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# VENTURE CAPITAL AND INNOVATION

**ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT**

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## FOREWORD

This document contains information on venture capital initiatives to promote innovation in the OECD Member countries. Industry access to finance is a crucial element in the innovation process, particularly for smaller firms. Venture capitalists are needed to support higher-risk investments in technology-based start-ups. This document broadly compares and contrasts the venture capital industries of the major OECD countries. It includes more in-depth analysis of venture capital in selected OECD countries. This is preceded by a summary of the major points and the identification of steps governments can take to foster venture capital markets.

The analysis of venture capital provisions is part of the work of the Working Group on Innovation and Technology Policy (TIP) of the OECD Committee for Scientific and Technological Policy (CSTP) to identify "best practices" in innovation and technology policy in the OECD countries. Most of these papers were presented at an Ad Hoc Meeting of Experts on Venture Capital held in 1995. These have been supplemented by an overview and summary prepared by the Secretariat in conjunction with the rapporteur, Mr. Colin Mason of the University of Southampton, United Kingdom.

This document is derestricted under the responsibility of the Secretary-General.

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## SUMMARY


### Summary

Industry access to finance is a crucial element in the innovation process for translating the results of research and development into commercial outcomes. Venture capital is a specific type of finance provided by certain firms who invest alongside management in young companies that are not quoted on the stock market. Venture capital investments generally involve a long time-frame, an element of risk, a partnership with management and returns in the form of capital gains rather than dividends. Venture capitalists are needed to support high-risk investments in small, technology-based firms, which are often passed over by large companies and traditional financial institutions.

Most venture capital schemes are independent funds which raise capital from financial institutions. However, some financial institutions have their own venture capital funds ("*captives*"), and, in some countries, there is an informal venture capital market of private individuals ("*business angels*") and large companies ("*corporate venturing*"). The venture capital industry is well established in the United States, where it is oriented to technology-based sectors and consists of a range of investors, including pension funds, insurance companies and private individuals. The European venture capital industry is younger, oriented to mainstream sectors and dominated by banks. Japanese venture capital firms are mostly subsidiaries of financial institutions, which invest in established firms and provide mainly loan finance.

Although policies and programmes will vary with the economic and institutional characteristics of countries, the following are **actions** which governments can undertake to foster venture capital markets:

> **Creating an investment environment** -- Governments can create a fiscal and legal environment for stimulating the supply of venture capital, including measures to encourage longer-term venture capital investments by pension and insurance funds and tax incentives for venture capital investments by individuals or business angels.
>
> **Reducing risks for investors** -- Governments can stimulate the creation of venture capital funds oriented to technology investments through appropriate tax incentives, seed financing schemes, coverage of a proportion of investment losses, and funding pre-finance technology appraisals and audits.
>
> **Increasing liquidity** -- Governments can take steps to ease exit by institutional investors in start-up ventures through, for example, facilitating reinvestment and encouraging the creation of active secondary stock markets favouring high-growth technology-based companies.
>
> **Facilitating entrepreneurship** -- Governments can implement initiatives to encourage new high-technology start-ups, including risk-bearing tax regimes, royalty-linked loan schemes, information and counselling services and support for "business angel networks".

## Background

### *Definition*

In knowledge-based economies, economic growth and job creation increasingly depend upon successful innovation, meaning that the results of research and development (R&D) must be effectively translated into commercial outcomes. Access to finance is seen as a key factor in this process of innovation. Venture capital, as a specific type of finance that has been developed to fund high-risk projects, has an important role to play in this connection.

Venture capital is crucial to the innovation process. For a variety of reasons, it is very difficult for large companies to undertake high-risk innovative projects. Such projects have the greatest chance of success if they are undertaken in small technology-based firms. Venture capitalists are willing and able, through their financial instruments, to invest in such high-risk innovative projects. This is confirmed by the evidence that technological revolutions which have resulted in the transformation of industries have been led by venture capital-backed firms; for example, the firms that have pioneered each new generation of computer technology (PCs, personal computers, software, etc.) have been financed by venture capital.

Venture capital is here defined as capital provided by firms who invest alongside management in young companies that are not quoted on the stock market. The objective is high return from the investment. Value is created by the young company in partnership with the venture capitalist's money and professional expertise. Venture capital investments normally have the following main characteristics:

- long timeframe, being a 3- to 7-year investment;
- hands-on investment involving a partnership with management to provide support and advice based on the expertise, experience and contacts of venture capitalists as a means of adding value to their investment;
- returns are harvested primarily in the form of capital gains at the end of the investment rather than through on-going dividend returns.

Venture capitalists are agents who mediate between the financial institutions who provide the capital and the unquoted company which uses the finance. Some financial institutions have their own venture capital funds (these funds are termed "captives" in Europe). However, in the United States and Europe, most venture capital funds are "independents" who have to raise capital from financial institutions before they are able to invest in small and medium-sized enterprises (SMEs). The role of the venture capitalist is to screen investment opportunities, structure the transaction, invest and ultimately achieve a capital gain by the sale of the equity stake, either through a stock market flotation, a trade sale or a buy-back arrangement with the company. Institutions could not effectively perform this role themselves. Independent venture capital firms are remunerated by a share in the net profits of the funds and a fixed management fee.

With regard to economic significance, the venture capital market is small, even in the United States, relative to other financial markets. However, because venture capitalists specialise in investing in high growth companies, its economic role is very significant. For example, in the United States, the evidence indicates that venture capital-backed companies grow faster than Fortune 500 companies and have higher R&D expenditure per employee.

***General trends***

In most OECD countries, venture capital is largely a phenomenon of the 1980s and 1990s. Venture capital has existed for much longer in the United States, with wealthy families providing the main source of investment funds until the 1970s. The rapid growth of venture capital in the United States which commenced in the late 1970s was based on the flow of capital from the financial institutions following changes in the rules for pension funds which allowed them to allocate up to 5 per cent of their assets to "risky" investments. Nevertheless, it is probably misleading to attribute the growth in venture capital activity in the United States entirely to this legislative change because significant developments were also occurring on the demand side at the same time, notably the technological revolution in micro-electronics which created market opportunities for technology-based entrepreneurial businesses.

Venture capital investment activity generally includes **two distinct investment situations:** 1) investments in new and young, rapidly-growing, often technology-based, companies; and 2) financing company restructuring through management buy-outs (MBOs) -- which enable existing management to acquire a business - and management buy-ins (MBIs) -- which enable managers from outside a company to buy-in to a company. It should be noted that in Europe, statistics for venture capital activity include both "start-up" and "MBO/MBI" investments. However, there is a much clearer distinction in the United States between these types of investment, and so statistics on US venture capital activity exclude large MBO investments.

Venture capital has been established in Europe for only about 10 years, although here again its origins can be traced back to the early post-war period (e.g. the creation of ICFC, the forerunner to 3i, in the United Kingdom in 1945). Within Europe, the venture capital industry is most developed in the United Kingdom and the Netherlands. Venture capital activity in France and Germany is on a more limited scale and does not reflect the economic significance of these two countries. A venture capital industry is emerging in some Central European countries.

Venture capital activity is not confined to the US and Europe. However, in other parts of the world it tends to diverge from the US model. For example, **Japanese venture capital firms**, most of which are subsidiaries of financial institutions, provide both loan and equity finance, invest in established firms, do not have a technology-focus and often hold shares in their investee companies after the stock is publicly listed on the stock exchange. Similarly, venture capital in Korea is mainly concerned with providing loan finance.

The **venture capital industry is cyclical**, both in terms of the funds invested by institutional investors and also in investment activity. US evidence points to a close association between the venture capital industry and the stock market, with rapid growth in venture capital activity occurring in bull markets. This points to the crucial significance of the initial public offering (IPO) market which is the key to recycling investment gains. Venture capital funds can more easily raise finance from financial institutions in "hot" IPO markets when the investors have financial gains to re-invest in venture capital funds. The higher the IPO return the more money will flow back to venture capital funds. In the United States, the proportion of venture capital backed companies gaining an IPO has varied from year to year but is a minority of all investments (around 20 per cent in recent years). The alternative exit route is a trade sale. There is generally a counter-cyclical relationship between IPOs and trade sales and prices obtained through trade sales are generally lower.

This cyclical pattern is seen in recent trends in both the US and European venture capital industries. In the United States, a period of rapid growth in venture capital activity in the early and mid-1980s was followed by a flat market between 1987 and 1992. Growth has resumed since 1992. As the European venture

capital industry is of more recent origin it has experienced only one full cycle, with 1994 being a record year for both fund-raising and investment activity, following a decline in fund-raising activity between 1988 and 1993. However, venture capital is unevenly spread across Europe, and the industry has found it easier to raise finance in some countries than others. Fund-raising in 1994 was most successful in the UK and the Netherlands which are the most mature European venture capital markets. The European venture capital industry has also seen an increasing rate of divestments, involving an increase in the number of stock market exits and a stabilisation in the number of write-offs.

Most **European venture capital investment** goes into expansion capital and management buyouts. The less prominent role of public equity markets in Europe compared with the United States deprives these companies of sources of equity capital, and venture capital has been attracted by the potential high returns from investments which fill this gap. The European venture capital industry plays a less significant role than its US counterpart in the provision of seed and start-up investment which accounted for 17 per cent of all investments in 1994 (but only 6 per cent of the total amount invested). Moreover, the number of such investments fell from 1988 to 1993, but did recover in 1994. In the United States, the proportion of later stage investments is also increasing. The amount invested in early stage investments each year is around US$ 1 billion -- a very small proportion of the total.

The European venture capital industry differs from its US counterpart in two further respects. First, the European venture capital industry invests primarily in mainstream industry sectors whereas technology-based sectors are much more significant to the US venture capital industry. Second, banks are the main investors in European venture capital funds whereas in the USA the main investors are pension funds, endowments, private individuals and insurance companies. Amongst European countries it is only in the UK that pension funds are a significant source of funds. This has an important implication. Banks have a shorter investment horizon than pension funds and insurance companies, and this influences the nature of the investments that are made. There is concern in Europe that the dominance of the banks is impeding the development of the venture capital industry.

To offset the high risk and long period in which the investment is illiquid, venture capital must be able to **demonstrate high returns** to their investors. These returns must be both in excess of inflation and the returns from "safer" investments such as government bonds and also exceed the stock market. In the United States, returns have, in aggregate, been more modest than expected but are nevertheless in excess of the S&P 500. In other words, the returns are attractive to institutional investors. Later stage investments have lower returns but lower risks. Conversely, early stage investments have higher returns and higher risks. Returns also vary by industry sector and over time. European experience indicates that the lowest aggregate returns have been made by early stage and technology specialist funds.

The British Venture Capital Association has recently (December 1995) published interim performance data, measured in terms of the net return to investors, at the end of 1994 for independent UK venture capital funds which raised investment funds in the period 1980-1990. This indicates that the pooled IRR (internal rate of return) generated was 12.1 per cent per annum. However, this average figure conceals significant variation in the performance of individual funds which ranges from negative returns to compound returns in excess of 30 per cent per annum. The top half of funds had an IRR of 18.8 per cent per annum and for the top quarter the figure was 24.2 per cent per annum. These returns are in excess of those available for other asset classes with acceptable levels of risk and liquidity. The returns from MBO funds have been superior to those of funds specialising in start-ups.

***Informal venture capital market***

Much less well known and documented because of its invisible nature is the informal venture capital market. This part of the venture capital market comprises private individuals -- often termed "**business angels**" -- who provide equity and near equity capital directly to unquoted businesses with which they have no family connection. Business angels are typically self-made, high net worth individuals, mostly successful entrepreneurs, although some have a background in business-related professions (e.g. accountancy, law, management consultancy) or as senior executives in large companies. They often invest alone, but many invest as part of informal syndicates which typically comprise family, friends or business associates. Business angels are motivated by capital gains, but non-financial considerations such as the fun of investing in entrepreneurial companies and altruistic reasons are important secondary considerations. Little is known about their exit routes, but the limited evidence available suggests that trade sales are the most likely exit route for successful investments and buy-backs for less successful investments.

It is not clear the extent to which the operation of the informal venture capital market differs among countries. The available evidence is limited to North America and the United Kingdom, with some additional evidence for Sweden, Finland and the Netherlands. Comparisons suggest surprisingly few differences in the operation of the market and the characteristics of business angels. However, this conclusion may reflect the close cultural similarities between these countries. The informal venture capital market may operate differently in culturally dissimilar countries. In the case of France, for example, it appears that private investors generally invest as part of a larger group rather than on their own.

In the United States, business angels play a crucial role in providing the bulk of early stage external equity finance. Business angels have also been identified in some European countries as playing a similar role. Indeed, business angels invest in precisely those situations where the institutional venture capital market is most reluctant to do so. Business angels invest predominantly at the start-up and early stages, in both technology and non-technology businesses, providing small amounts of risk capital to enable ideas to be translated into commercial entities. Business angels also tend to be value-added investors, playing an active role in the businesses in which they invest, and because of this hands-on involvement they tend to invest in businesses located close to their home. Thus, the informal and formal venture capital markets can be thought of as playing complementary roles. This has been conceptualised by a baseball metaphor, with the business angels acting as the "farm system" for the institutional venture capital industry, providing the start-up and early stage finance and hands-on assistance to enable new firms to get to the stage where they might be of interest to venture capital funds. The implication is that the institutional venture capital industry benefits from the existence of an active informal venture capital market.

The informal venture capital market is also of critical importance because of its size. It is the largest single source of external risk capital for small companies. It has been estimated that in the United States, business angels invest in 20 to 40 times the number of companies as the institutional venture capital industry and that the amount invested by business angels in the SME sector (i.e. excluding MBOs/MBIs) is five times greater than the institutional venture capital industry. Estimates for the United Kingdom suggest that the informal venture capital market may be two to four times larger than the institutional venture capital market in terms of the amount invested in the SME sector. Furthermore, the informal venture capital market remains largely untapped. The invisible and fragmented nature of the market means that it is difficult for business angels and entrepreneurs seeking finance to find one another. The consequence is that most business angels say that they are unable to find sufficient investment opportunities. In addition, there is scope for considerable expansion of the population of business angels.

Large companies represent another source of venture capital. The term "**corporate venturing**" is normally used to describe the situation in which a large company will take a minority equity stake in a small, unquoted firm. This activity is not well documented but appears to be on a small scale although its potential is considerable. Corporate venturing takes two forms. First, companies may invest indirectly via venture capital funds. This makes it virtually indistinguishable from "conventional" venture capital (except that companies may invest in funds specialising in technology). The second, and more significant, form of corporate venturing involves direct investment in small unquoted firms. The motive is usually strategic. Corporate venturing provides the large firm with a window on new technologies and is an economical form of R&D on account of the greater efficiency of SMEs in their use of R&D resources. The advantages for the small firm are access both to finance and also to the financial and other resources (e.g. marketing and distribution channels) of the large firm. Indeed, because of its specialist expertise the large firm may be able to provide superior technical support to the investee company than a venture capital fund is able to.

***Government policy approaches***

There is no single "magic" policy initiative that will generate a significant increase in venture capital activity. Rather, encouraging the development of venture capital activity requires a wide range of initiatives which address both the supply-side and the demand-side. Supply-side initiatives include those targeted at both financial institutions and also private individuals.

The flow of institutional sources of finance into the venture capital industry is occurring on an international scale. For example, US financial institutions are investing in European funds, and US venture capital funds are investing in European companies. There is a debate about whether or not this is a desirable development. However, the key point in this context is that such flows will not occur without the presence of a local lead investor. Thus, despite the globalisation of venture capital, a "do nothing" stance is not a viable option for countries which wish to promote venture capital activity; they must seek ways in which to develop an indigenous venture capital industry.

The range of initiatives that are required to promote venture capital activity can be classified along two dimensions as illustrated in the following diagram:

| | |
|---|---|
| **DIRECT ACTIONS BY GOVERNMENT**: e.g. specific programmes and infrastructure | **INDIRECT ACTIONS BY GOVERNMENT**: e.g. legislative changes; tax changes; macro-economic policy |
| **DIRECT ACTIONS BY NON-GOVERNMENT ORGANISATIONS AND PRIVATE SECTOR** | **INDIRECT ACTIONS BY NON-GOVERNMENT ORGANISATIONS AND PRIVATE SECTOR** |
| -- **DIRECT VS INDIRECT**: Some initiatives require the establishment of specific programmes or infrastructure whereas other initiatives require more "remote" changes: e.g. legislative changes, tax changes, macro-economic policies. | |
| -- **GOVERNMENT VS NON-GOVERNMENT ORGANISATIONS AND THE PRIVATE SECTOR:** By no means all initiatives to promote venture capital are either the responsibility of government or within the remit of government to deliver. The stock market, financial institutions, professional bodies and a host of other organisations all have important roles to play in stimulating venture capital activity. Indeed, one of the key issues is to identify how the public and private sectors can best work together to encourage venture capital activity. | |

***Increasing the supply of investment funds***

Venture capital activity can only grow if investors allocate more capital and if more long-term sources of finance become available. A key requirement is the encouragement of sources of long-term capital to invest in venture capital. Banks, which are major providers of venture capital in many countries, tend to have short-term investment horizons which has the effect of pushing venture capital into safer and more mature investment opportunities. It is therefore important that longer-term investors, such as pension funds (which are the dominant investors in US venture capital funds) and life insurance companies, are encouraged to consider venture capital as a legitimate asset class. This requires a range of initiatives, only some of which can be delivered by governments:

- **Accounting regulation** -- to ensure meaningful financial disclosure to encourage investors to have confidence in companies in which they might invest.

- **Performance measurement** -- the development of widely accepted performance measurement and valuation methods for investments in unquoted companies.

- **Legal structures** -- the creation of appropriate legal structures for funds to minimise legal and tax risks.

- **Investment rules** -- rules on the proportion of their assets that pension funds are permitted to invest in venture capital and how they should value such investments.

- **Transparency** -- regarding the taxation of income and capital gains to avoid double taxation.

- **Stock market** -- to provide liquidity for venture capital investments and enable investee companies to raise further finance.

- **Interest rates** -- low-interest rates make equity valuable and reward growth; investing in venture capital is less attractive when interest rates are high.

However, European experience indicates that even though such initiatives may achieve some success, by no means all parts of the venture capital industry will benefit. Specifically, institutional investors have not been attracted to venture capital funds that specialise in investing in seed, start-up and early stage situations and in technology sectors. One of the reasons is that investors have been discouraged by the low returns achieved by such funds. Governments must therefore consider more direct initiatives which seek to **increase the returns of early stage and technology funds** in order to encourage institutional funds to invest in such funds. The key requirement is that the funds which are created as a result of such initiatives should operate to high professional standards, maximise investment returns and be self-sustaining. Possibilities include the following:

- **Seed financing schemes** (such as the European Union's European Seed Capital Fund Network) that contribute to the capital of such funds (e.g. on a matching basis with private funds raised) and loans to cover their operating costs.

- **Exit routes** -- Government role as "exit of the last resort" to enable seed funds to recycle and reinvest their investment funds (e.g. the BJTU scheme in Germany).

- **Loss coverage** -- Government equity guarantee for a proportion of the fund's losses in order to increase the upside potential.

***Promoting individual investments through tax incentives***

This policy approach involves the use of tax incentives to encourage private individuals to invest in unquoted companies. A number of countries have introduced such schemes. For example, the United Kingdom introduced the *Business Expansion Scheme* (BES) in 1983 and replaced this in 1993 with three new schemes: the *Enterprise Initiative Scheme*; *Capital Gains Tax Re-investment Relief*; and *Venture Capital Trusts*. Canada has *Labour Sponsored Venture Capital Companies* (LSVCCs). The Netherlands has encouraged the creation of specialised venture capital funds with private and state funding, using tax incentives for private investors. In Sweden, a proposal has been submitted to Parliament for private investors to benefit from tax incentives if they purchase shares in qualifying companies. The experience of both the UK's BES and Canada's LSVCCs is that they have been successful in raising substantial amounts of finance.

However, the experience of the UK **Business Expansion Scheme** raises questions about the effectiveness of such schemes in terms of the exchequer cost, returns to investors and the targeting of investments. It is also argued that by requiring individuals to invest directly in the equity market rather than indirectly via institutional forms of investment (e.g. pension schemes, life insurance policies), tax incentives can lead to a change in investment culture. Tax measures can be controversial both in principle, on account of their cost, and also in terms of their design. Key issues in the **design of tax incentives** include the following:

- **Extent of incentive** -- *Should tax incentives provide positive incentives to invest in unquoted companies or simply create a "level playing field" by ensuring that investment in unquoted companies is no less advantageous than other forms of investment? One example of such discrimination against equity investment in unquoted companies by private individuals occurs because such investments come out of taxed income whereas it is possible to invest pre-tax income in quoted companies (e.g. via a pension scheme).*

- **Form of incentive** -- *Specifically should tax relief be available on the amount invested (i.e. front-end incentives) or should it be available on the returns from the investments (i.e. on the capital gains)? One argument suggests that as business angels are motivated by the opportunity to obtain capital gains, front-end incentives will be less attractive than capital gains tax relief. Moreover, from a policy perspective it is less expensive to provide relief on capital gains as it only rewards the winners. Front-end tax reliefs may also distort investment behaviour by encouraging investments that are motivated by tax shelter considerations.*

- **Rate of return** -- *How generous should the tax incentives be (i.e. rate of tax relief and maximum amount of investment)?*

- **Type of investment** -- *Should the incentives apply to the creation of pooled investment vehicles or to direct investment? A criticism of pooled investment vehicles is that they attract passive, portfolio-type investors rather than "genuine" hands-on business angels and so there is no added value to the investments. Is it possible to design pooled investment vehicles that enable private investors to play a hands-on role?*

- **Targeting incentives** -- *Should tax-based schemes be targeted, for example, by sector, stage or amount that a company can raise through the scheme? The concern is that little of the finance raised will be invested in early stage and technology businesses if there are few, or no, restrictions on the investments that are permitted under the scheme. However, too many restrictions will reduce the attractiveness of the scheme to investors (unless there is compensating increase in the generosity of the tax incentives). In view of the importance of business angels in providing start-up and early*

*stage finance, it may be appropriate to target tax incentives at this type of investment. Indeed, one view was that this approach may give the best return from tax incentives.*

- **Extent of competition** -- *Will tax-based schemes to attract private individuals distort the market? Possible distortions include "unfair" competition for deals with private venture capital funds leading to their withdrawal from the market, and too much money chasing too few deals which drives up the price of investments, resulting in the financing of projects that are only profitable after tax. The entrepreneur will view competition for investment opportunities as good; however, it may only be advantageous to the entrepreneur in the short-term if the effect is to drive private sector funds from the market.*

- **Timeframe** -- *What is the appropriate length of time that investment managers should be given to make investments? It is clear that the possibility of poor investments rises if managers of pooled investment vehicles are required to make investments within a short time of raising the finance in order for private investors to qualify for tax relief on their investments in the fund.*

- **Exclusions** -- *Should tax incentives be limited to external investors who are not "closely connected" with the investee company or should internal investors (e.g. entrepreneurs and their families) also be eligible?*

***Building business angel networks***

Tax-based incentives may be insufficient to stimulate the informal venture capital market. First, although it may attract passive, portfolio-type investors, genuine business angels appear to respond less enthusiastically to tax incentives, particularly if they are only available for investments in pooled investment funds or are restricted in terms of company eligibility. Second, tax incentives do not address the problems created by information gaps in the informal venture capital market. Business angels find it difficult and time-consuming to identify businesses that are seeking finance while, at the same time, entrepreneurs are hampered in their search for private sources of venture capital by the anonymity which most business angels strive to preserve.

The consequence may be something akin to the discouraged worker effect in labour markets whereby the entrepreneur who fails to find a business angel will abandon his/her start-up or expansion plans and the potential investor who fails to find investment opportunities will withdraw from the informal venture capital market place. Thus, encouraging business angels requires a different approach to intermediation which seeks to close the information gap for investors and entrepreneurs.

