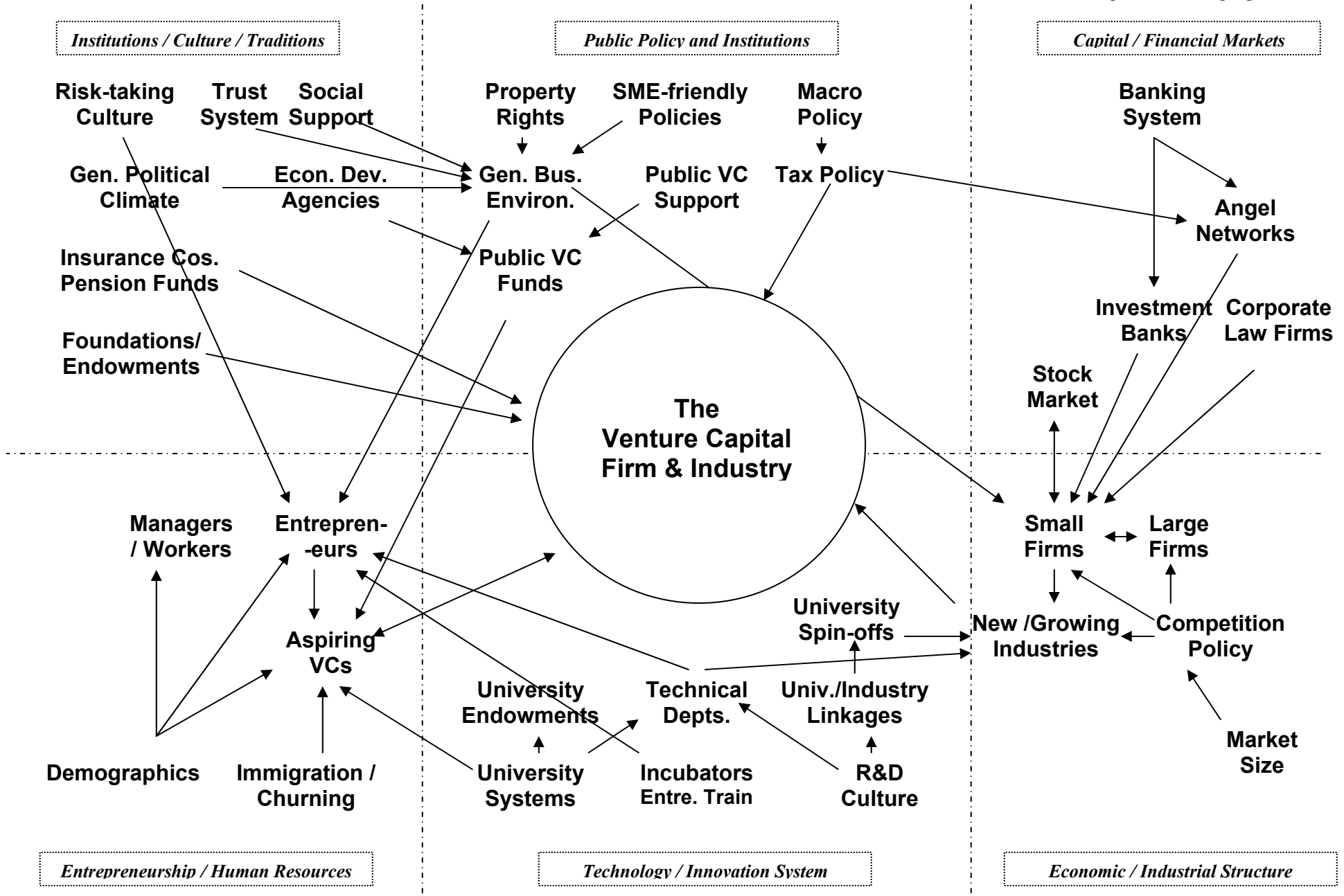


Figure II: A Web of Complex Interactions – Towards A Systems Model of Venture Capital