One approach is the creation of business angel networks, whose objective is to provide an efficient and confidential **channel of communication** between angels and entrepreneurs seeking finance, thereby enabling entrepreneurs to get their investment proposals on to the desks of business angels and allowing business angels to examine a range of (possibly pre-filtered) investment opportunities without disclosing their identity until they are ready to negotiate with an entrepreneur. There are examples of such networks in the North America, the United Kingdom and Scandinavia. The United Kingdom, which has accumulated the greatest experience, has a variety of both public and private sector business angel networks which operate on both national and local/regional scales. UK evidence further suggests that business angel networks can have a significant impact on informal venture capital activity.

Some critics suggest that the design of the UK's system of business angel networks means that their full potential remains some way from being achieved. Moreover, all available evidence suggests that business angel networks cannot operate on a full cost recovery basis and require private sector subsidy or

government funding to operate effectively. But when their overall impact is taken into account, the UK evidence suggests that they are a cost-effective initiative and generate a bigger "bang for the buck" than alternative public sector initiatives to close the funding gap.

There are a number of key issues to be considered in the **design of business angel networks**:

- **Organisation** -- *What are the most appropriate types of organisation to operate a business introduction service? Should such services be operated by the public or private sector?*

- **Geographical scale** -- *Should such services operate on a local/regional or national scale?*

- **Marketing** -- *What are the most effective strategies to build up a client base of investors and businesses?*

- **Matching** -- *What kind of matching process should be used? How can the conversion rate -- the number of introductions that result in deals being made -- be maximised?*

- **Operation** -- *How hands-on should the service be? Should investment opportunities be required to pass a quality threshold? Should businesses be assisted in preparing their investment proposals?*

- **Financing** -- *How should business introduction services be financed? Specifically, can they successfully operate on a for-profit basis?*

***Creating secondary stock markets***

The existence of a stock market which encourages initial public offerings (IPOs) is crucial for the development of venture capital. First, it provides liquidity for investors, enabling venture capitalists to return investment funds to their institutional investors, enabling them in turn to recycle their profits back to the venture capital industry. Second, it is a way in which investee companies can continue their growth as independent companies by raising further capital at competitive prices. In the absence of an IPO market, such companies might have to consider selling out to large companies as a means of continuing to grow.

There is a clear consensus of opinion that the US venture capital industry is driven by the NASDAQ market. The inference is therefore that the creation of secondary stock markets for smaller growing companies is crucial for the development of venture capital activity. Indeed, one speaker suggested that without a thriving secondary market all other government policies to encourage venture capital will have a limited impact. The importance of secondary markets has been recognised in Europe and is seen in the attempt by EVCA to create EASDAQ -- a European equivalent of NASDAQ.

The **creation of a European IPO market** is seen to be important for three reasons. First, it is essential to the competitiveness of Europe in the global economy. International growth companies in technology-driven sectors need to be world players and so must be able to raise capital on the same basis as their competitors, notably US companies. Many European companies have raised finance on NASDAQ but there is a concern that the centre of gravity of such companies will not stay in Europe. Moreover, obtaining a NASDAQ listing does not benefit the European financial services sector. Second, for the reasons noted above, it is important to provide investors with an exit route and a means of recycling their investment gains. Third, a European IPO market can play a catalytic role in bringing about other changes -- notably cultural changes (e.g. an active IPO market provides evidence that entrepreneurship is worthwhile) and the emergence of a specialist intermediary sector (e.g. dealers, investment banks,

analysts). The creation of a European IPO market will be helped by an EU directive to create a single market for financial services. This will, for example, make it easier for companies to raise finance at a pan-European level and enable pan-European stockbrokers to emerge.

Pan-European and national stock markets are seen as playing complementary rather than competing roles, meeting the needs of companies with different financial requirements. National stock markets will be the most appropriate market for national companies with no, or limited, international ambitions and for less risky companies. Moreover, some countries are too small to have a stock market of sufficient size and liquidity. The US also has, in effect, a two-tier stock market, with NASDAQ serving the needs of high-growth technology companies while regional investment banks serve smaller, non-technology companies which have more limited financial needs.

***Funding pre-finance appraisal***

One proposed incentive to venture capital investment is the provision of **government-funded appraisal and evaluation** as a means of reducing transaction costs. The public sector could encourage the development of technology appraisal by: 1) contributing to the funding of the development costs of support systems to reduce appraisal costs, such as a database of experts to assess innovative projects or computer-based diagnostic systems; and 2) providing a marketing/technology appraisal subsidy to defray the costs of financial institutions in using accredited consultants/experts.

It is widely argued that the reason why venture capital funds are unwilling to invest small amounts of finance in start-ups and technology businesses arises from the fixed costs of appraisal, due diligence and monitoring of investments. This means that the costs are essentially the same for small and large investments and the ratio of fees to amount raised becomes unacceptably high for both investor and investee for small investments. In the case of technology-based firms, where technology and market risk and uncertainty are high, the potential investor must incur considerable costs in assessing the technology and its potential and likely reception in the market place. These high costs, when combined with the high risks, prompt venture capitalists to demand returns that very few SMEs can deliver. Moreover, a single organisation is unlikely to have experts in every technological field. Thus, there are added costs involved in identifying and involving outside specialists in order to make a detailed appraisal. These circumstances may encourage the venture capitalist to rely on subjective judgements which, in turn, are likely to discourage the making of technology investments.

However, the conclusion of a UK Department of Trade and Industry study is that venture capitalists do not want **pre-finance evaluation assistance** for the following reasons: 1) evaluation cost is not an issue in their investment decision, 2) they must make their own evaluation and 3) they do not want a government-backed service. This conclusion may reflect the dominance of the UK venture capital industry by large funds which specialise in development finance and MBOs/MBIs where the cost of appraisal is less of an issue. It might therefore be suspected that appraisal costs are more of an issue for smaller, regional funds which specialise in making smaller, earlier stage investments and that such funds will show a greater interest in such initiatives.

Banks in a number of European countries have a much more positive view of technology assessment schemes. Some banks undertake the assessment by using a network of external technology experts on a cost sharing basis with their business clients, e.g. the NatWest in the United Kingdom. But here again, smaller banks will lack the resources to establish such a network and to cover the costs of undertaking technology appraisals. Moreover, even large financial institutions may encounter difficulties in maintaining a sufficiently large and expert network in view of the shortening of technology life cycles and the rapid obsolescence of technical knowledge.

Several Dutch institutions and one Flemish institution (which includes innovation centres, banks, venture capital companies) have jointly devised a technology rating scheme with funding from the Dutch Ministry of Economic Affairs. This provides companies with a detailed **technology audit** covering issues associated with the technology, management of innovation and commercialisation. About 50 aspects are rated. The risk profile is the aggregate of the ratings given for each assessment criterion. Companies pay for the rating and receive a detailed report rating which addresses both the positive and negative aspects of their project. The project is still at the experimental stage. The methodology is in its fourth generation and has been applied to 20 live projects.

The early experience is that the project is receiving market acceptance. Companies which have good ratings have received a favourable response from the financial institutions. The scheme is providing financial institutions with new lending opportunities and has led to an increase in offers of finance to attractive projects. The banks are encouraging companies to obtain a technology rating before deciding whether or not to finance them. Companies can take the necessary steps to improve their rating before seeking finance. One criticism, however, is that non-conventional ideas may not get a good rating.

No consideration has been given to whether **business angels --** who are likely to have access at best to only limited sources of expertise -- might also be attracted to a pre-financing appraisal service. Business angels who invest in technology-based firms generally have a technology background themselves. Thus, it can be argued that the availability of an appraisal service might increase the supply of informal venture capital for technology-based projects by encouraging business angels without a technology background to invest in technology businesses. However, this possibility is offset by the emphasis which business angels give to undertaking their own due diligence and making their own investment decision and which might therefore suggest that such a service will be unattractive to these investors. Nevertheless, establishing some kind of system which provides business angels with access to technology/scientific organisations, perhaps via some package deal arranged by business angel networks, might be worth pursuing on an experimental basis.

Thus, there appears to be some evidence to support the notion that **technology rating**, which provides financial institutions with a systematic tool with objective assessment criteria, might encourage more, and better, lending/investment decisions. Banks appear to be particularly receptive to technology rating because they cannot easily deliver this for themselves as part of their normal credit rating. Technology rating schemes can offer a number of advantages to financiers and businesses:

- ◊ Making visible the risk that is attached to the innovation.
- ◊ Avoiding the high costs of developing and maintaining in-house technical expertise.
- ◊ Linking innovation to the financial markets by enhancing the know-how of financial institutions, companies and financiers.
- ◊ Offering an effective management selection system for innovative projects.
- ◊ Helping reduce bad investments and debts.

***Stimulating dynamic entrepreneurship***

Initiatives need to focus on the **demand as well as the supply side**. This is probably the single greatest barrier to successful private equity investment in less mature and transition economies. It is frequently stated that venture capital investment activity is opportunity-constrained rather than finance-constrained and that venture capitalists would invest more if there were more "really exciting" projects. First, initiatives are required to promote entrepreneurship in order to increase the numbers of businesses with such characteristics. Second, initiatives are required to create an equity culture amongst the SME business population so that businesses with such characteristics will seek venture capital rather than relying upon internally-generated funds and debt finance to grow.

US venture capitalists say that they are looking for businesses with the following characteristics:

- ◊ highly profitable (or potentially so);
- ◊ industry dominant;
- ◊ a high PE multiple;
- ◊ a track record of the management team;
- ◊ product proprietary with sustainable competitive advantage;
- ◊ a large market.

A similar list of characteristics is reported by UK venture capitalists:

- ◊ a strong management team with business experience (especially international business experience);
- ◊ vision and a desire for substantial growth;
- ◊ a large potential market;
- ◊ good marketing abilities;
- ◊ top quality technology.

Governments can **stimulate dynamic entrepreneurship** and the search for venture capital in a variety of ways:

> **Eliminate trade barriers** -- The success of the United States in spawning larger numbers of successful technology-based firms is linked to its large domestic market which makes it easier for firms to survive as niche market players. In most other countries, the domestic market is simply not large enough to enable technology-based firms to grow. Smaller fast growing companies in Europe therefore encounter additional costs in exploiting the fragmented European market. Thus, there is an urgent need for the Single Market to be completed and the remaining trade barriers removed as soon as possible.
>
> **Enact small firm policies** -- Economic policies are needed which treat small firms on an equal footing with large firms and do not favour large, or publicly-owned, businesses (e.g. competition policy, liberalisation/deregulation, privatisation policies, subsidies, regulation, government

contracts). In addition, governments can take steps to encourage spin-outs from publicly-owned companies and research organisations.

**Provide financial support** -- Supports such as grant aid, royalty-linked loan schemes and R&D tax incentives can aid businesses at the ideas and prototype stages where the possibility of attracting commercial loan or equity finance is remote.

**Enact favourable tax regimes** -- A tax regime which favours those bearing the greatest risks -- entrepreneurs, key managers and private investors (e.g. low tax on capital gains; capital gains loss write-off relief; stock options). Entrepreneurs can be encouraged to seek venture capital through a corporate tax system which does not favour debt financing over equity and securities legislation which does not create unnecessary obstacles (or costs) for unquoted companies seeking to raise finance from sophisticated private investors.

**Balance regional distribution** -- Encourage a more even regional distribution of venture capital activity. The difficulty which venture capitalists say they encounter in finding good investment propositions may be caused, in part, by geographical mismatches between the supply of, and demand for, venture capital which arises from the geographical concentration of venture capital funds and investments in certain regions.

**Correct information asymmetries** -- Asymmetry of technological information may favour the entrepreneur, although this is countered by the technological specialisation of many venture capital firms. Asymmetry in terms of tactics and transactions favours the venture capitalist. This reflects mismatches in experience. The entrepreneur is likely to be raising venture capital for the first time whereas the venture capitalist is doing deals on a frequent basis. The entrepreneur therefore needs education, help and advice. It is the firm's professional advisers (e.g. accountant, lawyer) who are in the best position to help in this way. These organisations should therefore be expert in the field of venture capital.

Policy-makers should not forget the rank-and file businesses which are not at the leading edge of technology and so will not be attractive to venture capital firms but nevertheless have interesting technical ideas which provide the basis for product innovation and employment creation. Such businesses may also encounter difficulties in raising external finance and so may suffer from under-capitalisation which threatens their survival. These types of businesses require alternative forms of financial assistance, such as credit guarantee schemes or technical credit schemes (reimbursed if successful).

***Conclusions***

The importance of economic context, institutional environment and culture -- all of which are unique products of a country's pattern of historical development -- in shaping the way in which venture capital has developed in various countries must be stressed. This imposes limitations on the transfer of particular **"models" of venture capital** to less mature markets. Identification of key factors which influence the development of venture capital is therefore crucial if governments are to intervene to stimulate venture capital activity, either on their own or in conjunction with the private sector, and if this intervention is to be effective. Four such areas in which government intervention is appropriate can be identified:

1. **Create the appropriate fiscal and legal environment**

   – tax relief for individuals who invest in unquoted companies;

– require pension funds to allocate a certain proportion of their funds to be set aside for venture capital investment;

– ensure that the regulatory environment does not inadvertently discourage venture capital investments, e.g. venture capitalists could be defined as de facto, or "shadow" directors which creates various legal responsibilities and liabilities, nor that the rules for other business support programmes make venture capital-backed companies ineligible.

2. **Reducing risks and improving the returns to investors**

This is particularly relevant in stimulating venture capital funds that specialise in seed, start-up and early stage investments and in technology investments where costs are independent of the size of investment and might be achieved in the following ways:

– tax incentives at the time of investment and/or exit;

– subsidising some or all of the investor's costs of initial appraisal necessary to validate the project;

– offsetting the costs of hands-on management support, for example through consultancy support schemes;

– a guarantee which covers a proportion of the investment losses.

3. **Increasing liquidity**

The fear of not being able to make a good exit discourages institutional investors from investing in venture capital funds and is a key factor which inhibits investments in funds which specialise in start-up and early stage investments. Venture capital funds need investors to be able to exit and reinvest, which might be achieved in the following ways:

– encourage the creation of an active secondary market for initial public offerings (IPOs);

– encourage the establishment of development capital funds to take over the investments of seed capital and start-up funds;

– substitute public for private capital to enable seed capital and start-up funds to reinvest.

4. **Facilitate entrepreneurship**

– encourage new firm formation through initiatives which assist the entrepreneur and which enhance the "entrepreneurial climate";

– support the development of business angel networks to provide a channel of communication between business angels and entrepreneurs seeking finance.

# FINANCING INNOVATION AND THE ROLE OF VENTURE CAPITAL

## A. INTRODUCTORY REMARKS

*OECD Secretariat*

### Financing innovation in market economies

This paper sets the stage for this workshop on venture capital by presenting an overview of new and important features in the allocation of financial resources to the process of technological innovation. The criteria, procedures and instruments by which financial resources are channelled into investment are going through radical change, largely as a result of the globalisation of financial markets. These changes are, and will continue, affecting the selection, the design and the path of the technological innovation process. Because most OECD economies have long been market economies, it might seem anachronistic to stress that the private market aspect has become the new guiding principle in R&D and innovation-related activities. However, an increased share of savings in OECD countries are allocated to investments which maximise *private returns*, under increasingly stringent and closely monitored financial disciplines. These allocations are subject to the benchmarks of investment returns in a global economy and represent a major change in how the process of technological change unfolds in our economies.

This development is generating profound challenges to science and technology and innovation systems, both in the public and private spheres. It is important to stress the impact on the private sector, because the most important aspect of this challenge is not in the decline of the role of public organisations. The new financial environment is generating ever greater pressures and opportunities on the R&D activities of the private sector. The rules of the game in the entire science and technology system are rapidly changing.

### The emergence and development of venture capital

What are the implications of the new financial/economic environment -- as reflected in the increased privatisation of OECD economies -- on innovation processes? There two main trends that emerge: first, a greater share of financial resources in R&D (in the broader sense including basic and applied research) are now in profit-maximising investments and are subject to the pressures of financial optimisation. This represents the new overriding budget constraint in OECD economies. Second, the maximisation of profits for R&D does not, however, signify passive, arms-length and imperfect selection and screening of innovation projects by distant, technologically non-competent, institutional investors. On the contrary, the new financial environment generates intermediaries specialised in screening, choosing and managing technological innovation projects. These intermediary functions are growing both within large financial business institutions and via the more specialised venture capital funds. These intermediaries fulfil a

fundamental *agency* role in funding innovations. However, their development has been uneven at both the national and international levels.

Two characteristics of the first trend mentioned above are noteworthy:

1) The shift of R&D resources from the public to the private sector is evidenced by the data on gross R&D expenditures in OECD countries. This shift is confirmed both in terms of the sources of financial resources dedicated to R&D and the sectors performing R&D activities. Furthermore, the increase in the share of R&D personnel in the private sector reflects this trend. Although the shift is uneven among countries, its is pervasive throughout the OECD area. The result is that the largest share of R&D efforts in OECD economies are now generated by the private sector. During the 1980s and early 1990s, the business sector in most OECD countries surpassed the 50 per cent threshold in the funding of total R&D spending.

2) Underlying the shift towards the private sector financing of R&D and innovation activities, there has been an increase in the *differentiation of financing* and a *re-allocation of R&D efforts within the private sector* itself. R&D management is no longer a relatively sheltered activity in the enterprise sector. It has become part of the mainstream capital budgeting process. R&D and innovation programmes, in large as well as small and medium-sized enterprises, are more directly selected, managed and scrutinised for creating *shareholder value* (i.e. profit-maximising) in enterprises.

Until recently, R&D activity was rarely subject to fine-tuned financial optimisation within most private firms. Stock-markets and shareholders, and professional management and boards of many enterprises now challenge this traditional view. R&D activity is less and less managed as a black-box within companies. It is falling more directly under the purview of mainstream capital planning and budgeting. This represents one of the most important developments in resource allocation at the microeconomic level in OECD economies.

With regard to the emergence of new techniques, procedures and skills in governing technical innovation projects that is taking place in the private sector, there are two main points to consider. The first is the importance of *flexibility* as an overriding principle in R&D management because it is a response to the classic "indivisibility and irreversibility" problem in R&D financing. The problem of financing innovation has become more serious in recent years and has increased the risk-premia (and therefore the required rates of return) of innovation projects. Hence, the trend in the desegregation, fragmentation and stage-financing of innovation projects into smaller units is a key development. This implies adjustments in the explicit and implicit contracts between *investors* (large business organisations and project-financiers) and *research entrepreneurs* (innovation teams or individuals). To illustrate, in a recent operation the successful division of a large-size development project (for a new health-care product) into four different units instead of one, increased its calculated net present value from US$ 18.3 million to US$ 33.5 million. This represents an 85 per cent net gain for investors. Governance changes which allow this *flexibility* in the management and financing of innovation projects to create new incentives, and lower risks—and thus the risk-premia—in innovation projects.

Professional skills and techniques used in the screening, selection and management of R&D and innovation projects have become more sophisticated and demonstrated remarkable progress. This is true in both the case of large organisations' *project management* techniques, and the steering of small/entrepreneurial projects by *venture-capitalists* and other investors. In parallel, technological, operational, and marketing uncertainties of innovation projects tend to increase. However, the skills and techniques available in the economy to face and manage these risks are rapidly being developed. An important indicator of such progress is found in the use of elaborate R&D management techniques in large

organisations and in the widening of the qualified and successful groups of venture capitalists. In both cases, the use of skills and techniques for screening, contracting and monitoring innovation projects is increasingly prevalent.

The stock of this know-how remains sparse, however, and unevenly distributed within and between countries. Consequently it is extremely costly to access. For example, the general partners (i.e. managers) of venture-capital funds usually receive around 20 per cent of these funds' net profits, with around 1 per cent of personal investments. This is added to the cost of significant fixed management fees. Ultimately, although skills and techniques for innovation management are relatively scarce and expensive, the supply is growing in modern economies. The use of these skills shows the potential of resolving, at least partly, the general problems associated with the financing of innovation (e.g. asymmetry of information, adverse selection risks, related contractual difficulties, and consequently over-inflated risk-premia). OECD economies are responding to these problems by innovating in the governance of innovation activities. The use of formalised and quantitative, as well as hands-on experience-based (venture-capitalist type) techniques are part of this trend.

Co-operation between the private and government sector can play a role in the development, accumulation and diffusion of this know-how in terms of skills and techniques. Such co-operation includes the promotion of an appropriate tax and legal infrastructure. The central challenge in the present context is dealing with the increasing divergence between social and private rates of returns on R&D investments in rapidly privatising economies. While this question will be partly addressed in the scope of this workshop, it should nevertheless be a matter of a more general discussion for policy-makers in the future.

## B. EUROPEAN VENTURE CAPITAL MARKETS: TRENDS AND PROSPECTS

*William STEVENS, Secretary-General, European Venture Capital Association*

### Introduction

Venture capital or private equity can be defined as capital provided by firms of full-time professionals who invest alongside management in young, rapidly growing or changing privately-owned companies that have the potential to develop into significant businesses in regional, European and global markets. The objective of venture capital is to realise a high return from investment. To do this, a venture capitalist selects privately-owned companies with the best growth prospects and provides long-term equity capital. This gives Europe's most promising private companies and entrepreneurs the financial backing to grow, compete and, for the best, to become Europe's most successful firms.

A venture capital investment is generally characterised by the following key aspects:

- Venture capital shares the business risk with the entrepreneur.

- Investment is generally long term, between 3 to 7 years.

- As the capital is at risk, venture capitalists work in a partnership with the entrepreneurs of the business. They assist at the strategic level and provide support and advice to entrepreneurs based on their expertise, experience and contact base. In short, venture capitalists add value to their equity investment and endeavour to maximise the long-term return.

- Venture capitalists look at a company's market, at the strategy and above all at the management and entrepreneurial team before looking at the financial side of a prospective investment.

- Venture capital has no special need for dividend returns, and investment returns are harvested primarily in the form of capital gains at the *exit*, when the company is listed on a stock market or when it is sold to another investor.

Venture capital provides equity capital to privately-owned enterprises, i.e. those companies not quoted on a stock market. Thus it is also referred to as *private equity*, or unquoted investment. The terms venture capital and private equity will therefore be used as *synonyms* in this paper. The terms private equity and venture capital cover a wide spectrum of investment into unquoted companies, ranging from the inception of a company to the preparation of its stock market listing. Some of the most typical investments are defined in the glossary below. Venture capital can provide the core capital for the launch, early development, expansion or restructuring of a business. Acquisitions, the development of new products or technologies, the expansion of working capital or simply the reduction of a company's debt can be financed with venture capital. Venture capital also offers solutions to ownership and management problems. Successions in family-owned companies, or the buy-out or buy-in of a business by experienced managers will often use venture capital funding.

Several types of investment can be defined within the private equity spectrum.

- *Seed*: to research, assess and develop a concept before a business starts.
- *Start-up and early-stage:* for start-up companies or companies which have been in business for a short time.
- *Expansion or development*: for the growth and expansion of a company.
- *Management buy-out:* to enable existing managers and investors to acquire a business.
- *Management buy-in:* to enable managers and investors from outside a company to buy-in to the company.
- *Turnaround*: for businesses experiencing trading difficulties in order to re-establish prosperity.
- *Replacement capital*: purchase of existing shares in a company simply from other shareholders.
- *Bridge finance or mezzanine*: to prepare a company to be listed.

**Why is venture capital important?**

Job creation is undoubtedly Europe's main policy challenge. The vital role of small and medium-sized enterprises (SMEs) in this has become widely recognised. The key role played by high-growth enterprises is less well known, even though evidence shows that a small number of growth enterprises creates most of the new jobs and economic growth in Europe. Research in the United States by Cognetics has shown that the top 4 per cent of all firms in terms of growth account for more than 70 per cent of all jobs created. It is the very essence of venture capital to select these high-growth private companies and to provide them with the necessary growth capital. Research on the impact of venture capital in the United States, United Kingdom, the Netherlands and in France demonstrates that fast growing companies backed by venture capital create many well-paid and highly-skilled jobs. Venture-backed companies also increase investment levels, add value, produce significant tax revenues and export income and invest in research and technology, compared with the largest or 'average' companies.

To offset the high risk and the long periods inherent to investment, venture capital must demonstrate high returns to investors. These returns must be in excess of inflation and exceed the returns from 'safer' or more established investments, such as government bonds or public stocks. Only the best growth businesses are retained by venture capital for initial or further investment and support. Furthermore, the venture capital portfolio is constantly monitored and nurtured by profit-driven venture capitalists. Maximising returns on the selected venture capital portfolio inevitably results in significant benefits for economies. Besides this direct economic impact, venture capital has an important knock-on effect on all companies, encouraging entrepreneurs with examples of companies expanding rapidly with the backing of venture capital.

Venture capital allows the allocation of long term sources of capital to companies generating high growth. Before the emergence of venture capital, sources able to provide this sort of capital virtually ignored the financing of high-growth companies. The 500 specialised venture capital companies in Europe now provide an experienced, professional and diversified venture capital investment management resource. Banks, pension funds, insurance companies, corporations, government, individuals, or other sources of

long-term capital can achieve higher returns by allocating, via experienced professional managers, part of their assets to venture capital which can generate above-average returns. Such a diversification increases total return and develops long-term wealth and assets**.**

**Recent trends in European venture capital**

Venture capital originated in the United States where it has backed some of the most successful companies such as DEC, Apple Computer, Compaq, Sun Microsystems, Genentech, Federal Express, Microsoft, Lotus, and Intel. Furthermore, it has enabled the rapid growth of new industries such as personal computing and biotechnology. Venture capital started in earnest in Europe in the 1980s and has grown dramatically, providing thousands of developing companies and entrepreneurial teams with finance for growth. Many successful European businesses are emerging with the help of venture capital. The challenge for the European venture capital industry is to select and support more European companies to become world-class businesses.

Today, the European venture capital sector can point to significant achievements, and its recent development shows great promise. European venture capital funds already disburse more than ECU 5 billion annually in some 5 000-7 000 individual investments. Two-thirds of all investments are in companies with less than 100 employees, and 90 per cent are in companies with less than 500 employees. Before the rapid emergence of venture capital in Europe, their private enterprises simply did not have easy access to European equity capital. Venture capital now provides Europe's massive unquoted corporate sector with permanent access to professional sources of equity capital.

European venture capital is used mainly as expansion capital and buy-out investment. This is where the investment opportunities are most attractive and the lack of financing strikingly evident. The less significant role of public equity markets in Europe as compared to the United States deprives these companies of access to equity capital, and venture capital has started to fill this equity gap. Start-up and seed capital investment, requiring less significant amounts of money for individual investments, represents some 17 per cent of all investments. These sectors are, however, clearly smaller than in the United States. Europe also invests largely in mainstream industry sectors, with consumer-related, industrial products and manufacturing sectors representing about half of invested capital.

In just a decade, private equity has developed in Europe. Although still dominated by the United Kingdom with 40 per cent of the European portfolio, Europe has a geographically diverse venture capital industry. The venture capital sector is sizeable, but not in all European countries. The European venture capital sector would grow three- to four-fold if the activity would spread evenly across Europe. The emergence of venture capital in Central and Eastern Europe could further increase the growth of European venture capital.

In the last few years, the level of divestment has been rapidly approaching the level of investment. This highlights the overall viability of venture capital. Investors and fund sponsors have been waiting for this divestment activity to demonstrate high real returns before committing further capital. There are now strong indications that such high returns are being generated in the countries where venture capital is most mature. Fund-raising and investments in 1994 reached record levels, showing that Europe's venture capital has achieved maturity and that its future is highly promising.

Some 500 specialised venture capital companies and more than 3 000 full-time experienced professionals across more than 20 European countries, represented by 17 national associations and the European Venture Capital Association (EVCA) allow venture capital to match an ever widening and specialised demand for investment and to provide high returns to investors.

- Every year some 5 000 to 7 000 investments are made, around 100 per week.
- Two-thirds of all investments benefit companies with less than 100 employees, and 90 per cent those with under 500 employees.
- More than half of all investments are to provide expansion finance.
- On average, at least two company start-ups and two management buy-outs are funded per day.
- Some 20 000 companies are currently in the European venture capital portfolio, representing a value at initial cost of investment of more than ECU 23 billion (see graph below).
- In the 10 years since the emergence of venture capital a cumulative total of ECU 46.5 billion of capital has been raised.
- Some 15 per cent was raised from outside Europe.
- Venture-backed companies already represent more than a third of the newly-listed companies on Europe's stock markets.

**Challenges and prospects for the venture capital industry**

The following section sets out eight major policy challenges which need to be addressed urgently. The EVCA invites policy-makers and opinion-leaders across Europe to translate the following eight challenges into an opportunity for European growth, innovation and employment.

***Challenge 1: Encourage dynamic entrepreneurship and management***

It has been estimated in the United States that there is a 50 per cent turnover of companies and jobs every five years. This means a 50 per cent replacement of the economy is needed every five years to break even, let alone grow. In such a permanent state of flux, start-up and especially fast growing firms make the economy move. It is entrepreneurs and managers who are the prime movers. Their experience, resources and goals will determine to a large extent whether the new or growing business will survive and become successful.

Entrepreneurship should be vigorously promoted in Europe. The image of the 'Old Europe' which lacks entrepreneurship and innovation needs a counter-attack. Role models of successful enterprises and entrepreneurs should be strongly publicised. Pan-European networks of entrepreneurs should be supported and growing enterprises should be well-represented at the national and the European government levels. Entrepreneurship deserves key attention in our schools and universities, where until now it has been virtually ignored. More research on entrepreneurship should be conducted and the results more widely debated. Training and development programmes should be more accessible and be specifically organised for entrepreneurs and managers of SMEs. Legislation, fiscal policies and regulation should be systematically scrutinised for their impact on entrepreneurship and pro-actively introduced to favour or promote entrepreneurial dynamic enterprises.

Encouraging more entrepreneurship in Europe is not enough. It is the quality of new enterprise initiatives which is even more important. Venture capitalists play a key role in selecting or helping to put together the right corporate management. Venture capital is also based on an efficient partnership between

management, shareholders and Board of Directors. who often add value to the companies by active participation, as non-executive directors. The role of non-executive directors, also as Chairman of the Board of Directors, and different from the position of Chief Executive Officer or Managing Director, is insufficiently used throughout Europe, because its liabilities are ill-defined in our laws. The key resource in an efficient and transparent partnership between shareholders, directors and management is information. Venture capitalists will require high levels of information disclosure and audit so as to be able not only to monitor the companies but also to guide and advise the Board and the management. Such practice should be encouraged more widely, especially amongst publicly-listed companies in Europe.

European businesses still face a major obstacle. Europe has not a completed single market. Smaller and particularly fast-growing companies, as opposed to large corporations, have limited resources to exploit Europe's fragmented market. Therefore, the European Commission's (EC) current Single Market Programme should be completed and the remaining barriers should swiftly be addressed in a new programme. The low economic growth rates in Europe and the fragmentation of the market, require European growth companies to develop their overseas business more rapidly than their main North American or Asian competitors, which respectively benefit from a huge domestic market and booming economies. Growing European businesses should be promoted more vigorously and efficiently overseas and the establishment of local companies should not be discouraged. European venture capital companies play a role in funding overseas expansions of European businesses**.**

***Challenge 2: Provide competitive stock markets for smaller and growing companies***

In the United States, the creation of many fast-growing companies and the rapid development of venture capital was due largely to the existence of vibrant and efficient stock markets. In contrast, European stock markets, except for the United Kingdom, have largely failed to provide such a capacity. The main purpose of stock markets should be to provide capital for the growth of the most promising companies at an attractive cost and provide high trading levels so as to ensure liquidity for the shareholders. Such vibrant stock markets will allow our star companies to remain independent and not to become adjuncts of large corporations before their true potential and contribution to the European economy as independent businesses has been demonstrated. Realising part of the holding in the company allows entrepreneurs to harvest some of the creativity and hard work, spread their financial risks, reward family loyalty or initial partners, without losing independence. The use of listings on United States' stock markets as a way for European high-growth companies to harvest returns will become less attractive, if European stock markets are competitive.

The time has come to create a pan-European stock market for the securities of growing international European companies. A pan-European market will attract a wider pool of high-quality companies, professional investors and intermediaries, producing the required liquidity and volume levels which the current national markets all lack.

The new pan-European stock market should be:

- organised independently with proactive management;
- dedicated to growing enterprises with international aspirations;
- taking full advantage of the European Union Directives on financial services;

- a fully regulated market with single standards for listing and Membership and fair and harmonised enforcement throughout Europe;

- a trading system which supports high levels of liquidity and easy access from all over Europe;

- promoting the sponsorship of the listings by investment banks and the availability of quality research and information;

- facilitating multinational placing and offers, outside Europe as well.

The completion of a Single European Market for financial services and the assurance of its competitive functioning in the global capital market, should remain an important priority for the European Commission. The absence of a completed single market is to the detriment of European growing and smaller companies as they cannot raise equity capital at competitive valuations and conditions. The harmonisation of the regulatory environment and standardised enforcement across the European Union remains a challenge. In the long-term, a European Securities and Exchange Commission which would be able to act as the pan-European regulatory authority is required. A start could be made by investigating the creation of a pan-European panel of national regulators, which would be able to advise and to assist national regulators in the implementation of European directives and recommendations and to help prepare for further harmonisation.

The development of a dynamic capital market environment on the national and the European levels for smaller and growing European companies remains important. The maintenance of a specialised competitive intermediary sector (i.e. dealers, investment banks, analysts, etc.) will be essential for Europe. An active role of these intermediaries in listing companies and providing quality research should be particularly encouraged. Special efforts should also be made to fuel stock markets by attracting the most appropriate companies to list and to channel private and institutional investment for the benefit of smaller and growing companies.

***Challenge 3: Develop and channel sources of long-term capital***

It is the investors in the venture capital fund or company, and not the venture capitalists, who decide on the flow of capital to the venture capital sector and to segments within it. Venture capital managers only act as intermediaries to invest capital committed by institutional investors. The institutional component in the funding for venture capital is important, yet venture capital funding is usually only marginal to institutional investors, at best a few percentage points. Venture capital can only grow in Europe if investors allocate more capital and if more long-term sources become available. While banks still provide a third of the capital, their investment horizons are usually shorter, pushing venture capital to invest in safer and more mature private companies. It is furthermore important to ensure the existence of a diversified range of competitive venture capital fund managers, generalists or specialists within the full private equity investment spectrum across Europe.

Pension funds already represent a huge source of investment capital for European industry. At the end of 1993 total assets held by these institutions was almost ECU 1.1 trillion. However, this was almost totally concentrated in the United Kingdom, the Netherlands and Ireland. The development of pension funds or other forms of channelling long-term savings into retirement plans is almost certainly unavoidable in all other European countries, and it should be strongly encouraged. This will further increase the amount of long term capital available for investment in European industry.

Improved allocation of pension fund savings and other long-term funds will help optimise returns on investments, boost economic security and stimulate growth and job creation. In doing this, it is clearly unacceptable for any of these funds to be denied the benefits of free movement of capital. It is anathema for them to be subject to national regulations which, directly or indirectly, require a certain proportion of funds to be invested in a Member State's own capital markets. Investing institutions should not be restricted in their choice of fund managers and asset allocation on any grounds bar the need for prudence in meeting the fund's commitments. The European economies will benefit by applying such free movement of capital and fund management not only within the European internal market but also in the global capital markets. North American and international pension funds, life insurance and mutual funds represent massive sources of capital which should be tapped for investment in Europe. An open internal market will be a big stimulus to attracting international capital.

Asset allocation to equity capital, and venture capital in particular, by European investment institutions varies widely. The allocation of United Kingdom pension funds to equities is, for example, three times higher than that of their Dutch counterparts. A more consistent minimum allocation of these funds to venture capital could increase fund raising dramatically and provide a more stable source of funding. It is time that venture capital is considered as a legitimate alternative asset class.

Generally, investors wish to view all forms of investment in the same way. Investing equity in private companies is, however, different. It has a higher risk/return profile and requires management by sector-experienced dedicated professionals. It also requires long-term commitment, is rather illiquid, involves more management costs and interim performance results. Finally, venture capital is not homogeneous. Institutional investors need to gain better insight into how to evaluate the venture capital asset class. The development of widely accepted performance measurement and valuation methods for unquoted companies, in conjunction with the investment community, will help venture capital achieve more measurable returns and thus boost asset allocation by the wider investment community.

***Challenge 4: Tax rewards for private equity investment***

Obtaining equity finance is more difficult than obtaining debt financing. Moreover, smaller, newer, younger or fast-growing businesses face much greater problems in raising equity finance than larger, more mature or listed companies. European firms also tend to be undercapitalised which reduces their ability to withstand business difficulties and to fund growth. Equity investments in privately-owned enterprises involve more risk and illiquidity than investments in larger or quoted companies. The gap puts smaller growth-oriented firms at a chronic disadvantage in raising long-term investment capital. Lower taxes on gains, higher write-offs on losses and private equity (re)investment relief should be the governments' contribution to the risk/reward ratio. These simple steps will have a major knock-on effect in promoting new business creation, favouring growing enterprises as opposed to those providing only a nice life-style for their owners, and stimulating investment into nascent, young and growing companies as opposed to 'safer' investments offering less attractive potential returns and lower job creation prospects.

Venture capital companies supply only a small proportion of privately-owned-company funding. Private individuals, most frequently family members, are the entrepreneurs' traditional equity investment partners. Such private financiers are often dubbed business angels. In the United States, business angels, with private money to invest, play an important role in getting businesses going. In Europe by comparison, there are fewer and less active business angels. In order to channel private sources of capital to privately-owned enterprises, private individuals should be able to obtain income tax relief on equity capital provided to unquoted companies. Additionally, dividends or capital gains on these investment should be taxed at a low level or not taxed at all, especially if the gains or dividends are reinvested. Such (re)investment relief will also promote the experience of private investors as business angels.

Such powerful relief could be complemented by linking them to 'venture capital trusts', managed by competitive teams of venture capital professionals. The trusts' qualification rules and investment regulations would prevent the venture capital trusts being used simply for tax-avoidance. Venture capital trusts were introduced in the United Kingdom, Europe's most developed venture capital market, in 1995. It is the intention to list the trusts on the stock market, to provide in principle the possibility to investors to sell their shares any time in the trust, even if the trusts are bound to make long-term investments and will only start to produce returns on the investments after some years. Such schemes should be extended to the whole of Europe.

Tax regimes should allow the highest rewards for the prime movers and risk-takers behind enterprise: the entrepreneur and the management. Nearly half of all start-up business fail in their first five years of operation. The increasing public recognition of entrepreneurs and skilled managers is seldom echoed by favourable tax treatment. Entrepreneurs and skilled managers are sensitive to personal taxation and policy-makers should look carefully at their tax treatment. Low capital gains taxes, write-offs on losses or upfront investment relief are powerful ways to reward Europe's entrepreneurs and key managers for the significant personal risks inherent in launching or joining a new business. The initial equity capital of a new company involves a lot of risk and is often supplied by the entrepreneur and his team of key managers or directors. The move of skilled managers from larger to smaller firms invariably involves accepting a lower initial income and the loss of often considerable fringe benefits. To motivate entrepreneurs and managers to engage in businesses, tax incentives are very important. The possibilities of key managers to acquire at attractive conditions stock of the companies they help to manage, so-called stock options, should be widened.

Generally, a positive differential between ordinary corporate income and capital gains tax rates needs to be maintained to offer the incentive to invest in growth companies. Taxation should also reward equity financing over debt, as the former carries greater risk and is generally in shorter supply. Nevertheless, data indicates that tax systems favour debt finance over equity finance, primarily because corporate interest payments are deductible from the corporate tax base. Yet if a company aims for growth, debt is not the best financing option. Interest payments take up cash needed to increase working capital or, more importantly, to increase investment.

***Challenge 5: Provide appropriate investment fund structures***

Investing in venture capital funds should be easy for all investors, yet the reality is different. The structuring of venture capital investment funds is often highly complex. Some European countries have standard structures for domestic funds, while others have different structures for different purposes, often too restrictive to be practical. Other countries have no appropriate national structure at all so that it is necessary to choose a foreign structure. Increasingly, funds have investors from several countries and the funds themselves carry out cross-border investment. In these cases the complexities multiply. This has the significant effect of discouraging investors and international investment in the case of smaller funds as the professional costs involved can be prohibitive and in some cases the problems are insoluble. Therefore, the European countries should provide efficient fund structures at the local, transnational, European and international levels.

Fortunately, there are several European countries with fund structures accommodating national and international investors. Unfortunately, there are still too many countries which have no suitable structure at all, and others with specific structures which are too restrictive. In these cases international structures, such as limited partnerships or companies resident in low tax areas or tax havens, are often used. This is surprising as governments increasingly recognise the considerable impact of such investment on national and European employment and economic growth.

The objectives for an efficient venture capital fund structure are, nevertheless, simple venture capital funds should be tax transparent regarding income and capital gains in order to avoid double taxation. Transparency is defined as the transmission of all income and capital gains liability directly to the investor, for them to bear tax at their own individual or corporate rate. Double taxation arises if investors invest in a company which in turn makes investments in the desired investee companies. Fund structures must be simple to operate with limited liability for investors. Tax credits associated with dividends and interest should be available to investors, while withholding taxes on income should be minimised. Management charges must be offset against income and capital gains, and not be subject to value added tax. Suitable carried interest schemes for its management should be feasible.

Transnational and international dimensions in funding, management and investment of venture capital are clearly developing, with investors from all over Europe as well as from outside, and local management teams and investments in more than one European country. Although such funds are clearly consistent with the objective of a single European market, the structuring, marketing and operation of such funds is a complex fiscal and regulatory challenge. Different tax treatments for venture capital and bilateral double taxation treaties opens the door to extensive treaty-shopping, which can lead to complex and expensive structures. The use of a Dutch mail drop company in conjunction with a Luxembourg fiduciary-held holding company, for instance, is only available to those venture capital funds who can afford it, and then it has the added problem of raising suspicion amongst regulators.

Thus there is a major need for the development of a new European structure or the adoption of the common European approach with a standard taxation treatment based on the principle of transparency. This would avoid all countries adopting their own structures and needing to arrange mutual recognition. The availability of an efficient pan-European structure would increase the amount of capital available within Europe for private companies and increase the incidence of transnational investments.

***Challenge 6: Facilitate the transfer of company ownership***

The succession of ownership and motivated management is important to small and medium-sized companies, especially if owned and directed by families, which covers a large share of all European companies. In a French survey carried out by 3i, the world's largest private equity group, over 40 per cent of a large sample of family-owned or -directed companies lost their family status during the 1980s, either by being acquired or by going into receivership. The EC estimated that nearly 10 per cent of all bankruptcies, representing 300 000 jobs every year, are the result of badly managed succession. The EC further estimated that 25 per cent of all companies between 50 and 100 employees will have to change ownership over the next 10 years. It is essential for our economies to ensure that the succession in companies keeps the businesses not only on track, but ready and reinforced for further expansion. Private equity has helped many businesses realise their succession, often with key involvement of the senior management of the company.

Management buy-outs are a significant part of the activity of private equity investment. In a typical management buy-out, a team of managers with substantial experience takes ownership of a company, often with the financial backing of private equity investors. The prime motivation of professional managers to become owners is to gain freedom to manage, which many feel they do not have in a larger or family-controlled group. Buy-outs are often used to revitalise or to rescue businesses.

EVCA backs the recommendation of the EC to all European Union countries to facilitate the transfer of company ownership in order to safeguard the existence of the businesses beyond succession. The recommendations include:

- heighten the owners' awareness of the implications of ownership transfer and encourage and enable them to transfer ownership within their lifetime in an efficient way;

- ensure that the levy of inheritance or gift tax does not jeopardise the future of the business; a study indicated that, in order to be able to pay the rights of succession, a French company must spread out 88 per cent of its annual profits over a period of 8 years; a Belgian enterprise 46 per cent, an Italian 33 per cent and a German 21 per cent;

- encourage the transfer to a third party, for example when there is no heir within the family.

The EC also recommended that the Member countries should take measures to create a financial environment conducive to the successful transfer of businesses. It is here that private equity can play a role so that businesses are not only safeguarded but their ownership and capital structures are strengthened for further expansion. To encourage transfers to third parties, the EC recommended that the owners be encouraged to sell their enterprises or shares within their lifetime by granting tax reductions during retirement and by promoting the reinvestment of the capital gains earned. In addition, the EC suggested to make it easier fiscally for employees, often the managers, to take over the enterprise. The essence of a private equity investment, providing a succession and ownership solution to a business, is to allow existing and or new managers to acquire ownership in companies and to provide them with the freedom to manage. EVCA's recommendation is that employees, in particular those on which the management of the company thrives, are given fiscal incentives to become owners of the companies. In this way, managers will be encouraged to invest their own risk capital in the company and their strategic objectives will focus on long-term growth, in line with those of the shareholders.

In order to better match ownership with the companies' needs and objectives within ever more rapidly changing world markets, Europe's tax environment should in general facilitate the transfer of ownership or at least treat the ownership transfers or changes neutral. Current tax systems often discriminate, depending on the size of the holding, its term, the tax consolidation thresholds or other factors. It should also be easier to regroup business activities in better manageable or transferable units. In this way, Europe's tax systems will allow the restructuring of existing industry.

***Challenge 7: Develop investment into start-up and innovative companies***

One fifth of all private equity investments in Europe are in starting businesses. The cost of finding, assessing and assisting attractive start-up or technology investments is high in relation to the value of the investment. Such investments also involve high levels of risk and illiquidity as compared to other private equity investments. Therefore, high potential individual investment returns are needed and only the best ventures are selected for investment.

EVCA's White Paper identifies several challenges and puts entrepreneurship first. Nowhere is entrepreneurship more important than in the creation of new businesses. The experience, skills and commitment of the founders, key managers and financiers of a starting company are vital to avoid failure, but even more importantly to lead to high-growth and success. Such successful start-up ventures will often be innovative, either in technology, products, manufacturing, distribution, service, strategy or management. The innovative character of start-ups will be necessary to generate sustainable high-growth, and often will need to be resolutely international.

As the top left box explains, start-ups are the most risky, costly and illiquid of all investments in the private equity market. Therefore, high returns are needed as well as opportunities to raise significant

follow-on growth financing at attractive valuations of the start-up efforts. These are essentially to be provided by efficient and dynamic stock markets, the second challenge of EVCA's White Paper. Successful stock market listings of young innovative companies will provide a significant boost to start-up investment activity. The third structural challenge which start-up private equity faces is funding. Europe's investment institutions, who have shorter-term liabilities, have been too slow to invest in private equity funds specialising or investing in start-ups. Start-up investment horizons are long and returns more uncertain. The existence of significant long-term sources of capital, and their diversified allocation across the private equity spectrum, in particular to start-up funds, are key to continuing fuelling of start-up investment activity

Government can contribute even more directly and significantly. Challenges 4, 5 and 6 of EVCA's White Paper list more immediate opportunities to get involved. Tax regimes should allow high rewards to the entrepreneur, the management team and the first investors of starting businesses. The introduction of powerful tax rewards for founders, key managers and equity investors in start-up companies will have a major impact. They would be particularly effective if they were linked to investments in 'venture capital trusts'. Such trusts should be raised, managed, invested and accounted for by professional private equity fund managers, operating on a competitive basis. Competitive independent functioning of professional private equity fund managers is the optimum way to maximise investment returns, and consequently also to maximise economic benefits. Moreover, governments should ensure that venture capital fund structures and trusts are easy to set up and efficient from a tax and legal point of view. If venture capital funds and trusts could be listed, investors could more easily transfer their share ownership to new or other investors.

If all challenges of this paper are addressed, private equity investment activity in new high-growth businesses will increase dramatically. However, investment in new technology-based businesses deserves and requires special support. Due to increased internationalisation and shortening product and business life cycles, the required private equity investment gets higher, riskier and costlier. Government support could be particularly focused not only on start-up *but also* on technology private equity investments. Existing supportive policies for technology-based ventures should be introduced more widely, such as:

- technical assistance to seed, start-up and international technology-based ventures;
- encouragement to create private venture spin-offs from large public companies and government research programmes; and
- government guarantees to alleviate part of the risks of technology-based private equity investments.

The challenge is shared by all European countries, and the following measures should be considered at the European level:

- co-funding by the newly-created European Investment Fund of private equity technology funds and investments;
- better knowledge of pan-European patents;
- spin-offs from the EU's extensive research programmes;
- co-ordination of national technical assistance activities, especially promoting world-wide investment into European businesses in new technology sectors.

***Challenge 8: Develop the markets in countries where private equity emerges***

A European private equity sector is maturing in most European countries, and in Central and Eastern Europe the industry is gradually emerging. New funds are being raised and established, making their first investments and core groups of private equity players are forming national venture capital associations. However, the pioneers in the emerging markets are confronted with a variety of obstacles which are not always easily overcome. According to a 1994 study of the EVCA and the EU PHARE programme in Central Europe, the greatest barrier to successful private equity investment in the region is perceived to be the lack of 'entrepreneurial culture'. Other significant problems include difficulty in gathering reliable financial and market information, the lack of managerial skills, the limited availability of other sources of (debt) finance for companies and poor knowledge and acceptance of the equity concept and investment process. Insufficient domestic long-term sources of capital also make it difficult to raise capital in the first place. Finally, the tax and legal framework still has many gaps.

The barriers to the emergence and growth of private equity in some European countries, such as Greece, Portugal and those in Central and Eastern Europe need to be removed so as to allow private equity market activity to emerge and to function properly. Many of the obstacles are structural and deep-rooted, requiring long-term strategies for government action, such as:

- encouraging entrepreneurship;
- removing red tape to start-ups;
- introducing and regulating appropriate ethical and corporate governance standards;
- improving the quality of company accounts and audits;
- speeding-up privatisation and its process;
- ensuring availability of long-term credits to smaller companies;
- introducing easy to use tax-transparent closed-end funds for private equity;
- introducing laws and regulations allowing the orderly development of funding, investment and divestment;

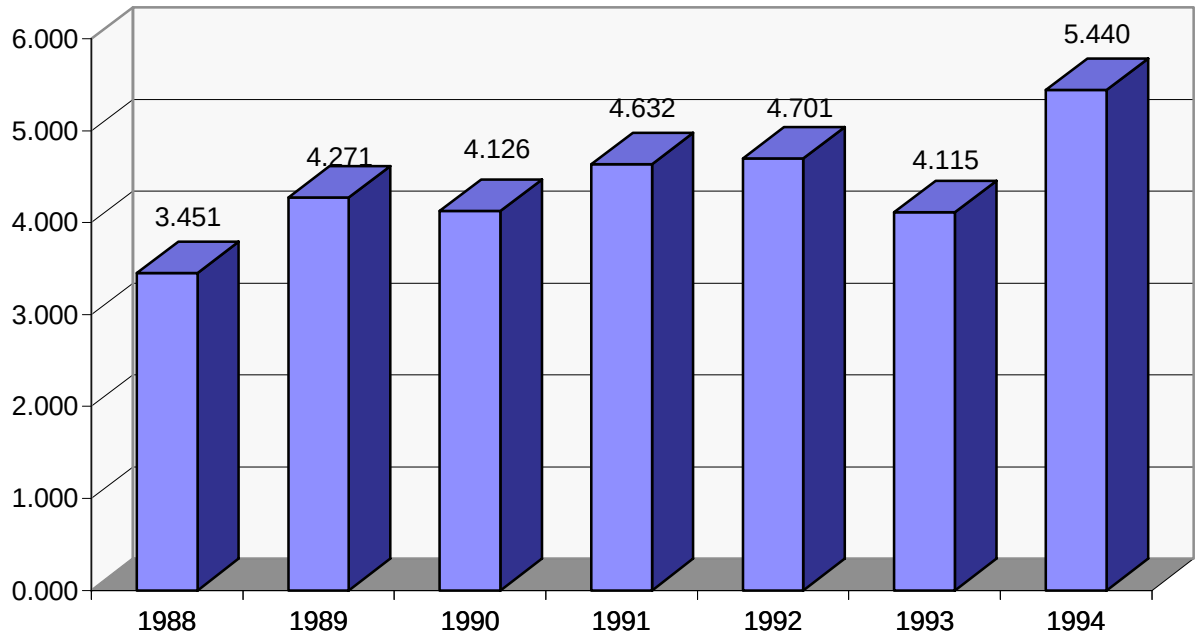
- training law firms and accountants;
- facilitating the formation of pension funds;
- organising liquid local stock markets or linking into Europe-wide markets.

All of these measures would benefit the emerging economies more generally, but will also clearly help private equity to develop more rapidly. EVCA's White Paper further identifies several other main challenges which are to be addressed to create an environment supportive to investment in growing companies in Europe. European regional development and international aid funds should be used to help to remove the structural barriers first. National venture capital associations can help too.

However, removing the barriers may not be enough in some European countries. Despite the progressive introduction of a more supportive environment over time, private equity funding and investment may remain non-existent or scarce. This will often restrict companies with a significant growth potential and with an ability to generate returns to investors from raising the necessary growth capital at acceptable conditions. In these instances, governments should step in with measures which stimulate the development of private equity markets based on the competitive functioning of professional private equity fund managers. The measures should allow all funds to operate on a level playing field and emphasise their professionality. Maximising investment returns should be the key objective as it channels investment into the most promising companies, generates profits to reward investors and develops a self-sustaining investment activity. Governments or international aid programmes have introduced such market stimuli and not without success. Some examples of successful measures are described below. Since 1958, the United States government provided significant public capital commitments to small business investment companies (SBIC). This was the origin of the current United States private equity industry. An important precondition is that SBICs raise a minimum of capital on their own. The SBIC scheme was renewed and expanded recently.

The Dutch Government ran an investment loss guarantee scheme for qualifying private equity funds for more than 10 years, growing a large and profitable local private equity sector. The Danish government introduced a similar guarantee scheme in 1994, boosting funding for venture capital more than seven-fold in just one year. Funding for venture capital in Ireland increased five-fold in 1994 after the government removed barriers for the Irish pension funds to increase allocations to private equity and after it became clear that private equity could be profitable if managed by experienced venture capital managers. The European Bank for Reconstruction and Development and international aid programmes help the emergence of private equity funds in Central and Eastern Europe, including Russia, by acting as a long-term institutional investor, committing capital alongside other investors, to those private equity fund managers with sound investment strategies and high professional standards.

**Figure 1. Annual European Venture Capital Investment**




*Source*: Ernst and Young.

**Figure 2. European Venture Capital Investment Portfolio (portfolio at cost - Net of disvestment)**

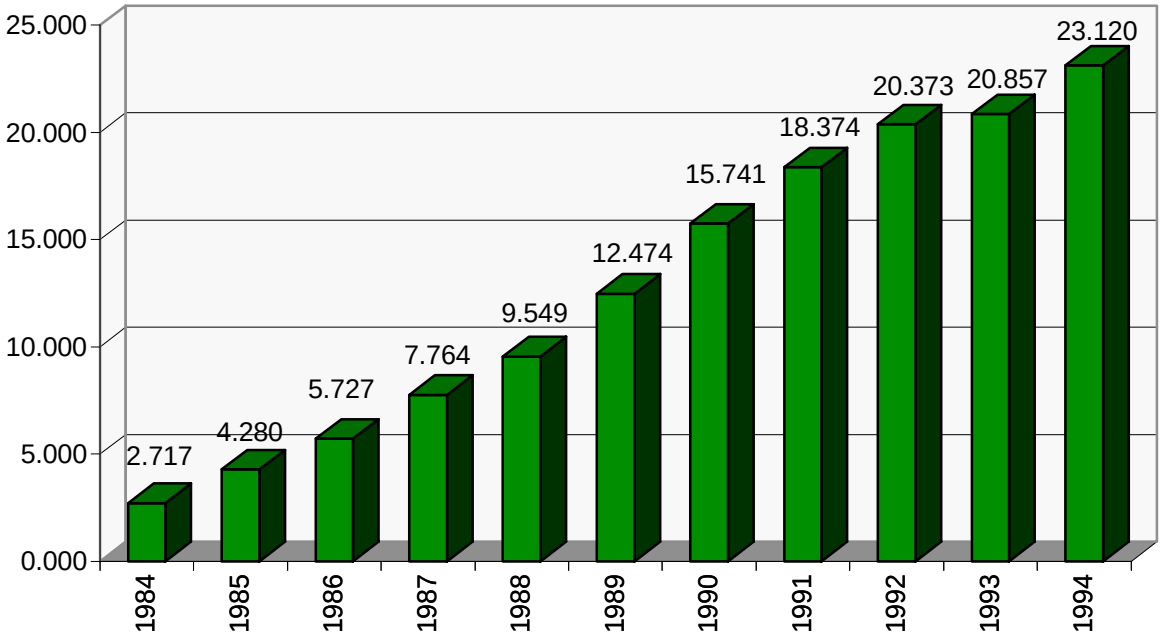
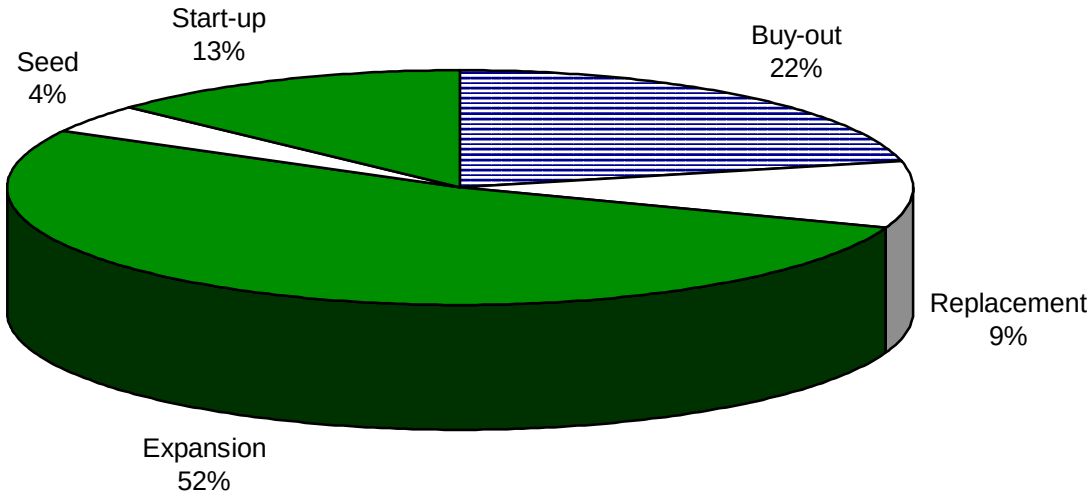
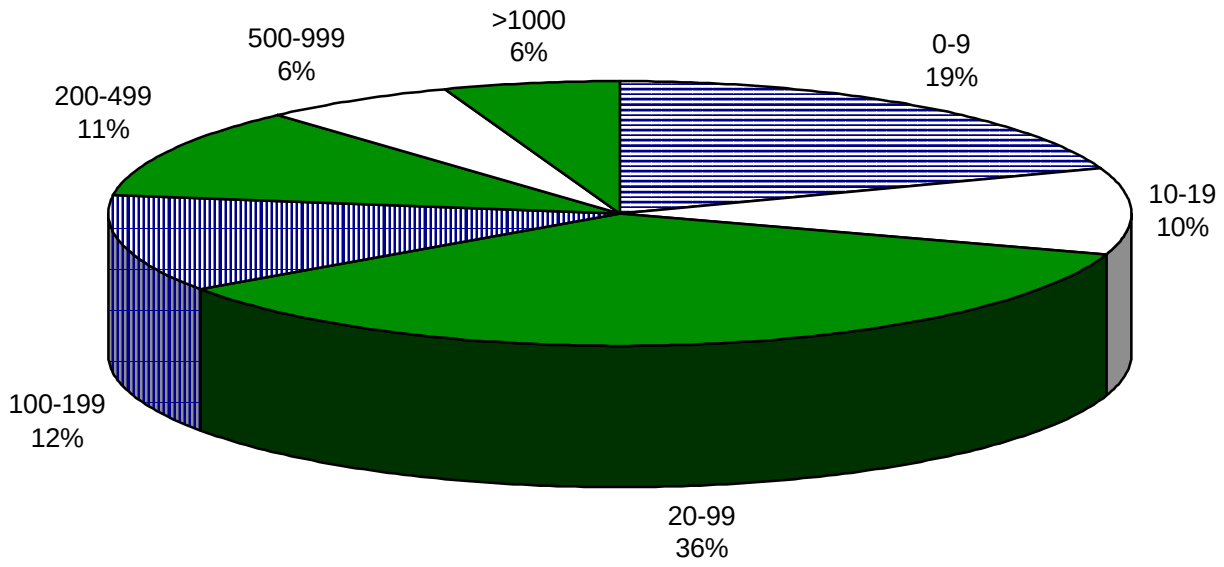



**Figure 3. Stage Distribution by Percentage of Number of Investments, 1994**



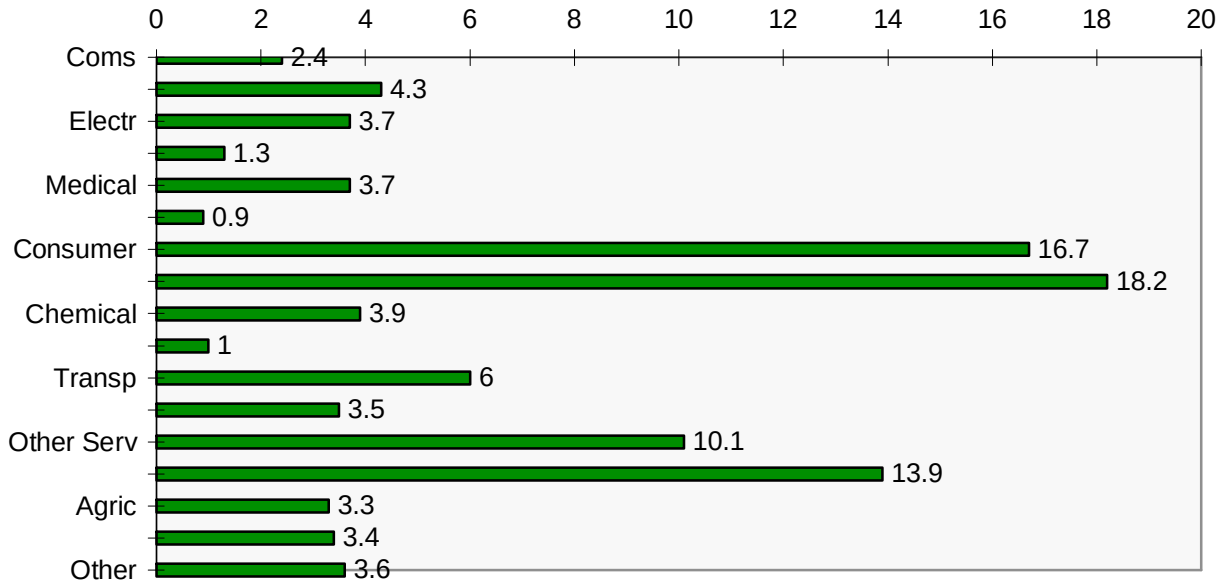

*Source*: Ernst and Young.

**Figure 4. Percentage of Number of Investment during 1994 by Number of Employees**



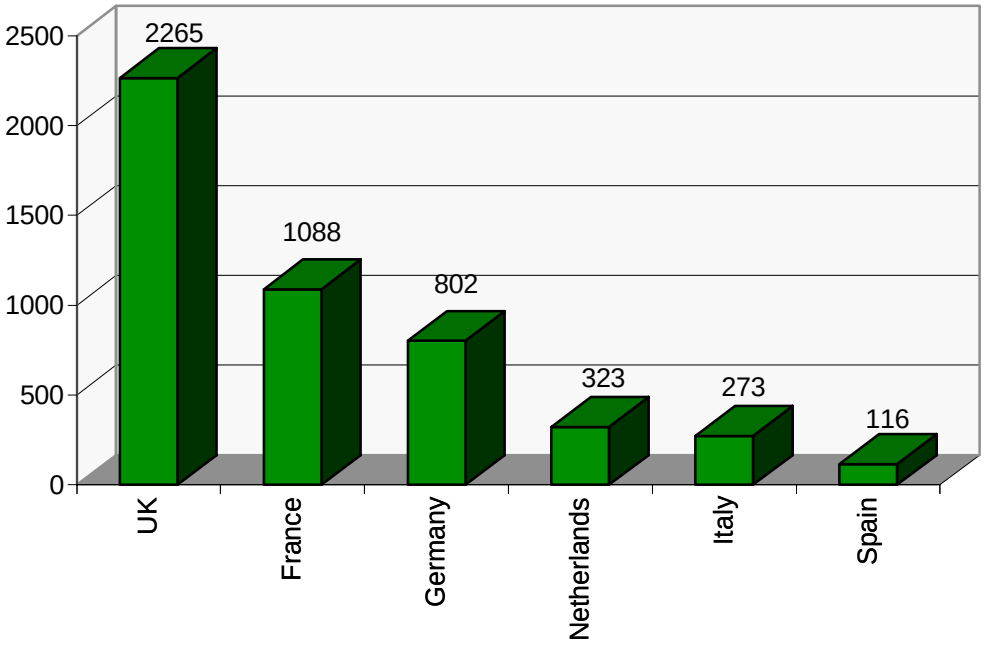

*Source*: Ernst and Young.

**Figure 5. Industrial Sectors of Investments percentage of Amount Invested**



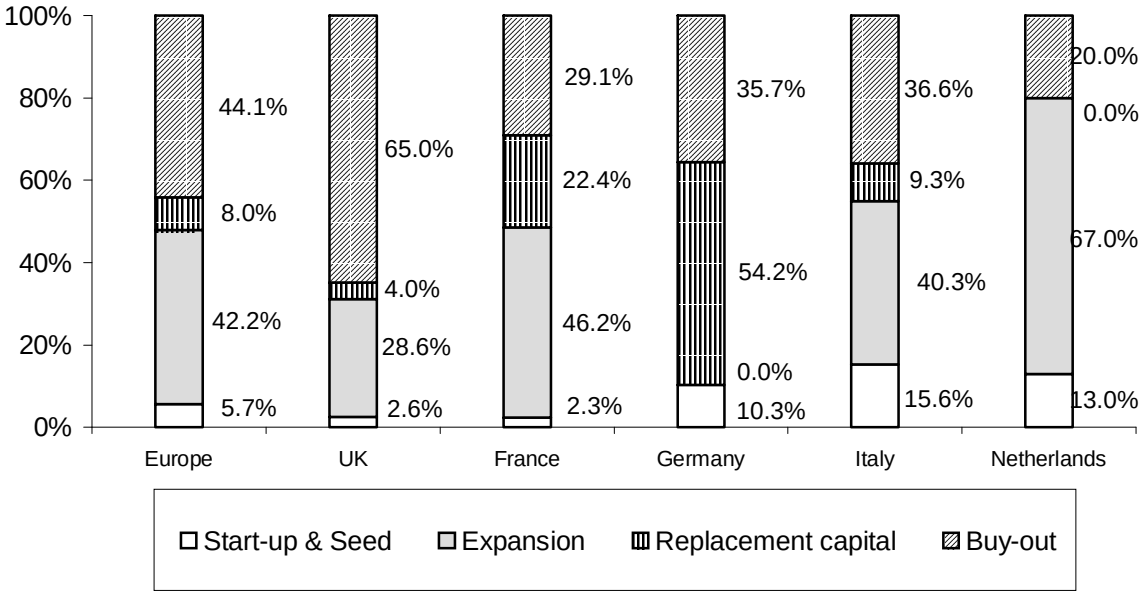

*Source*: Ernst and Young.

**Figure 6. Amount Invested by Country 1994**




*Source*: Ernst and Young.

**Figure 7. Stage Distribution of Investments in 1994**



## C. UNITED STATES VENTURE CAPITAL MARKETS: CHANGES AND CHALLENGES

*David BROPHY, University of Michigan Business School, Ann Arbor, Michigan*

The history of the venture capital market in the United States is rather extensive, which makes it extremely interesting to look at the advances taking place in other OECD countries and parts of the world. To many, the United States model is the is envy of the world, but there are those in United States that think there are some flaws in that model and constant pressure is being asserted to make sure the United States venture capital industry keeps up with the demands that are being placed on it. The future of the United States venture capital will develop against rapid economic, demographic, and social changes that are taking place and setting the stage for the next century. The challenges ahead are the relatively low rate of economic growth in the United States of 2.5 per cent a year, the ageing of the population, a declining growth rate in population to somewhat less than 1 per cent, an increase in the labour force of about 1.3 per cent and a change in the composition of the labour force in terms of the participation of women, minorities and immigrants. These changes are also being fuelled by corporate restructuring or downsizing which has led to rising disparity of income levels; those that are doing well are doing very well and those that have been displaced are not doing well at all.

The result is a two-level or two-tiered system of entrepreneurship. The first is oriented towards fast growth technology-based firms that are being generated with the other acting as a kind of substitute for jobs for which almost an equivalent number of workers have been outplaced and outsourced. There is thus activity at both the classic small business level and at the emerging growth company level. From venture capitalist's point of view, it is the fast growing company that has the greatest potential (**Table 1**). On the other hand, from an economic policy perspective, it could be argued that the small businesses are just as important. For emerging growth companies one of the implications from the trend in the ageing of the labour force ages is higher productivity as older workers exit. At the same time transfer benefits for older workers are much more important and costly and must be portable in an era of change. This raises the issue of a need for education and training. The United States' basic education system needs to be upgraded and this will require significant resources. The rapid change in the economy also implies there is a need for constant training both at the worker and executive level.

All this is taking place in an era characterised by globalisation and deepening of financial markets. Several issues emerge as a result, including the need to create access to markets for smaller and smaller firms. The regulatory environment also presents challenges with respect to impacts at both the national and international levels. How do international treaties and agreements as the Basle Accord on banking reserve requirements affect the local markets for the United States or that in other OECD countries?

### Structure of the United States venture capital market

Before proceeding with international comparisons it is useful to review the structure of the United States venture capital industry, its operating characteristics, sources of capital and measures of its performance. There are three major players which dominate the industry: 1) the institutional investor (provider of capital) 2) the entrepreneurial firm that receives the fund (use of capital) and 3) the agency or agent who

*Table 1* **Characteristics of High Potential, Fast Growing Firms**

(Based upon results from the 500 respondents to a survey of 1800 venture capital backed companies at least 5 years of age done for the National Venture Capital Association by VentureOne as of year-end 1994)

**In Growth Industries**

| | |
|---|---|
| Biotech | 28% |
| Software | 14% |
| Media/Communications | 14% |
| Semiconductors & Electronics | 12% |
| Medical Devices | 12% |
| Health Care Services | 5% |
| Retail | 6% |
| Other | 9% |

**Engineers, Scientists, Managers in Labour Forces**

| | |
|---|---|
| Sample | 59% |
| Fortune 500 | 15% |

**Average Annual Job Growth Rate**, 1989-93

| | |
|---|---|
| Sample | 25% |
| Fortune 500 | -3% |

**Average R&D/Equity**, 1989-93

| | |
|---|---|
| Sample | 17% |
| Fortune 500 | 13% |

**Average R&D/Employee**, 1989-93

| | |
|---|---|
| Sample | $16K |
| Fortune 500 | $8K |

**Average PPE/Revenues**, 1989-93

| | |
|---|---|
| Sample | 23% |
| Fortune 500 | 7% |

**Average Equity/Assets**, 1989-93

| | |
|---|---|
| Sample | 90% |
| Fortune 500 | 30% |

**Average Annual Equity/Asset Growth Rate**, 1989-93

| | |
|---|---|
| Sample | 7% |
| Fortune 500 | -4% |

**Average Startup Venture Capital Invested per Company by Year in Which Founded**

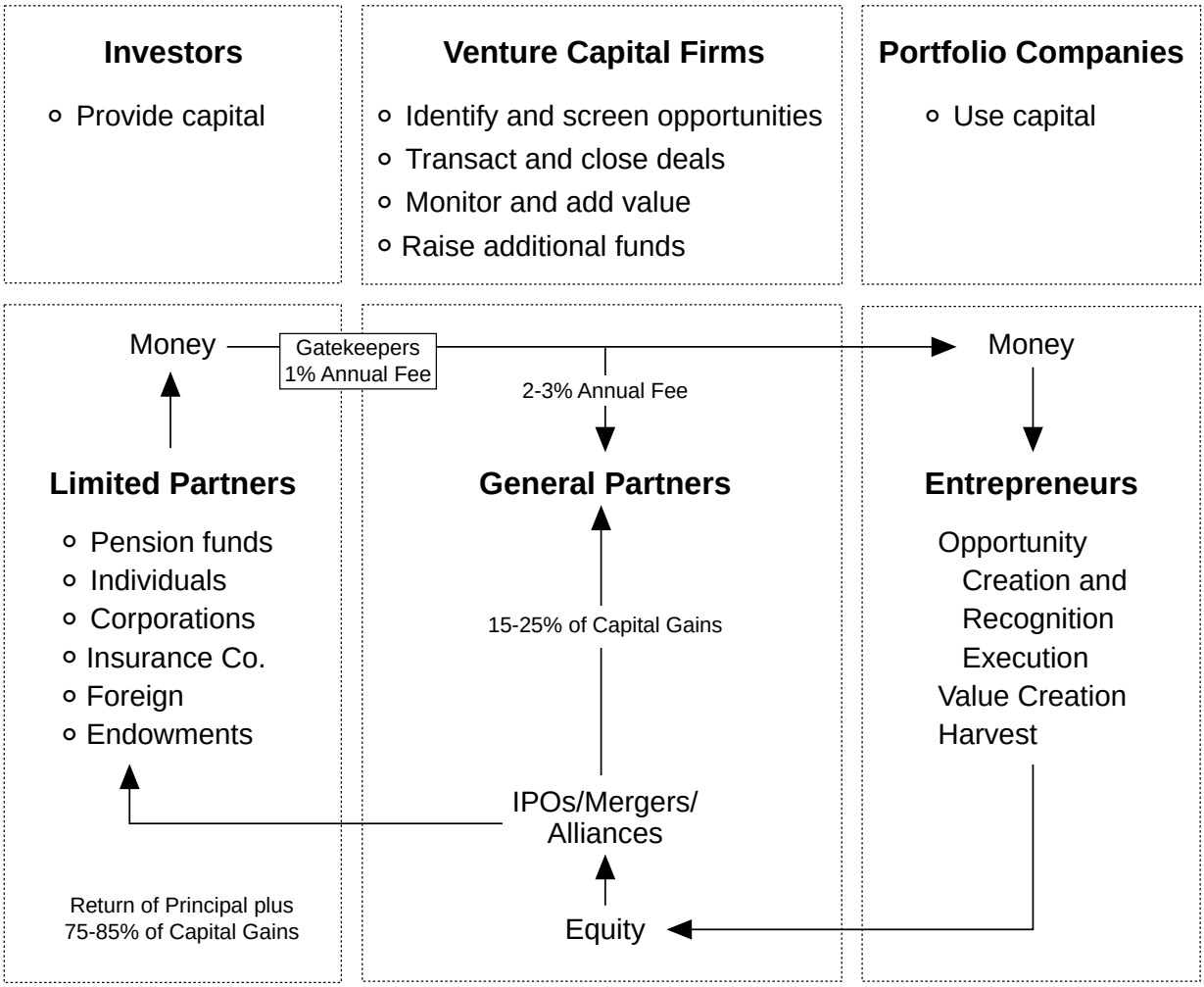
| | |
|---|---|
| 1981-85 | $7 million |
| 1985-89 | $10 million |
| 1989-93 | $12 million |

**Sources of Equity Capital**, 1989-93

| | |
|---|---|
| Venture Capital | 69% |
| Founders | 6% |
| Individual Investors | 9% |
| Corporations | 5% |
| Initial Public Offerings | 10% |
| Other | 1% |

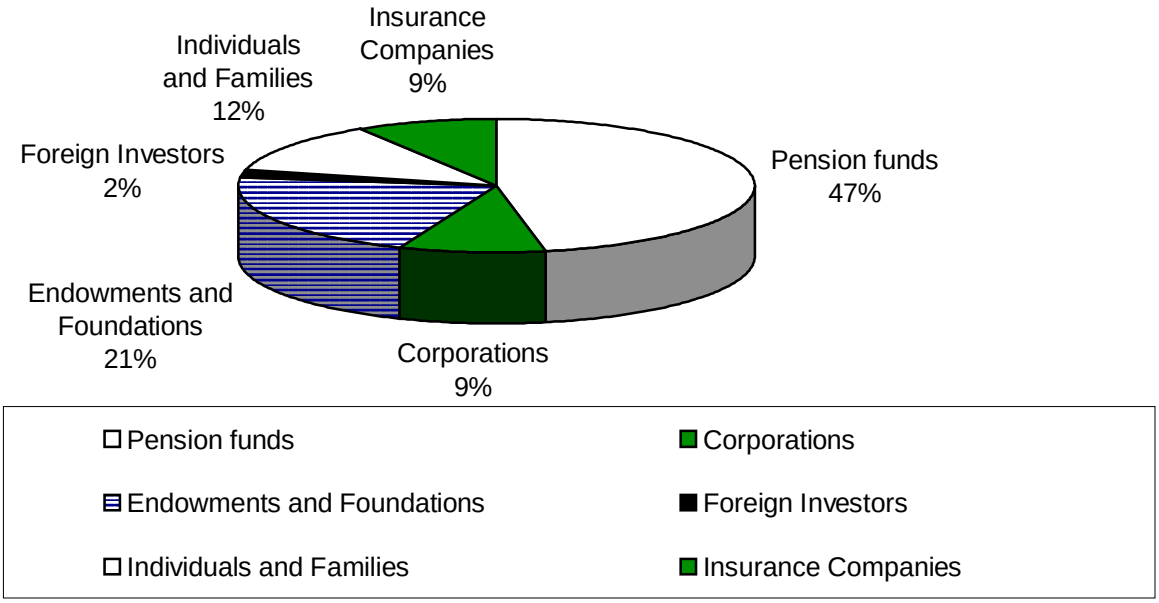
stands between the two and identifies, screens, transacts, monitors and raises additional funds. Financial capital flows from these kinds of limited partners into the funds. This process is involves transactions; the annual fee, a 2-3 per cent management fee, the 15-20 per cent interest carried on capital gains (**Figure 1**). But this is all part of the built-in incentives for the agent to carry out this role because, at least in the United States, none of these institutions could make the connection to the entrepreneurial company and effectively conclude those deals.

*Figure 1* **Venture Capital Flows**




This, however, leads to a constant tug of war between the Limited Partners and the General Partners. Limited Partners are always suggesting that General Partners are making too much money or that management fees are too high. The General Partners retort with arguments to the contrary. While these terms have stabilised somewhat, there is constant pressure on both sides. The sources of these funds are predominantly pension funds and insurance companies as well as endowments and foundations (**Figure 2**) These are all pools of funds. Since the late 1930s increasingly savings in the United States has been pooled in fewer and fewer entities. Thus the way the market operates is to recycle the funds from those institutional coffers back into the financial markets and the key is to get around the biases that have been set up in the organisation of those pools because they are very conservative and very difficult to get involved in what is perceived to be a high risk activity.

**Figure 2. Sources of 1994 Capital Commitments Institutionally-Backed Independent Private Funds Only (per cent of capital)**

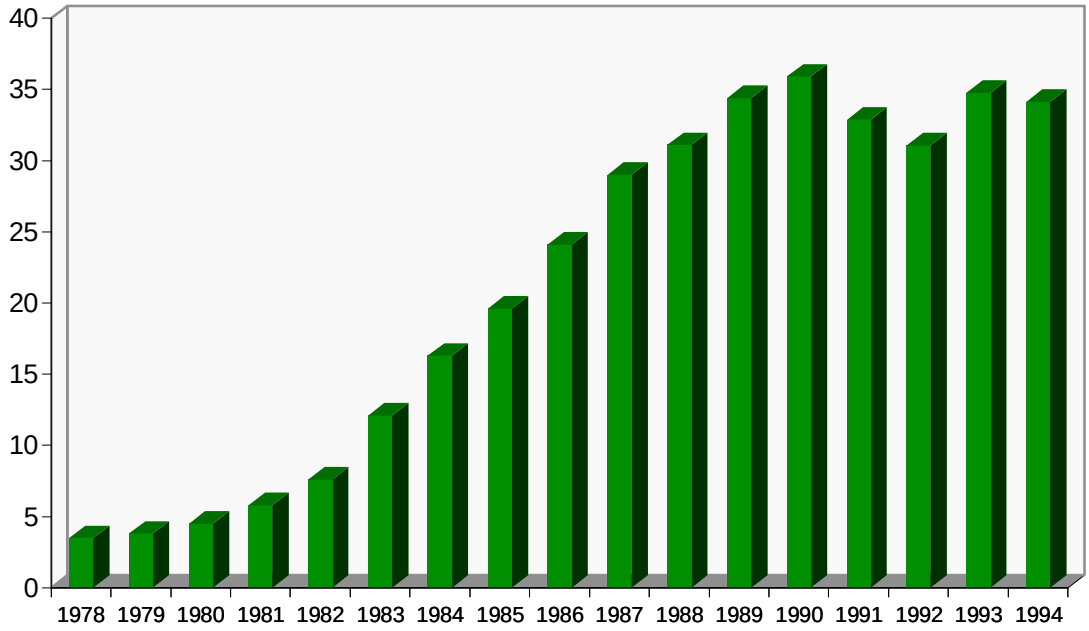



*Source*: Venture Economics Investor Services.

The small size of venture capital funds might be surprising to some because a large number of venture capital funds in the United States hold only US$ 10 million dollars or less of capital. While there are very few funds that might be termed mega funds; some with around US$ 2 billion dollars (one of the largest holds US$ 4.5 billion dollars), there is a resistance to the very large venture capital funds. One of the reasons is that the individuals who run the venture capital funds are themselves entrepreneurs and dislike the bureaucracy inherent in large bank organisations. Thus while some of these funds have been tried at large levels, the market has a preference for smaller funds. The average size is about US$ 55 million dollars and while the amount of money required for a start-up deal is increasing, there is still countervailing pressure, for venture deals in general, towards a preference for smaller working entities.

Looking at the total capital under management in the venture capital industry (**Figure 3**), a disturbing trend emerges: after years of strong growth the venture capital industry appears to have stabilised and some observers bemoan the fact that there are a decreasing amount of funds coming into the venture capital business. There is clearly a sharp cyclical aspect to this trend but this is easily explained. One of the characteristics of the market is the cyclicalness of the money coming into the business, as seen in annual flows of capital into venture capital funds from investment groups. There is a very jagged picture and although the balance is flat there is a cycle within it. This in fact tends to be driven by the Initial Public Offering (IPO) market. If institutional investors are realising profits from this kind of activity, they will put more money in during the following year.

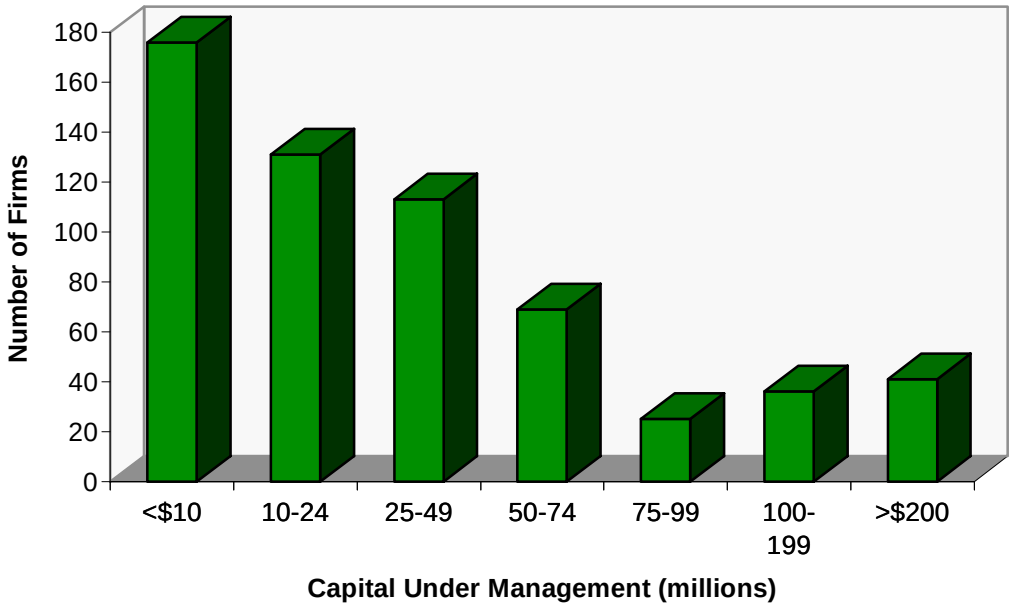
**Figure 3. Total Capital Under Management (1978-1994)**




*Source*: Venture Economics Investor Services.

This pattern reflects short-sighted attitudes but is nonetheless characteristic of the market. The problem with the cyclical movements is that the person running a venture fund or a group of funds would spend most of their time trying to raise money and that would mean someone else in the company would have to do the actual work of providing the funds and investment. If one looks at a matching kind of number, in other words, investments out of the funds in smaller companies, the pattern is equally jagged (**Figure 4**). Holding these two over one another and matching them on a scale we obtain a close match so the amount reserved or the amount held within venture capital funds in the United States is a very small amount. One of the reasons for the roughly US$ 35-40 billion in outstandings in the portfolio is because those portfolios are drained of cash almost immediately upon realisation of returns in the stock market. Thus, for example, around 16.5 per cent of the money that funds venture capital investments comes from the realisations of gains. The amount of these gains in the United States is unknown because the gains are not kept in funds, they are returned immediately to institutional investors and one must bargain them back. In order to raise more money from those institutional investors one has to start a new fund. This whole idea of divisibility and real options approach is becoming very characteristic of this entire industry.

**Figure 4 . Venture Capital Firms by Capital Under Management (31 December 1994)**

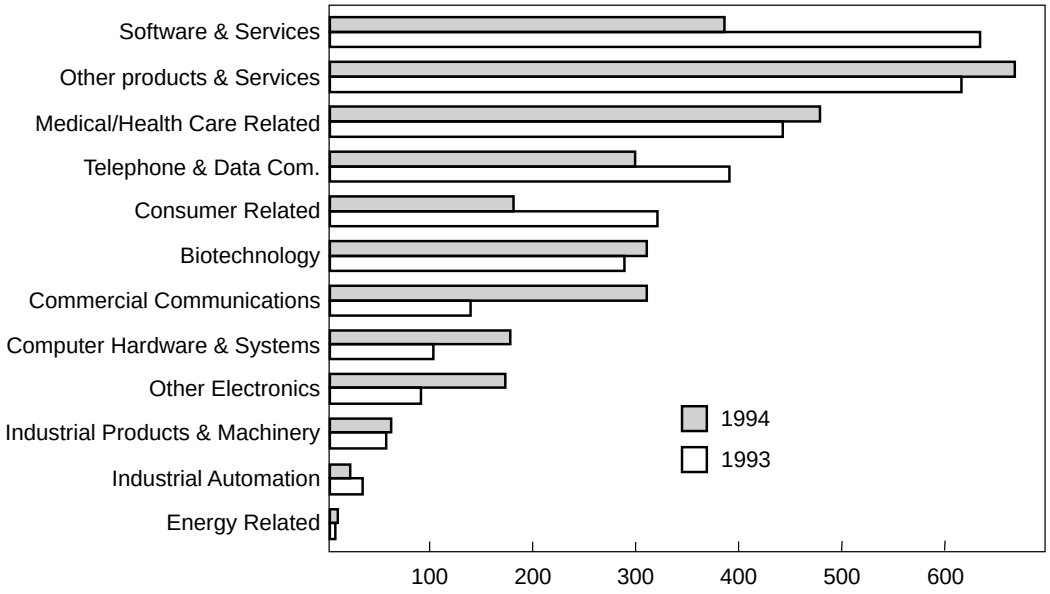



*Source*: Venture Economics Investor Services.

In the United States, the targeted industries tend to be more technology based whereas in Europe funds are channelled into financing commercial and consumer cross-over investments from periods of lower growth in a given sector to periods of higher growth (**Figure 5**) The other point here that ties to the agency and real cost options notion is the difference between the first round and follow-on round financing in the deals that are done by venture capital companies.

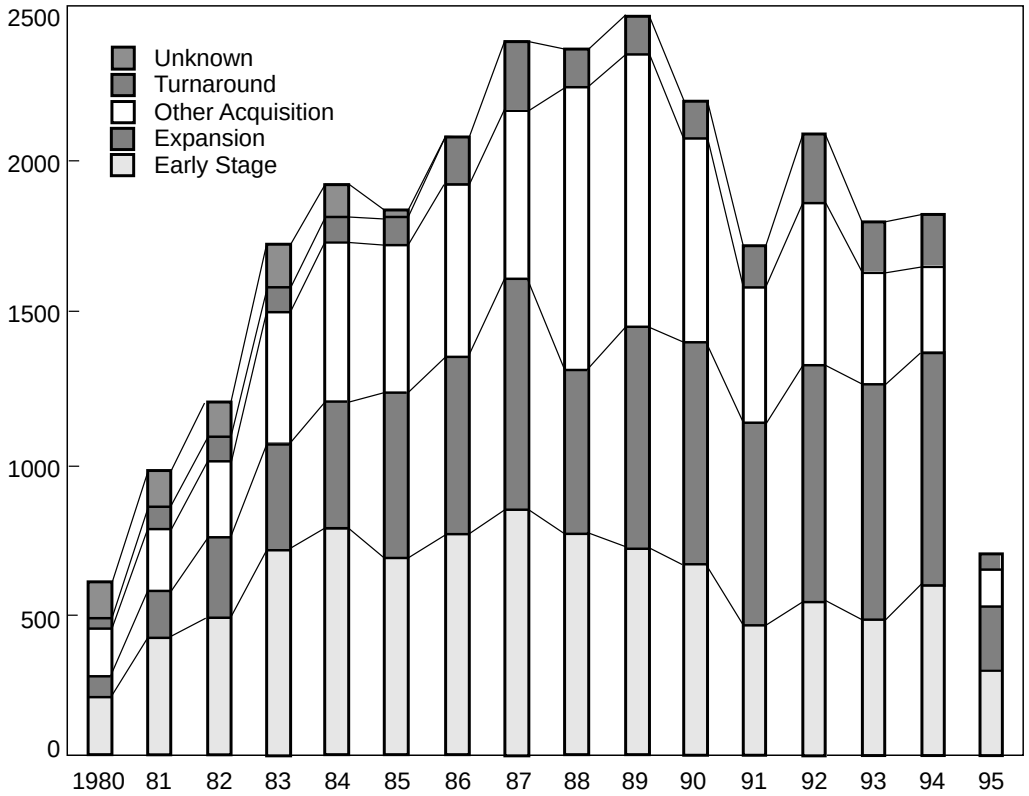
To illustrate, let us take the example of a deal where the venture capitalist provides a firm with one dollar for it to get to the first decision point, that might be the completion of the R&D or the proof of concept, etc. Once that is achieved, the venture capitalist will provide the firm with more money to carry on from there and do the marketing. In so doing, the venture capitalist has greatly reduced the risk of the total capital provided. It is in this breaking up into trenches or rounds that lies, perhaps in some sense accidental, the genius of the venture capital investment procedure and the extent to which this is carried over into corporate capital budgeting. This kind of investing has had a very positive contribution to corporate capital budgeting in general**.**

*Figure 5* **Venture Capital Disbursements by Industry**
($millions; 1993-94)




*Source:* Venture Economics Investor Services

*Figure 6* **Number of Venture Capital Investments by Stage**
(1980-1995 through June)



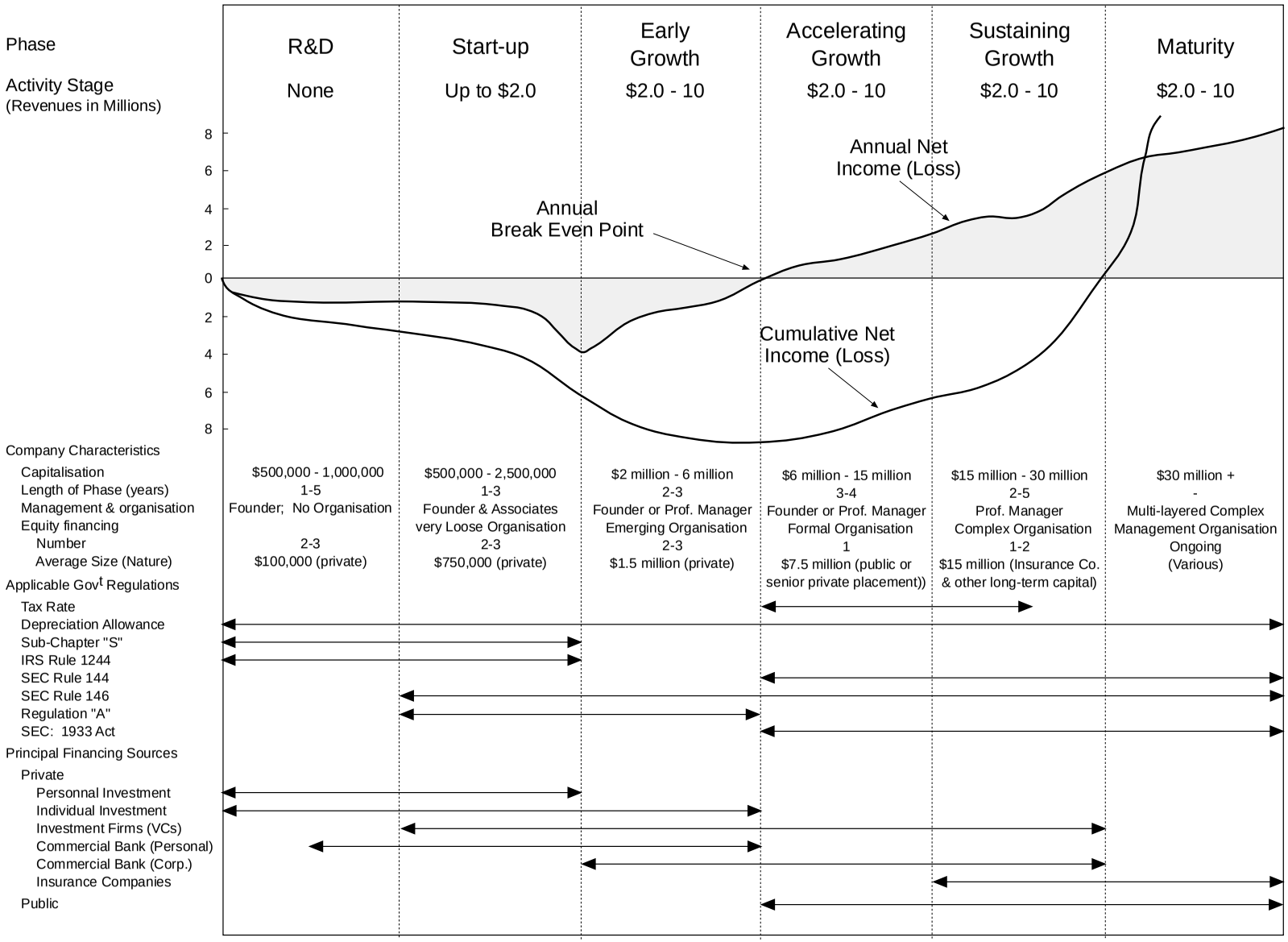
**Early and later stage investments**

As pointed out earlier, there is an explanation for the decline in the total volume of capital outstanding. During the mid-1980s, while the entire volume increased, a large share of it was accounted for by these later stage types of investments. After about 1986, following changes in United States income tax law and banking regulations, the highly leveraged buy-out transaction fell out of favour and thus the amount of money that could be employed in that activity by venture capital funds declined. Looking at the early stage in the expansion part of the market, the growth has levelled off but it has actually increased as a proportion of the total. Thus the overall amount of money going in has gone down but the amount going in to early stage and expansion stage investments has remained stable (**Figure 6**). This is confirmed by the number of transactions and is even more evident in terms of value in dollars. The amount of money going into the venture capital business was boosted by the intensive buy-out activity.

It is remarkable that only a US$ 1 billion per annum are being channelled into early stage investments in the United States. This is an incredibly small number, especially given the leverage that the United States' economy has generated from it. It is also a continuing problem and one of the things that is happening in the United States is the increasingly important role of the individual entrepreneur, the founder and his or her immediate associates. These are the individuals who will co-invest with the entrepreneur at the initial stage. Although this phenomenon is not new, it is receiving more attention in the United States. The number of companies financed by individual investors is roughly half a million a year, with some 2 000 being financed by venture capital partnerships, with a total value of investments worth perhaps as much as US$ 30 billion a year, in comparison to less financing by the organised venture capital funds. The explanation for this is clear: the venture capitalists are only interested in the really high growth opportunities. The problem is the difficulty in looking at two entrepreneurs side by side and being able to tell exactly who will be successful.

Thus the role of organised venture capital funds and individuals are different but their role is no less important because for new companies to be generated, they have to be started. Research and development is particularly critical in this regard (**Figure 7**). In order to take an innovative idea and translate it into a commercially viable entity there needs to be available capital, but it is at this stage that the money is very scarce. This is why the individual investors are such key players in the economy. Individual investors tend to intervene in the smaller rounds and at the earlier stages. If government policy is to provide tax incentives or tax-based relief, it should be targeted to these individual investors who are at the early stages of the process as founders and as co-investors. This is where the biggest return on any government tax dollar (i.e. foregone tax revenue) spent can be made.

## *Figure 7* **Lifecycle of a Growing Business**



With respect to profitability and performance, the longer-term pattern suggests that the returns are relatively more modest than might be expected. However, one should recall that these are for funds and for aggregates of funds so the extremes have been dampened substantially to reflect this. Similarly, it may be useful to place the S&T 500 index next to this pattern to highlight the relative performance of these funds. This does not appear here but these are returns net to the limited partner, that is net of the management fee and net of the general partner's participation. This equals returns of about 17 or 18 per cent on average over this very long period of time. Throughout most of that period, this has been above the S&T 500 and, for a large pension fund, an improvement by any fractions of a percentage point translates into significant returns on the overall fund.

Later stage deals have lower rates of return but lower risks. Therefore, as one advances or regresses towards seed and start-up financing, there are higher expected returns but also much higher standard deviations of returns. If markets were effective and efficient, one would be able to determine what the capital market line looked like on a periodic basis. From the point of view of industries it is possible to foresee that these investments will shift as opportunities change. On the basis of data, it is also possible to visualise where the returns and risks are by industry group (**Figure 8**). However, at this time there is no efficient information system available.

***Relationship between venture capital and IPO markets***

When discussing the development of a NASDAQ for Europe, which is very important, it is necessary to consider the links between venture capital and Initial Public Offerings (IPOs), the characteristics of the post-IPO market and a comparison of going public versus being acquired or selling out to a large firm. If one looks at the number of IPOs and the number of venture capital-backed IPOs and non-venture capital backed-IPOs from 1970 to June 1995, it is clear that the initial public offering market in the United States is not comprised only of venture capital-backed companies (**Figure 9**). There are not many companies that go public without the benefit of associating with the organised venture capital industry.

This fact reassures a lot of people who do not receive venture capital or do not want to seek it in the first place. With respect to the actual dollar magnitude, the amount of venture capital backed is even a slightly smaller percentage of the total. This is of no particular significance unless one considers the individual deals such as those witnessed in recent years, some of which are discussed in greater detail below. If one looks at venture capital investment in IPO proceeds and at the number of events, not in actual dollar flows but in the number of deals there are many more venture capital investments than there are IPO events which means a lot of money is being provided, a lot of deals or transactions are being made in venture capital investments. However, there are not many IPOs that result from this; at most 10 to 20 per cent or so of these companies actually go public. Some sell out while others remain continue to produce good paying jobs but are incapable of going public.

If one looks at the dollar flow, the situation changes completely. What emerges is that the high point per year is about 750 IPOs in the United States but the total amount of money raised in those IPOs is much higher. The size of the average IPO is increasing. The higher the volume of the IPOs, the greater the pay out for the pension fund, the more the pension fund is likely to reinvest and that is what is trying to be achieved. This is why the argument for a Pan European NASDAQ is important because this money has to be recycled and flow back into the venture business.

*Figure 8* **Estimated "Capital Market Line" for QED Survey Results By Stages and Sectors** (Adjusted Data)

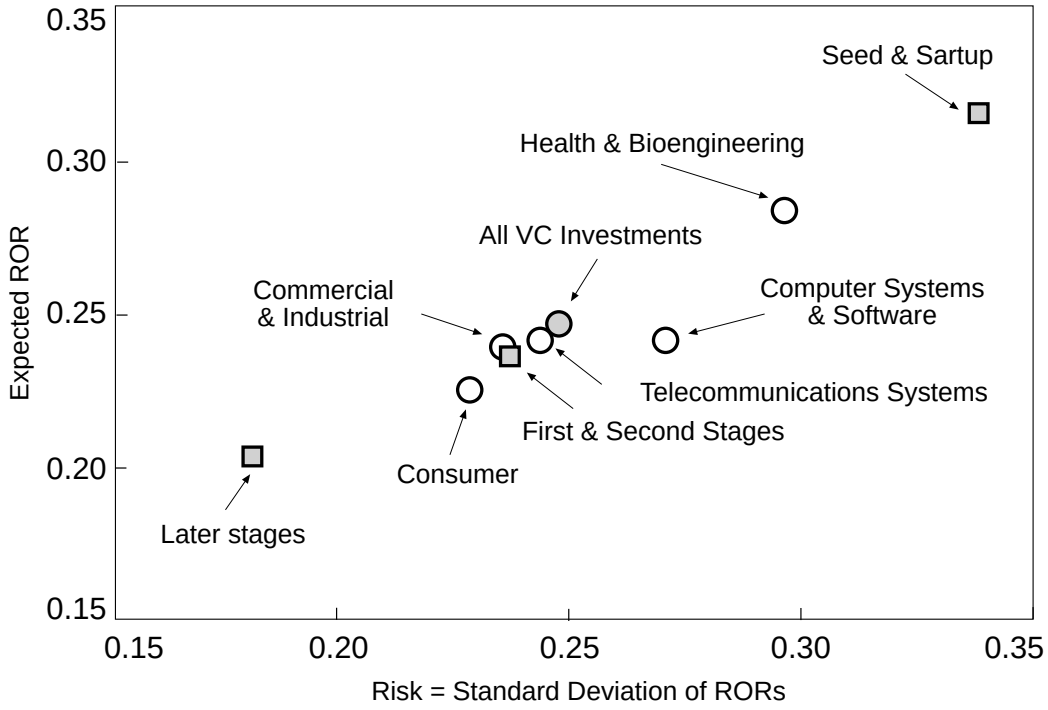
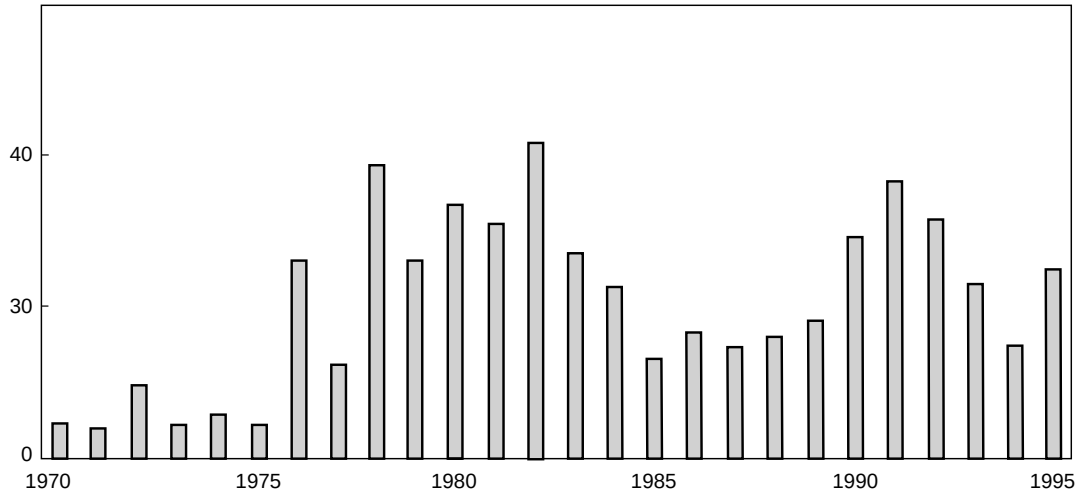



*Figure 9* **Venture Backed IPOs**
(percentage of total proceeds; 1975-95 through June))




*Source:* Securities Data Corp.

This gets directly to the demand side. Entrepreneurs must understand that investors are looking for the best deal in the market. Not every company will attain the success of Microsoft but we should always be trying to build such successful companies. An entrepreneur must tell himself they must be highly profitable and become an industry-dominant company; they must want to go public in order to get a high price-earnings multiple; and they need to do it in five to eight years. This is a daunting task for most entrepreneurs. However, most people who say they want to start a company are really voicing the opinion that they do not want to work for a large company anymore they want to be independent, or they have other motives. This is what they need to do if they want to get serious venture capital investments flowing in. This is part of a screening and selection process. The management team has to have a demonstrable track record. The product has to be proprietary with a sustainable competitive advantage. This is why the pay-off and the high interest in technology-based activity is so high because the uniqueness and the protectability of the product is important, and the fundamental rule here is to always aim for large markets.

At the moment the United States has the benefit of being the largest market with the fewest legal and interstate barriers. There is the same opportunity in Europe, which has roughly a market size equal to the United States, if it could solve some of its Pan-European problems. These problems need to be resolved to avoid the vastly different circumstances from country to country. For example, EXABITE is a company that was a product of the mid-1980s and in June of 1994 an investment of several million dollars was made in this company by a particular venture fund. At the initial public offering, the value of its investment was US$ 207 million dollars from a very small base. This represented a tremendous return on investment, a increase in liquid wealth, and a increase in the realisation of a basic technology.

In the post-IPO stage, the company was characterised by strong price performance. It was at this time that it went public and the stock price rose sharply. The advantage of being out of the public market is that one will receive approximately the share market value for one's shares. In contrast the difficulty of being in the public market is that one only received approximately the fair market value for the shares. The problem is that a value judgement is made on this information which can affect the entrepreneur's ability at the margin to raise more money. Thus whilst there is a coharvest and exit, the company is being launched into a market in which it can raise more money. It is necessary to realise that the price at which that money is raised is determined by that market. This is why there is another kind of function for the venture capital fund: to make private investments in public entities because of the fact that when many of these companies go public, they suffer a decline in their market price.

If these firms entered the market with another public issue they would have to sell at the lower price. They can make private placements at better prices and at better terms with venture capital organisations and this is becoming an opportunity for the venture business. Another example of recent performance is NETSCAPE which has had a exponential price performance since August 1995, as a NASDAQ firm. The Redhook Brewing Co., a brewery and public company, is yet another example. Despite early difficulties, the current price is higher than the price at which they became public.

Not every firm goes public, as illustrated by the so-called "living dead" firms, many of which end up being bought by larger corporations. There seems to be a counter-cyclical relationship between the IPO market and the mergers and acquisition market. If, for example, the IPO market is underperforming or the firm does not meet criteria, it is probable that the investor will liquidate and sell to another company. The valuations obtained from selling to other companies are then lower than in IPO market. In recent years some companies have registered to go public and have negotiated with other companies. They have gone close to selling and then have made a choice between one or the other. People are now beginning to use both of these markets one against the other. This is a positive development and ties in with the comments made earlier about research and development in large corporations now being subjected to greater return scrutiny. Many of these large corporations are willing to let others carry out the R&D while making

investments in those companies or they will buy the companies. This is yet another positive step for emerging companies. Young companies trying to raise money need to have a source of harvest, need to have a source of exit and the fact that large corporations are willing to buy them and invest in them is very positive.

**Role of governments and scope for policy**

What should government do? First and foremost governments should provide good governance for businesses of all sizes without favouring one particular group. They need to focus on entrepreneurship, whether in larger or smaller companies, and provide incentives for growth. The promotion of innovation and entrepreneurship are probably the best approaches. In the United States, given the budget reductions and fiscal constraint, the role of government is being greatly reduced. The challenge will be to maintain government activity in fundamental research as well as to improve the effectiveness of the technology transfer programmes that exist, particularly through the small business innovation research programmes.

The role of government in direct intervention is declining. The United States Small Business Administration (SBA) is under intense pressure at the moment. The small business investment company, which is sponsored by the government, has been revised but still depends upon budget appropriations for funding. The banking system is undergoing tremendous change; it is likely that within 15 years or so 85 per cent of resources will be controlled by 250 banks. There is a re-regulation of banking occurring as illustrated by the Basle Accord which has essentially driven banks out of the lending business. The 1933 law excluded banks from the investment business and they are now seeking to recover this activity. This, in addition to market concentration and the emergence of programmes to lend to small business, provides a complex, but optimistic picture for small companies going forward.

## D. TECHNOLOGY RATINGS FOR INNOVATIVE FIRMS

*Frederick A. VON DEWALL, Chairman, Technology Rating Project Group, Netherlands*

### Introduction

The focus of this paper is on the role of technology ratings in financing innovative and technology-driven firms. Recently a survey of 150 companies in the Netherlands was carried out by the Technology Rating Project Group in order to identify bottlenecks in the innovation process at the firm level. For technology driven companies, such obstacles are mainly encountered in the first or prototype stage and the stage just before entering the market. The main problems involve market aspects, development time, technical aspects and financing. This latter obstacle is particularly a problem in Europe because banks do not generally finance those type of companies. Among innovative firms, 38 per cent of them encountered a bottleneck before market entry; either in terms of the product overrunning its costs, not matching demand or entering the market after it had changed direction. Financing is a major problem for approximately the same share of firms. However, only 8 per cent considered technology a problem. Among large technological driven companies, 45 per cent considered market entry an obstacle.

Why are the bottlenecks to innovation so important? The reason is firms only look at the technology side of innovation in order to improve production process and do not focus enough on the market aspects. These bottlenecks are just as much a challenge to large companies as to smaller ones. Ratings from financial institutions help provide investors insight and information on a company's performance and financial standing. Technology ratings, on the other hand, not only rate the technology used in companies but also the managerial, organisational and commercial aspects.

Among the important Dutch companies, the concept of technology ratings has triggered interest in managers who see this as an important tool which they lack. Although certain financial institutions perform a some sort rating of technology-driven firms using their own methodology, most often they focus exclusively on technology and not the other aspects. Traditionally, financial institutions in the Netherlands served the market for small technology driven firms either because the Government provided them with incentives to do so or because it was one of their key competencies. Yet they nevertheless decided to change their approach to technology based firms. For these institutions, technology ratings were seen as enhancing the value of their services to the market and especially to small and medium-sized enterprises.

### Criteria for technology ratings

How are technology ratings carried out? The Technology Ratings Project Group considered three major factors in rating technology driven firms: 1) type of technology 2) management of innovation and 3) capacity for commercialisation. It looked at these three factors with respect to present performance and future potential. As regards the rating of specific technologies, consideration was given to its uniqueness; degree of maturity; facility of imitation; amount of intellectual property protection; and whether the

cost/price ratio was acceptable. The ratings also looked at whether the firm had sufficient knowledge of the existing or potential market for the technology. The background of the entrepreneurs and their experience in bringing new innovations to the market was reviewed. The ability of the entrepreneurial firm to undertake the technology project independently or through a joint venture was taken into account. The latter question is difficult because often the entrepreneurial firm wants to develop and commercialise the idea single-handedly and this may not always the best strategy.

The financial situation of the firm is an important part of the technology ratings because banks and other financial partners need to know that the financial aspects of the project have been examined. As regards commercialisation, an assessment is made of the target market: its size; whether its a large domestic market or a niche market; access to international markets; and the potential market share. This requires identifying potential client demand. Overall, 50 technological, organisational, managerial and financial variables are considered in the technology ratings criteria. Out of the first four firms rated, three received good ratings while the other had disappointing results. The latter one did not obtain any investment. Although the other three firms still had problems finding capital investment, they succeeded in obtaining funding from banks and finance companies based on their good technology ratings. The overall result was indicative of a positive response from the market, not only from the financial institutions but also from the companies themselves.

This first experience has helped the Technology Ratings Project Group further develop the methodology for technology based projects. For example, a rating of 7 to a technology project means its is comparable to other types of innovation in the same or similar markets. Each technology ratings report includes detailed assessment of the 50 aspects which provides banks with a performance criteria and information on how it can be improved. Entrepreneurs that receive a rating will improve their chances in obtaining co-operation and financing from large banks. In this way, technology project ratings have a real potential to act as a bridge between innovators and financial markets.

With regards to the commercialisation phase, much of the funding comes from external sources, particularly banks. Firms that have effective management and innovative projects, and a good investment rating attract a wider group of venture capitalists. For the banks, this allows them to increase their share in small and medium-sized enterprises, in both high and lower technology markets. The access to technology rankings lowers the bank's overhead as it doesn't have to resort to in-house engineers to evaluate a firm and its technological project. This can bring benefits to government as well, by reducing the risk in government subsidies and financing for innovation. For entrepreneurs, the ratings also reduces risk in so far as it allows them to chose one or two ideas that are the most promising.

The role of government in financing innovation is to change the risk structure. However, once the idea has been developed and achieved a good technology rating, the rest should be market driven. The concept is quite simple: the company pays for a rating, seeks support from the banks, and its progress is occasionally rated again as banks and private investors are constantly looking at the firm's performance. Ultimately, the experience gained in performing the technology ratings has allowed the Technology Ratings Project Group to reach out to companies, look at the accounts, talk to all the important staff, not just senior management and get a better picture of the risks involved and the firm's potential for developing and commercialising a technological innovation.

## E. STIMULATING 'BUSINESS ANGELS'

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### Introduction

The technology-based small and medium-sized enterprise (SME) evolves through a succession of stages of corporate growth, with each stage having different financial needs in terms of the type and amount of capital required (Bruno and Tyebjee, 1984; Roberts, 1990; 1991; Mason and Harrison, 1994a). Four stages can be identified through which the growing firm is likely to pass (Roberts, 1990; 1991). The *pre-start-up*, or *R&D*, stage involves attempts to determine the commercial applicability of the proposed product or service. At this stage few resources are generally required. The founder or founding team are often still in full-time employment in another organisation and typically undertake the R&D either in their employer's laboratory or in their spare time at home.

The *start-up* stage involves the development of the initial product, demonstration of its commercial viability, initial marketing and securing the first sales. At this stage the firm has significant financial needs, for example, to pay salaries to technical personnel, to purchase equipment and for working capital but has little or no collateral available. At the *initial growth* stage the company has completed development of the product line, is experiencing growing sales and is operating profitably. However, profits are insufficient to meet the expanding working capital requirements or to finance the purchase of plant and equipment and the recruitment of key staff in various functional areas in order to expand. In addition, at this stage the company is beginning to develop its second and subsequent products. A company which reaches the *sustained growth* stage will be growing rapidly. It has a variety of customers and a range of products and services. Profits and cash flows are sufficient to meet the majority of the firm's needs but new commercial opportunities are continually being presented. The pursuit of these opportunities will require additional, external finance.

There is considerable evidence to suggest that the availability and cost of finance, especially at start-up and early growth, represents the most important constraint facing technology-based firms (Moore, 1994; Oakey, 1995)[1]. There are several reasons for this (Storey, 1994; Moore, 1994). First, they are likely to be attempting to introduce products and processes which are new to, and untested in, the market place. Second, the assets are often intangible and vested in the founder or founding team and the research and development effort. This means there is little or no residual value available to creditors and investors. Third, such firms are likely to be in industries in which technologies are developing rapidly, making existing technologies obsolete very quickly. Fourth, as technology-based firms tend to be founded on the basis of a single product, periods of financial stress are likely to recur because of the cyclical nature of revenue and lumpy profits, with periods of increased R&D expenditure coinciding with periods of declining sales of the firm's established product (Oakey, 1984). Fifth, technology-based firms are often founded by people with strong technical skills but weak business skills.

For the majority of technology-based firms the initial stages of development will have modest financial requirements which can be met by the personal savings of the entrepreneur or entrepreneurial team, sometimes supplemented by family and friends. However, these sources of finance are likely to be quickly exhausted by firms which seek to expand, not least because of the limited savings of entrepreneurs in their thirties which is the typical 'age launch window'. Thus, many businesses will require finance from external sources if they are to grow, or at least to grow on a solid financial foundation.

Banks are the most frequently considered source of finance by technology-based firms at start-up (Moore, 1994). However, banks are, in fact, generally more reluctant to provide finance to technology-based firms than start-ups in conventional sectors (Moore, 1994). First, because banks are technology generalists rather than specialists they will have difficulty in assessing the technology, and so have problems in distinguishing between good and bad lending propositions (Vyakarnam and Jacobs, 1991; Philpott, 1994). Risk aversion in such circumstances will lead to 'type 1 errors' where propositions which would subsequently prove to be successful are rejected (Philpott, 1994). Second, technology-based firms are less likely to be able to provide collateral. Because technology-based firms often require an extensive pre-start-up period in which the product is developed and modified and prototypes are tested, the available personal assets of the founder or founding team are more likely than in the case of a start-up in a conventional sector to have been exhausted. In addition, the business assets of a technology-based firm are likely to be intangible, in the form of R&D outputs and therefore not in an appropriate form to be used as collateral. In any case, it is rare for business assets to be used for collateral (except in the case of business premises); banks normally require personal assets to be provided as collateral.[2] [3]Third, once technology-based firms are established, they are likely to have periods of negative cash flow as they seek to develop replacement products (Oakey, 1984), threatening their ability to service debt repayments. The consequence is that many technology-based firms will require external sources of equity finance if they are to grow.

However, it must be acknowledged that technology-based firms do not constitute a single homogeneous group with comparable needs and prospects. The need for equity finance is likely to be confined to what Standeven (1993) calls 'growth-oriented technology-based firms' and 'super-growth technology-based firms'. Financing requirements also vary by sector (Roberts, 1991; Oakey, 1995). In other cases the entrepreneur or entrepreneurial team will not seek outside equity because they wish to retain maximum ownership and control and so will either adopt 'bootstrapping' financing techniques or else will adopt strategies that minimise their need for finance, for example, by rendering services rather than providing hardware, contracting out production and undertaking custom-oriented development and production for major customers for which they receive stage payments (Roberts, 1991).

**The role of venture capital in the financing of technology-based firms**

The common perception is that institutional venture capital funds provide the main source of seed, start-up and early stage finance for technology-based firms seeking external sources of equity capital. The reality however, is very different.

First, very few companies are capable of meeting the very strict investment criteria of venture capital funds. The potential to generate a high rate of return is essential: targets of 50 per cent per annum for start-ups and 30 per cent per annum for established businesses are typical. Companies must also have a product which has a clear competitive advantage and have the main elements of a management team in place. As a result of the careful screening and selectivity of the proposals they receive, venture capital funds invest in only a small proportion of the companies that approach them for finance. Dixon (1989) notes from a survey of 30 London-based funds that just 3.4 per cent of proposals received investment:

75.5 per cent of funding proposals were rejected at the initial screening stage and a further 21 per cent were rejected or withdrawn during the due diligence process. Another United Kingdom study suggests that one in 50 or 60 proposals receives funding (Sweeting, 1991). In one United States study it was reported that on average less than 2 per cent of requests for venture capital financing received a favourable response while nearly half of all funds invested in less than 1 per cent of the proposals received (Maier and Walker, 1987).

Second, few venture capital funds specialise in start-up and early stage financing, preferring instead later stage investments in established businesses and management/ leveraged buyouts (MBOs and LBOs) and management buy-ins (MBIs). In the United Kingdom, MBOs/MBIs have accounted for over 60 per cent of the finance invested in recent years (89 per cent in 1994) whereas investments in start-ups and early stage businesses account for less than 10 per cent of investments by value (BVCA, annually). Indeed, in 1993 the United Kingdom venture capital industry contained only 16 specialist early stage equity providers, and they are of marginal significance in the overall context of the industry (Murray, 1993). This number has declined since then following the failure of some of these funds to raise further finance. A similar situation prevails in the United States where in recent years start-ups have comprised only about 10 per cent of the companies which have received financing and just 9 per cent of the total capital invested. By contrast, expansions, LBOs and acquisition financing account for over half of all investments and about two-thirds of the dollars invested (Bygrave and Timmons, 1992).

Third, with the exception of the United States, where venture capital funds still show an affinity for 'high-tech' sectors, venture capital funds have exhibited a reluctance to invest in technology-based firms. Indeed, since the mid-1980s technology investments has become a specialist activity undertaken by a minority of venture capitalists in the United Kingdom. The proportion of investments by United States venture capital firms in technology-related sectors is three times greater than that of United Kingdom funds (even after excluding management buyouts). United States venture capital firms also tend to invest at an earlier stage in the development of their investee companies (Murray and Lott, 1995). Murray and Lott (1995) suggest that United Kingdom venture capital funds perceive technology investments to be more risky than available later stage alternative proposals. This, in turn, is expressed in more rigorous selection criteria for technology-related projects compared with non-technology projects (e.g. increases in IRRs; demonstration of a supra-national market potential), with a particular reflection in the higher prices imposed for their equity participation.

Fourth, few venture capital funds are willing to make investments of under £ 250 000. The average size of venture capital investments in the United Kingdom in recent years has been around £ 1 million. This reflects the appraisal and monitoring which must precede and accompany venture capital investments which are a significant fixed cost element regardless of the size of investment and which makes it uneconomic to make small investments. It is also more costly to manage a portfolio comprising a large number of small investments.

These trends away from small investments in start-up and early stage businesses and in technology-based sectors are not confined to the United Kingdom. For example, similar trends are apparent in continental Europe and Canada (MacDonald, 1991; Standeven, 1993) and to a certain extent in the United States (Bygrave and Timmons, 1992). Bygrave and Timmons (1992) attribute these developments to the displacement of 'classic' venture capital by 'merchant capital' funds. Classic venture capital is concerned with early stage investments and involves skills that add value in company forming, building and harvesting; merchant capital funds, on the other hand, are almost entirely dependent upon institutional investors, emphasise financial engineering know-how, transaction crafting and closing and fee generation, and are obsessed with short-term gains. Whereas classic venture capital is still prominent in the United States, particularly in Silicon Valley and Boston's Route 128, it comprises only a very small

proportion of venture capital activity in other countries (Bygrave and Timmons, 1992). Governments have created public sector venture capital funds in an attempt to fill this gap, but their impact has generally been on a small scale (Mason and Harrison, 1995a). Moreover, critics suggest that public sector venture capital funds have a number of weaknesses which limit their effectiveness and introduce distortions into the market (Florida and Kenney, 1988; Standeven, 1993).

**The informal venture capital market: an overview**

Of much greater significance as a source of equity finance for SMEs in general, and for technology based firms (TBFs) in particular, is the informal venture capital market. Its importance has been underlined by a study in the United Kingdom Cabinet Office's Advisory Committee on Science and Technology on barriers to growth of technology-based SMEs which concluded that "an active informal venture capital market is a pre-requisite for a vigorous enterprise economy" (ACOST, 1990, p.41).

The informal venture capital market comprises private investors -- alternatively termed private venture capitalists but more commonly referred to as 'business angels' -- who provide equity and near-equity capital *directly* to new and growing businesses in which they have no family connection. Informal venture capital appears to be an international phenomenon, having been identified by researchers in the United States, Canada, United Kingdom, Sweden, Finland and the Netherlands (and research is currently underway in Australia) with anecdotal evidence strongly suggesting the existence of an informal venture capital market in many other countries, including those in Eastern Europe.

The study of informal venture capital activity was pioneered during the early 1980s by Professor William E. Wetzel Jr at the University of New Hampshire, in the United States (Wetzel, 1981; 1983). Our current understanding of the informal venture capital market derives primarily from the following studies (see Mason and Harrison, 1995a; 1995b for an overview):

> Studies in the United States by Wetzel and his colleagues (e.g. Wetzel, 1981; 1983; Freear *et al*, 1994; 1995), United States Small Business Administration-sponsored studies (e.g. Haar *et al*, 1988; Gaston, 1989a).
>
> Research in Canada by Riding and colleagues (e.g. Riding and Short, 1987a; 1987b; Short and Riding, 1989; Riding *et al*, 1993).
>
> Studies in the United Kingdom by Mason and Harrison (e.g. Harrison and Mason, 1992a; Mason and Harrison, 1994b; 1996a).
>
> One-off country studies in Sweden (Landström, 1993), Finland (Suomi and Lumme, 1995) and the Netherlands (Schuit and van Wijk, 1994).

Nevertheless, the amount of research that has been undertaken on the informal venture capital market is considerably less than expected, given its significance as a source of finance for SMEs.

**Investor profile**

These studies are remarkably consistent in their findings. Business angels are almost exclusively male and mostly in middle age (40-65 years old). They are highly educated, typically at least to first (bachelors) degree level and generally in business or engineering disciplines. The vast majority are experienced in business: many are successful entrepreneurs, having started, developed and, in some cases, sold one or more businesses; others are high income business professionals (e.g. accountants, consultants, lawyers)

and senior executives in large companies (often with a 'golden handshake'). Informal investors have a high net worth (although relatively few are in the 'super rich' category) and in view of their entrepreneurial and business background it can be assumed that most are financially self-made.

Many business angels invest as part of a syndicate which typically comprise friends and business associates, and which allows businesses to raise larger amounts of finance than would be committed by an individual investor alone. Often there is a key individual -- an 'archangel' -- who brings the syndicate together by referring the deal to friends, business associates or relatives. Syndicated investments are much more common in the United States than in the United Kingdom (Harrison and Mason, 1992a).

**Approach to investing**

Most business angels have a fair degree of financial sophistication, and many are experienced investors (e.g. on the Stock Market) and so are capable of evaluating the merits and risks of prospective investments (Wetzel, 1987). They act independently, confident in their own ability to make good decisions, and rely more on instincts than on formal research. This approach to investing has three important implications. First, because business angels are only responsible to themselves and have no need to refer decisions to others for approval, combined with their more limited 'due diligence', they have a short decision cycle. Their investment decision is normally made in weeks rather than months, and is sometimes made in days. Second, business angels require less formal investment documents, which keeps the costs down for the entrepreneur. Third, they often make their investments in sectors where they have had experience.

Business angels are fairly patient investors. Just under half of United Kingdom investors were prepared to hold their investments for more than five years or had no specific holding period in mind (Mason and Harrison, 1994b). United Kingdom investors are rather less patient than United States business angels (Harrison and Mason, 1992a). Relatively few business angels have a clear idea of how they will exit from their investments.

Business angels normally do not want a controlling interest in their investee companies. In only a small minority of investments does the business angel take a majority stake. It is more common in syndicated deals, which typically involve larger investment sizes, for the investor group to take a majority shareholding. However, larger deals are often structured in a way that allows the founding shareholders to regain majority control if the business meets performance targets (Mason and Harrison, 1996a).

**Sources of investment opportunities**

Informal networks of trusted friends and business associates are of overwhelming importance as the main information channels through which business angels identify investment opportunities. Business angels are also more likely to invest in opportunities that come from these sources. Some angels have also identified investment opportunities through their own personal search. Of the formal referral sources, accountants are the most frequent source of information on investment opportunities. However, investments are less likely to result from the referrals provided by this source. Bankers, lawyers and stockbrokers are much less frequent sources of information on investment opportunities, although a high proportion of the referrals from such sources result in investments.

**Motives**

Business angels typically allocate only a relatively small proportion of their wealth to their informal investments. Thus, it will not seriously affect their lifestyle if they lose their money. Equally, they are sufficiently wealthy so as not to *need* the returns from a successful investment. However, they gain personal satisfaction and excitement in seeing their judgement vindicated by the success of their investee companies and in being involved with an entrepreneurial business by helping it to get started and grow. For this reason some business angels have described their informal venture capital investments as 'fun money' or 'casino money' and some commentators have suggested that business angels are best thought of as a 'recreational investors' (Baty, 1991). However, it must be emphasised that business angels are not philanthropists. Business angels are motivated first and foremost by the opportunity for high capital appreciation. United Kingdom business angels are seeking an average return on investment of 30 per cent and upwards for start-ups and early stage investments and about 20 per cent for investments in established businesses (Mason and Harrison, 1994b). These rates of return are slightly higher than those sought by United States business angels.[4]

However, non-financial considerations -- or 'hot buttons' (Wetzel, 1981) -- also play an important role in the decision to invest. In the United Kingdom, the second most frequently cited reason for making informal investments (after capital appreciation) was the opportunity to play a role in the entrepreneurial process (Mason and Harrison, 1994b). Many investors are also motivated, in part, by the fun of making informal investments. Other studies have noted that some investors will invest in businesses because of their interest in a particular technology, or perhaps because it will produce socially useful products or again, because of the economic benefits it might bring to their community. Other investors are motivated, in part, by a feeling that, having been successful in business themselves they have an obligation to give something back to the system that allowed them to prosper by assisting the next generation of entrepreneurs (Wetzel, 1981; Baty, 1991).

**Investment criteria**

The 'typical' business angel is a relatively infrequent investor, making no more than one investment a year, although a small minority of investors are considerably more active, making three or more investments a year. The key factors which business angels take into account when evaluating an investment opportunity are the management team, growth potential of the market and uniqueness of the product or service (Mason and Harrison, 1994b; Mason and Rogers, 1995). Business angels reject the vast majority of the investment opportunities that they consider: United Kingdom business angels invest in an average of just 8 per cent of the opportunities that they seriously consider (i.e. that get past the initial screening stage). The most common reasons why business angels reject investment proposals are associated with perceived weaknesses in the entrepreneur/ management team, limited growth prospects for the firm and limited market for the firm's product/service. A flawed or incomplete marketing strategy and unrealistic or incomplete financial projections are also significant 'deal killers' (Mason and Harrison, 1996b).

**Investment activity in the informal venture capital market**

Activity in the informal venture capital market is largely invisible. Business angels are not listed in any directories, there are no public records of their investments and many have a passion for anonymity (Wetzel, 1981; 1987). They are also reluctant to respond to research surveys because of the private and personal nature of the subject matter and the fear of being identified and then deluged with investment

proposals (Haar *et al*, 1988). Because of this, accurate information on the size and characteristics of the informal venture capital market is unattainable. Evidence on investment activity is therefore based on various sample surveys which cannot be tested for their representatives.

**Market size**

Research in the United States indicates that the informal venture capital market is the largest single source of risk capital for entrepreneurial companies, substantially dwarfing the institutional venture capital industry. Wetzel and Freear (1996) note that in the United States the scale of the informal venture capital market is at least five times that of the institutional venture capital market in terms of dollars invested annually and is at least twenty times larger in terms of the number of ventures financed. Gaston (1989a; 1989b) provides an alternative estimate: he suggests that informal investors provide capital to over 40 times the number of firms receiving investments from professional venture capital funds, and the amount of their investments almost exceeds all other sources of external equity capital for new and growing small businesses combined. Estimates for the United Kingdom suggest that SMEs have raised about £ 2 billion from the informal venture capital market (Harrison and Mason, 1993). Other studies have suggested that this estimate is too low (Stevenson and Coveney, 1994). By comparison, Bannock (1991) estimates that the formal venture capital industry has some £ 1.25 billion invested in SMEs in the United Kingdom, suggesting that the informal venture capital market is at least twice as important to the SME sector as formal venture capital.

In terms of international comparisons, it seems probable that the development of the informal venture capital market parallels that of the institutional venture capital market, being most developed in the United States. Various commentaries accept that the size of the United Kingdom's informal venture capital pool is significantly smaller than that in the United States (ACOST, 1990; Bannock, 1991). However, it would appear that informal venture capital activity is more developed in the United Kingdom than elsewhere in Europe.[5]

**Investment focus**

Business angels invest in precisely those areas in which institutional venture capital providers are reluctant to invest. First, business angels invest in a wide range of industrial sectors. Gaston (1989a) noted that in the United States no industry group attracted more than one in five informal investments. A similar pattern is evident in the United Kingdom where informal investors also make investments in virtually all industrial sectors (Mason and Harrison, 1994b). Gaston (1989a) further reports that 13 per cent of United States angels had invested in high technology manufacturing and that 6 per cent had invested exclusively in high-tech companies. However, the interest amongst United States business angels in investing in high technology businesses is much higher than these figures might suggest, with nearly one-quarter of business angels reporting a strong interest in investing in such ventures (Gaston, 1989a).

In regions where 'high-tech' industry is prominent, informal investors express an even stronger preference for investing in technology-based ventures: 64 per cent of business angels in New England and 71 per cent in California reported a strong interest in investing in high technology manufacturing ventures (Wetzel, 1981; Tymes and Krasner, 1983). In the United Kingdom investments in 'high-tech' manufacturing firms also account for only a minority of all investments by business angels: in one study 'high-tech' manufacturing firms accounted for 15 per cent of all investments, although 37 per cent of all investments were in technology-based ventures (Mason and Harrison, 1994b).[6] There is a close association between the industrial background of business angels and the types of investments that they

make, particularly in the case of 'high-tech' angels. For example, a Canadian study of informal venture capital activity found that two-thirds of business angels who were entrepreneurs invested in the same industry as the company that they had founded, and *all* of the angels who had founded technology-based companies made investments in technology companies (MacDonald, 1991).

Second, investments by private investors occur across all financing stages but are concentrated in start-ups and early stage ventures. Roberts (1990, p. 92) observes that in the case of TBFs 'informal investors, or angels, are far more likely to provide initial funds than are venture capital companies'. This is confirmed by Freear and Wetzel's (1990) study of new TBFs in New England which found that private investors outnumbered venture capital funds by two-to-one at seed and start-up stages but their role declined in subsequent stages. Private individuals were also dominant where financing rounds were under US$ 500 000 but their role diminished quite rapidly, relative to venture capitalists, in financing rounds of over US$ 500 000.

This evidence suggests that business angels and professionally-managed venture capital firms appear to play *complementary* roles in the financing of technology-based firms in terms of both size and stage of investment. Other United States research, including studies of the financing history of venture capital-backed firms, has provided additional support for the notion that the informal and formal venture capital industries play complementary roles in the financing of SMEs (Wetzel and Wilson, 1985; Freear and Wetzel, 1989). Timmons and Sapienza (1992) develop this point by means of a baseball metaphor, referring to business angels as the 'farm system' for the institutional venture capital industry; they provide the seed and start-up finance and hands-on assistance to enable TBFs to grow to the stage where they might be of interest to venture capital firms which are increasingly concentrating their activities on later stage investments. The clear implication is that a healthy informal venture capital market is required for the institutional venture capital industry to thrive.

However, whether this complementary relationship extends beyond the United States remains a moot point. First, United States business angels are more likely than their United Kingdom counterparts to finance start-ups (Gaston, 1989a; Mason and Harrison, 1994b). Second, research which has attempted to replicate the Freear and Wetzel (1990) study for the United Kingdom has been unable to find any evidence that this complementary relationship between the informal and institutional venture capital markets exists (Mason and Harrison, 1994a). Neither business angels nor venture capital funds appear to play a prominent role in the financing of 'high tech' firms in the United Kingdom. The vast majority of firms had not raised any outside equity either at start-up or subsequently. More firms had actually raised finance from the institutional venture capital industry than from private investors. Moreover, although business angels invested smaller amounts than venture capital firms, there was no evidence for the complementary relationship that has been identified in the United States; indeed, business angels did not dominate in the supply of small amounts of venture capital nor were they the most common source of finance at seed and start-up stages.

Third, business angels typically make small investments, well below the minimum size of investment considered by most venture capital funds. In the United Kingdom the size distribution of investments by business angels is bi-modal: the majority of business angels invest less than £ 50 000 in a single deal but there is also a small but significant group of them who are willing to invest in excess of £ 100 000 in a single investment. Deals involving investments that are syndicated between a number of investors also tend to be larger (Mason and Harrison, 1994b). In the United States the average investment per business angel is about US$ 60 000; however, because most deals involve more than one investor the average size of informal investment is about US$ 177 000 (Gaston, 1989a).

Evidence from the United Kingdom (Mason and Harrison, 1996a) indicates that investments involve a variety of funding mechanisms. The majority involve equity finance; however, business angel investments may also involve loans (generally unsecured), guarantees and debt-equity arrangements, either alongside equity finance or on their own. Equity investments typically involve straightforward financing instruments (ordinary shares). More complex instruments (e.g. types of preference shares) are relatively unusual, except in large investments. In about one-quarter of cases the business angel (or syndicate) provides follow-on finance.

**Value-added contribution**

Informal venture capital is 'smart money'. Business angels are value-added investors, contributing their commercial skills, entrepreneurial experience, business know how and contacts through a variety of hands-on roles. Business angels will normally take a seat on the board and, in addition, will often provide consulting help and may even work part-time or full-time for the business. One study of firms that had raised finance from informal investors (Harrison and Mason, 1992b) identified a wide range of support, monitoring and strategic roles played by business angels in their investee companies. Entrepreneurs regarded the business angels' role as a sounding board for the management team as being their most valuable 'hands on' contribution. As noted above, the opportunity to be involved in an entrepreneurial venture is a significant motivating factor for business angels making informal venture capital investments, as well as a means of protecting their investment. Despite the potential for inter-personal conflicts to arise, the evidence suggests that in most cases investors and entrepreneurs have consensual and productive relationships (Mason and Harrison, 1996a).

Although the contributions that informal investors make to the companies in which they invest are similar to those of venture capital fund managers there are also some important distinctions in terms of the value-added benefits they bring. Harrison and Mason (1992b) note that whereas venture capitalists make a greater contribution in the areas of monitoring and control, informal investors make a greater contribution to strategy and market development. [7]

**Geographical characteristics**

Business angels are much more geographically dispersed than venture capital funds. Gaston (1989a) suggests that angels live virtually everywhere, although in view of their entrepreneurial backgrounds they are likely to be most numerous in regions with a large SME sector. United Kingdom evidence indicates that business angels are found throughout the country although, as might be anticipated, are over-represented in the south (Mason and Harrison, 1994b) and have invested larger amounts (£ 35 000 compared with £ 19 000 in the three years preceding the survey). Business angels who invest in TBFs are likely to be spatially concentrated in 'high-tech' regions.

Investments by business angels are characterised by a high level of geographic localisation. Regardless of country, a majority of all such investments are made in firms located within 50 -- 100 miles of the investor's home or office. This is largely a reflection of the 'hands on' nature of such investments, although is also a function of superior information available about investment opportunities close to home. Thus, from a regional development perspective informal investments are valuable because they help to retain and re-circulate wealth *within* a region, counteracting the effect of most investment mechanisms (e.g. banks, insurance companies, pension funds) which act as a conduit through which personal savings flow out of peripheral regions to the nation's financial centres for investment in core regions and abroad.

**The potential for expansion**

The potential scale of the informal venture capital market is considerably greater than the evidence on market size suggests. First, a number of research studies confirm that most business angels cannot find sufficient investment opportunities that meet their criteria and so have substantial amounts of finance available for informal investments. A survey of informal investors in the United Kingdom found that three-quarters would have invested more in the previous three years if they had come across a greater number of suitable investment opportunities. In aggregate, the sample of informal investors had up to £ 10 million available for investment, equivalent to three times the total amount that they had invested during the previous three years (Mason and Harrison, 1994b). In the United States, Gaston (1989a) found that 54 per cent of investors wanted to invest more than the volume of opportunities permitted. The surplus funds of these investors was 51 per cent more than they had invested; averaged over all investors the amount of uncommitted finance was 35 per cent more than they had invested.

Second, potential angels (sometimes termed 'virgin angels') -- individuals with the same self-made, high net worth characteristics as active angels but who have not, for whatever reason, entered the informal venture capital market as individual investors -- considerably outnumber active investors. Wetzel and Freear (1996) suggest that there may be up to ten times as many potential angels as active angels. Riding *et al* (1993) estimate that there are approximately 100 000 potential informal investors in Canada, of which fewer than 3 per cent are active. If just half of the potential investors were active in any one year, the informal venture capital market would supply more than ten times the annual investment of the formal venture capital industry.

Research by Freear *et al* (1994) in New England indicates that with the right enticements over half of all potential angels could become active investors in entrepreneurial ventures. A small-scale survey of potential angels in the United Kingdom indicates that their inability to identify firms which require finance is the main reason why they have never invested in entrepreneurial companies. Other factors include the high risks involved, concerns about exit routes and their lack of expertise to appraise investment opportunities (Mason and Harrison, 1993). The unacceptable risks and a lack of tax benefits have also been highlighted as reasons why potential investors are not active in the informal venture capital market (KPMG, 1992).

Four factors therefore seem relevant in seeking to convert potential angels into active investors (Mason and Harrison, 1993). First, potential angels would be prepared to invest in companies where they knew the management team personally. Second, potential angels might be willing to invest if they received information from a trustworthy source on companies which wish to raise finance. Tax incentives -- notably a reduction in capital gains tax -- is a third factor that might encourage potential angels to invest (KPMG, 1992; Freear *et al*, 1994). Finally, United States evidence indicates that opportunities to participate with other, more experienced, investors was seen by potential angels as a major inducement to becoming active (Freear *et al*, 1994). In contrast, potential angels in the United Kingdom were not influenced by this consideration, a finding that is consistent with the much lower levels of syndication of investments reported by active informal investors in the United Kingdom compared with their United States counterparts (Harrison and Mason, 1992a).

**Strategies to promote informal venture capital activity**

It is clear from this review that the informal venture capital market plays an important role in the financing of SMEs. It represents the largest single source of external equity finance for SMEs, dwarfing the institutional venture capital industry. Moreover, informal investors typically make smaller investments than venture capital firms, their investments are weighted towards new and recently established businesses and they make a significant value-added contribution to their investee businesses. Thus, the informal and formal venture capital industries can be thought of as playing complementary roles, with angels increasingly dominating 'classic' venture capital activity (Bygrave and Timmons, 1992). Thus, as the United Kingdom Cabinet Office's Advisory Committee on Science and Technology (ACOST) noted, the under-development of the informal venture capital market "is a major gap in the spectrum of funds for smaller companies and a major barrier contribution to barriers to growth" (ACOST, 1990, p.39). In this final section we outline a multi-faceted approach to stimulate the informal venture capital market, comprising the following elements:

- networking strategies;
- tax strategies;
- securities legislation;
- awareness raising and education.

**Business angel networks**

The informal venture capital market is characterised by inefficiencies which limit its potential role in financing SMEs. It was noted earlier in the paper that most business angels want to invest more but cannot find sufficient investment opportunities that meet their investment criteria. But at the same time, entrepreneurs seeking sources of equity capital express frustration at their inability to identify business angels. This situation reflects the lack of effective channels for business angels and entrepreneurs to make contact with one another. Because of the considerable time required to search for, and appraise, investment opportunities and the fact that for most investors it is a spare-time activity they generally adopt an *ad hoc*, unscientific and passive approach, placing considerable reliance on friends and business associates for referrals. Thus, serendipity largely determines the number and quality of investment opportunities that come to an investor's attention. Studies in the United States and the United Kingdom indicate that a majority of informal investors are dissatisfied with their referral sources and believe that there is a need for improved channels of communication between investors and businesses seeking risk capital (Wetzel, 1981; Myers and Moline, 1988; Mason and Harrison, 1992).

New entrants to the informal venture capital market who have taken early retirement or redundancy, or are returning ex-patriots, or in some other way are isolated from informal referral networks, for example, due to employment background or location, are often particularly dissatisfied with the available sources of deal flow (KPMG, 1992). United Kingdom research indicates that investors in peripheral regions express the greatest dissatisfaction with their existing referral sources. Meanwhile, entrepreneurs are hampered in their search for private sources of venture capital by the anonymity which most informal investors strive to preserve. As Gaston (1989a) has observed, both the search by a business for an investor, and the search by an investor for an investment opportunity "can be expensive, time-consuming affair(s). The search is studded with pitfalls and dead ends that often result in failure and frustration". This, in turn leads him to

describe the informal venture capital market as "a giant game of hide-and-seek with everyone blindfolded" (Gaston, 1989a). Although market inefficiency is a characteristic of all countries, there is evidence to suggest that its severity is even greater outside of the United States (Harrison and Mason, 1992a).

Thus, mechanisms to overcome the sources of inefficiency in the informal venture capital market, namely the invisibility of informal investors, the fragmented nature of the market, and the high search costs for businesses seeking investors and investors seeking investment opportunities, must be central to any strategy to stimulate informal venture capital activity. The most effective approach is the establishment of business angel networks (alternatively termed business introduction services) to provide a channel of communication between informal investors and entrepreneurs seeking finance. Their objective is to enable entrepreneurs to bring their investment proposals to the attention of a number of private investors simultaneously and to provide both active and 'virgin' investors with a convenient means of identifying and examining a range of investment proposals while retaining their anonymity until they are ready to enter into negotiations with an entrepreneur. Business angel networks do not function as dealers, investment brokers or investment advisors and are not involved in any negotiations between investor and entrepreneur or in structuring the transaction.

There are examples of business angel networks in the United States, Canada and the United Kingdom (see Harrison and Mason, 1996 for case studies). At the latest count there were 37 business angel networks in the United Kingdom (BVCA, 1995). Most business angel networks are operated by public sector agencies or not-for-profit organisations, with some or all of their operating deficits met either by government or corporate sponsorship. However, some business angel networks are operated by the private sector, either as a stand-alone activity or, more commonly, as part of accountancy or corporate finance practices. In view of the preference of most business angels to make investments in businesses located close to home it is not surprising to find that most business angel networks operate on a local or regional basis.

In the United States, for example, there are various regionally-based matching services, the vast majority of which operate on a not-for-profit basis and are affiliated to universities, government or economic development agencies (e.g. chambers of commerce, small business development centres), and rely on financial support from their promoters, business sponsorship and charitable foundations. In the United Kingdom, most local business angel networks are operated by Training and Enterprise Councils and Business Links. However, there are also business angel networks that operate on a national basis. In the United Kingdom more than one-third of business angel networks operate nationally, the majority of which are private sector operations. These include *Venture Capital Report* (VCR), the largest (in terms of subscribers) and longest established (1978) business angel networks in the United Kingdom (Cary, 1995), LINC, which is a not-for-profit organisation that derives its funding from business sponsorship and is a federation of thirteen independent local enterprise agencies and local economic development organisations in various parts of the country, and two recently established networks -- the *NatWest Angels Network*, operated by the National Westminster Bank plc, and *VentureNet*, which is a subsidiary of Enterprise Support Group, a private sector business consultancy firm.

Business angel networks typically operate on the basis of publishing an investment bulletin containing descriptions of companies seeking capital which is circulated to investors registered with the network. The length of these summaries varies, ranging from 200 words to five or six pages in the case of *Venture Capital Report*. Some business angel networks also hold investor forums at which entrepreneurs seeking to raise finance make short presentations to an audience of potential investors. An approach that is widely used in the United States involves computer matching, an approach which was pioneered by *Venture Capital Network*, which was founded in 1984 at the University of New Hampshire but is now operated by the MIT Enterprise Forum and renamed *Technology Venture Network* (Wetzel and Freear, 1996; Browne

and Stowe, 1996). More than half the regionally-based business angel networks in the United States use computer matching approaches (Texas Capital Network, 1994).

Evaluations of business angel networks in the United States (Browne and Stowe, 1996), Canada (Blatt and Riding, 1996) and United Kingdom (Mason and Harrison, 1996c) covering the late 1980s and early 1990s have concluded that with few exceptions they have had a limited impact on the flow of informal venture capital. These evaluations have highlighted the limited success of business angel networks in attracting investors, achieving awareness amongst active and potential investors, entrepreneurs and professional intermediaries, and investment activity. Moreover, business angel networks have not been an important source of information on investment opportunities for investors that have used the service. A number of business angel networks have closed (Browne and Stowe, 1996; Mason and Harrison, 1996d). Browne and Stowe (1996) identify two sets of factors associated with the performance of business angel networks in the United States. Business angel networks require long-term funding for marketing in order to build a critical mass of investors and entrepreneurs and to establish credibility. However, geographical context is also important; business angel networks are most successful in, or close to, major population centres and regions with significant institutional venture capital activity and concentrations of 'high-tech' firms. Such areas contain knowledgeable investors and viable entrepreneurs.

However, more recent evaluations of the impact of business angel networks in the United Kingdom suggest that since 1992 their impact on informal venture capital activity has been much more impressive. In the case of VCR, the proportion of projects that have raised all of the finance that they sought from VCR subscribers increased from an average of 15 per cent between 1978 and 1992 to 21 per cent between 1992 and 1994 (Cary, 1995). LINC has also experienced a significant increase in the number of matches since 1991 (Mason and Harrison, 1996c). BVCA statistics on informal investment activity of the business angel networks that are listed in the 3rd edition of its annual directory of *Sources of Business Angel Capital* (BVCA, 1995a) indicates that 330 business angels invested over £ 16 million in 173 businesses in 1994-95. On a like-for-like basis the number of investments increased by 51 per cent between 1993-94 and 1994-95 and the amount invested by business angels increased by 32 per cent (BVCA, 1995b).

The growing significance of business angel networks on the flow of informal venture capital are a function of at least four factors. First, a tightening of bank lending practices in response to large losses on their small business loans during the recession, including the requirement for greater amounts of collateral, placing greater emphasis on gearing and reducing access to overdrafts (Mason and Harrison, 1996d), has forced SMEs to broaden their search for finance, and to include informal venture capital in this search. Second, there has been growing interest in, and awareness of, the informal venture capital market (e.g. in the media) which has raised the awareness of investors, entrepreneurs and the small firm support network (e.g. banks, accountants). Third, there has been an accumulation and sharing of knowledge of how to successfully operate a business angel network. For example, at least part of the improved performances of VCR and LINC can be attributed to organisational changes. Finally, networking between business angel networks, particularly between local and national business angel networks, has created a critical mass of investors and entrepreneurs, thereby improving the probability of successful matches.

The impact of business angel networks is perhaps best illustrated by the example of the United Kingdom Department of Trade and Industry's 'Informal Investment Demonstration Projects' -- five local TEC-based business angel networks that were launched in 1992-93 with finance from DTI. The operating areas of the five projects ranged from 0.5 to 1.5 million population. The final review of the projects (Mason and Harrison, 1995c) found that by the end of the three-year funding period the five projects had a total of 250 investors registered, but the cumulative total number of investors who had registered at some time over the three years was almost 350. This includes some professionals (e.g. accountants) who have registered on behalf of their clients, hence the number of investors who see the investment opportunities

exceeds the number of registered investors. In terms of the mobilisation of capital, registered investors with the five projects are estimated to have in excess of £ 25 million available for investment; moreover, this figure excludes corporate and venture capital funds registered with some of the networks and investors who have registered on behalf of their clients. The projects have promoted almost 500 investment opportunities in total. When compared with a range of benchmarks (e.g. regional venture capital funds, Midland Enterprise Funds) the performance of the demonstration projects is impressive, especially when their small geographical scale of operation is borne in mind.

The five projects have facilitated a total of 59 investments during their first three years of operation involving a direct investment of £ 2.7 million.[8 9] However, the impact of business angel networks extends well beyond these direct effects. First, facilitating an informal investment may unlock further sources of finance from banks and other investors. Although this leverage effect occurs in only a minority of investments, the additional finance considerably exceeds the amount invested by the business angel. In the case of one network which collected this information in a systematic way, every for £ 1 invested by a business angel a further £ 2 was unlocked from other sources. Second, the figures for the amount invested excludes follow-on finance. One study found that angel investors provide follow-on finance in around 25 per cent of investments and that in these cases the aggregate amount of follow-on finance was equivalent to 50 per cent of the original investment (Mason and Harrison, 1996a).

Third, some businesses registered with a business angel network raise finance indirectly from contacts made as a result of registering with the business angel network. Fourth, even if they do not succeed in raising finance, some companies nevertheless gain commercial benefits from contacts made as a result of joining a business angel network. Fifth, firms that raise finance from business angels to whom they have been introduced also benefit from the hands on involvement of these investors. Sixth, business angel networks undertake a wide range of advisory and signposting functions. Many of the businesses which enquire about registering with a business angel network are considered inappropriate for raising equity (e.g. because of the absence of a good business plan). These businesses nevertheless derive benefits from discussing their ideas with business angel network staff and being directed to more appropriate support. Seventh, businesses which are unsuccessful in raising finance nevertheless receive benefits in the form of direct feedback from speaking to investors. Finally, the five projects have raised awareness of informal venture capital amongst investors, entrepreneurs and professional intermediaries, creating the beginnings of an equity culture in their local areas.

When the overall value-added impact of business introduction services is taken into account it becomes clear that they are a worthwhile and beneficial experiment. However, all of the available evidence in North America and the United Kingdom suggests that networks cannot be operated on a full cost-recovery basis. On the cost side a business angel network requires professional staff to market the service to businesses and potential investors and to provide counselling and advice to businesses seeking to register with the service. It also requires a sizeable marketing budget to promote the service on an ongoing basis. Brown and Stowe (1996) noted in their study of business angel networks in the United States that there is a direct correlation between funding and the number of investors and entrepreneurs recruited. Few of the business angel networks had sufficient funding to allow any marketing beyond producing information brochures. However, without sufficient funding it is not possible to run an ongoing high profile marketing campaign which is necessary to maintain a flow of new investor and investment opportunities.

The main source of revenue for a business angel network is the subscription fees levied on firms and investors. However, clients are likely to be unwilling to pay more than £ 200-£ 300, thus the amount of revenue that can be generated from subscription fees is limited and insufficient to cover the full operating costs of the service. Thus, business angel networks have had to rely on government funding, or, in its absence, sponsorship from the corporate sector and their host organisations (e.g. chambers of commerce,

universities) while those in the private sector have been subsidised by the other commercial activities of their operators. Taking account of both the direct and full secondary impacts of business angel networks suggests that public sector support is justified. Indeed, the financial commitment required to support business angel networks is minuscule compared with the costs of alternative strategies for closing the equity gap. Public sector support for a business introduction services therefore gives 'a bigger bang for the buck'.

At least two other factors are also critical to the success of business angel networks (Mason and Harrison, 1996d). First, there is a need to build a critical mass of investor and entrepreneur clients. Private investors are a diverse and dispersed group who are difficult to reach through traditional marketing techniques. A business angel network is an unfamiliar concept. Like all such concepts it does not immediately sell itself and must explained, ideally on a face-to-face basis (Wetzel, 1987). Various studies indicate that when the concept of a business angel network is explained, the majority of business angels express an interest in participating (Wetzel, 1981; Riding and Short, 1987a).

Building a client base of businesses is less problematic. The challenge here is to attract *quality* business opportunities and screen businesses that are obviously bad investments since a flow of good-quality investment opportunities is essential to retain investor clients and encourage word-of-mouth recommendations. Riding *et al* (1993) therefore argue that intermediary organisations must be discriminating in the selection of investment opportunities to include. But equally they must not imply that investment opportunities have been 'vetted' to avoid breaking securities legislation. Recruiting investors and entrepreneurs to a business introduction service therefore requires energy, creativity and motivation (Wetzel and Freear, 1996). The key is to achieve high visibility and credibility in the local/regional business community, for example, by speaking engagements at all kinds of professional and civic organisations, developing networks with organisations that can be a source of high quality referrals and maximising public relations opportunities that will lead to articles in newspapers and magazines and coverage on television and radio. Inevitably this takes time to achieve.

Second, a business angel network should not rely on passive approaches to match-making. Successful match-making is a very hands-on and pro-active process: 'passive networks drop the ball just when the real work begins' (De Jordy, 1992, p.208). Many angels contend that there is a shortage of good quality investment proposals, although this may be associated, at least in part, with poor presentation by entrepreneurs. Business angel networks should therefore see part of their role as providing a comprehensive package of assistance to companies that it puts forward to investors. This should include help in the preparation of business plans and the information that is provided to potential investors, presentational skills and negotiating skills. Some businesses will also benefit from advice on how to protect intellectual property. Businesses which approach a business angel network but are judged to be inappropriate, or not yet ready, for equity investment should be given assistance to identify and find more appropriate business support services. A number of business angel networks have recognised that investors and entrepreneurs need information about the process of making investments and so run workshops designed to raise investor and entrepreneur competencies and confidence in their ability to negotiate the price and other terms and conditions of a venture investment**.**

**Tax incentives**

There is much debate about the effectiveness of tax incentives as a means of stimulating informal venture capital activity. It is a truism that informal investors make investments on their own merits rather than on the basis of tax-driven incentives (Wetzel, 1981). Many investors are explicitly opposed to tax incentives, arguing that they distort the market place (Riding *et al*, 1993). It is interesting to note that the types of incentives most favoured by Canadian informal investors relate not to measures which would improve their individual tax liability but to corporate taxes which impact on the probability of success of the venture and, in turn, on their ultimate return on investment (Riding *et al*, 1993). Nevertheless, it is important for governments to ensure that the tax treatment of equity investment in unquoted companies is no less advantageous than other forms of saving (CBI, 1993). In these circumstances the issue becomes one of the design of appropriate tax incentives.

The effect of tax incentives, such as the Business Expansion Scheme in the United Kingdom, which provided a front-end tax rebate on the amount invested, has tended to encourage passive or portfolio investors seeking tax shelters. Moreover, one of the many rules that was introduced in order to prevent abuses actually prevented investors from being 'closely connected' with their investee companies, thereby preventing hands on investment. Genuine informal venture capital investment, in contrast, involves the injection of 'know-how' as well as finance. Furthermore, the resulting investments were poorly targeted at companies in the 'equity gap'. Although the Business Expansion Scheme did have some success in enabling unquoted companies to raise equity capital from private investors (Harrison and Mason 1989), at least until it was extended to include investments in private rented housing, it was unsuccessful in directing significant amounts of finance at start-ups and technology-based businesses. Instead, much of the investment was in low-risk, asset-backed ventures. Tax incentives that require the creation of pooled funds, such as the United Kingdom's new Venture Capital Trusts, are also likely to be ineffective in stimulating a significant increase in informal investments in entrepreneurial companies. Rather, tax incentives to encourage informal venture capital activity should preserve the one-to-one relationship between investor (or investor syndicate) and entrepreneur; in this way the investor will be encouraged to provide expertise as well as genuine risk finance.

A further consideration in the design of tax incentives is that business angels earn their rewards for risk taking from capital gains (Wetzel, 1995). Thus, front-end tax incentives, such as the BES and its replacement the Enterprise Investment Scheme, are less attractive than incentives which reward risk taking in the form of capital gains tax relief. From a policy perspective it should also be noted that a tax incentive on the capital gain is less costly in terms of tax revenues foregone; by only benefiting successful investments the impact on tax revenues is a fraction of the cost of a front-end incentive. A tax on rewards also sends out more appropriate signals whereas a front-end tax relief may distort investment behaviour, encouraging investments motivated by tax shelter considerations (Wetzel, 1995).

**Securities legislation**

It is also important that investor protection legislation does not deter informal venture capital activity. The regulatory environment can add to the costs of making informal investments and raising informal venture capital in the form of legal and accountancy fees and may restrict the ability of entrepreneurs to communicate with the full range of potential investors. In the United Kingdom there is evidence that the Financial Services Act (FSA) contains sufficient ambiguity relating to the operation of formal and informal business introduction activities to dissuade professional intermediaries in particular from becoming more significantly involved in ad hoc or informal matching. Clarification of FSA requirements

in this area could do much to improve the ability of these intermediaries to act as 'archangels', putting together syndicates of informal investors from amongst their clients and contacts to invest in deals that they identify through their commercial activities, which as we have already noted, is a feature which is common in the United States informal venture capital market (Spragins, 1991). Indeed, the relative absence of this form of informal investment activity may be a significant contributory factor to the low level of syndicated deals by informal investors in the United Kingdom compared with the United States (Harrison and Mason, 1992a).

**Awareness raising and education**

Finally, networking and other initiatives require to be supported by efforts to raise awareness of informal venture capital amongst wealthy private individuals with a business background (particularly if it is in technology), entrepreneurs and professional advisers (e.g. accountants, solicitors, bankers, consultants) in order to increase both its supply and demand. This can be achieved by means of publicity and promotion of informal venture capital in the specialist financial and professional media and through appropriate business and professional associations as well as through government publicity. Of equal importance is the need to educate entrepreneurs, particularly those running businesses with growth-potential, of the risks of over-reliance on debt financing and the role of equity in the financing structure of growth businesses and guidance on how to find business angels. Outside of the United States there is a paucity of information on the informal venture capital market. Books aimed at the entrepreneur on sources of equity concentrate on the venture capital industry and say little or nothing about informal sources of venture capital, and when informal investors are mentioned the information is often inaccurate and misleading: an extreme example can be found in a recent book on starting a technology business (Allen, 1992) which emphasises the altruistic motivations of business angels, referring to them as 'philanthropists', a view which is contrary to research evidence on their investment motivations. In the United States, by contrast, informal venture capital is discussed at some length in both academic and practitioner-oriented books on new venture creation (e.g. Bygrave, 1995).

## Conclusion

It is widely agreed that the development of the SME sector is constrained by a lack of availability of small amounts of risk capital. This problem is most acute in terms of finance for TBFs. Various policy initiatives designed to increase the supply of venture capital for start-ups and TBFs have, at best, provided only a partial, and costly, solution (Mason and Harrison, 1995a). In these circumstances, encouragement of the informal venture capital market becomes an important option for policy-makers.

Research evidence from North America and Europe indicates that informal venture capital is widely available, although the scale of availability may vary, being largest in relative terms in the United States. Furthermore, the characteristics of informal investors themselves are relatively constant across countries. A key feature is the high proportion of informal investors with an entrepreneurial background: it does appear that the informal venture capital market is both stimulated by, and a mechanism for, the recirculation of entrepreneurial efforts within the economy. However, it is also clear that the informal venture capital market operates inefficiently: there is an information gap which prevents the effective use of that money, as those with capital and those in need of it are often unable to find one another. To expand the informal investment market, therefore, requires a mechanism which overcomes the high search costs incurred by investors in seeking investment opportunities and entrepreneurs in seeking private investors. The most appropriate means of achieving this objective is through the establishment of a network of locally- or regionally-based business angel networks. Providing an efficient channel of communication between business angels and entrepreneurs can help improve investment flow from both active and virgin angels.

The experience of existing business angel networks in the United Kingdom is that they can have a significant impact on the flow of informal venture capital to SMEs. Business angel networks also provide a number of collateral benefits, including business advice and counselling, access to experienced investor input to the strategic development of the business and leverage on additional sources of both equity and debt finance. Perhaps most importantly, however, is the role that business angel networks play in mobilising what would otherwise be a fragmented and invisible source of risk capital and making it accessible to small businesses, and through this raising awareness of informal venture capital amongst investors, business and professional and support networks. Indeed, the key role of business angel networks may be not the direct role of facilitating introductions and investments but the indirect, and ultimately more important, role of supporting the development of an equity culture among SMEs and an informal investment culture among cashed-out entrepreneurs and other high net worth individuals.

Nevertheless, the performance of business angel networks is variable. Their impact in stimulating the flow of informal venture capital is a function of three key factors. First, they must be well-researched. In view of the economics of operating such a service, which are unlikely to be capable of operating on a non-subsidised, for-profit basis, public sector support will be required. Second, business angel networks must devote considerable energy and creativity to the ongoing marketing of the service to potential investors and entrepreneurs. Third, they need to undertake pro-active matching, including providing training courses to teach investors the techniques for successful venture investing and entrepreneurs the techniques for successfully raising venture capital.

However, business angel networks need to operate within the context of supportive national government initiatives. First, it is important that measures are enacted to make the tax treatment of equity investment in unquoted companies no less favourable than other forms of saving and investment. The treatment of capital gains and the availability of roll-over relief for capital losses are particularly relevant in this context. Second, securities regulation should have sufficient flexibility so as not to deter informal venture

capital activity. Third, there must be ongoing attempts to raise awareness and knowledge of informal venture capital in the entrepreneurial community, for example, by media, business and professional associations, the small business support network and government.

## NOTES

[1] However, Moore (1994) presents evidence that, in the United Kingdom at least, the difficulties in raising start-up and expansion external finance is only marginally more difficult for high tech firms than for firms in conventional sectors.

[2] This is a particular problem for technology-based firms in the United Kingdom: Deakins and Philpott (91994) note that in comparison to their counterparts in Germany and The Netherlands, United Kingdom banks are more concerned with collateral.

[3] The International Informal Venture Capital Research Network is an informal association of researchers and practitioners who are active in the field of informal venture capita. Its objectives are to provide a forum for brining together researchers and practitioners to exchange information and ideas, to promote the importance of informal venture capital amongst the research community, and to disseminate research findings to practitioners and those convened with public policy. It publishes an annual newsletter : contact Colin Mason, University of Southampton, Southampton SO17 1BJ, UK for further details.

[4] It should be noted here that no research has examined the *actual* rates of return achieved by informal investors.

[5] For example, a Finland-United Kingdom comparison of the financing of high tech firms indicates that Finnish high technology entrepreneurs are much less likely than those in the United Kingdom to have raised finance from informal investors (Lumme *et al*, 1994).

[6] The definition of technology-based ventures was left to investors and so this figure may be over-stated.

[7] It should be noted that this study did not control for type of investee business and so such contrasts could be partly influenced by the different types of businesses which are served by the informal and institutional venture capital markets.

[8] In 1994-95 the five projects faciliated 30 investments involving a total direct investment of £1.3 million.

[9] There are a range of issues associated with compiling statistical information on investments resulting from the activities of BANs, including the cost and expense of keeping in touch with clients and the issue of what can legitimately be counted as a ‘match’.

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## COUNTRY CASE STUDIES OF VENTURE CAPITAL AND INNOVATION

### A. VENTURE CAPITAL IN THE UNITED KINGDOM

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New technology based firms (NTBFs) are of strategic importance to national economies, and therefore of interest to governments because they can be significant sources of innovation, competitive advantage, new employment, export sales and regional development. This paper discusses the major policy concerns and initiatives related to venture capital in the United Kingdom as an important source of capital for NTBFs.

According to the British Venture Capital Association (BVCA), the United Kingdom has the largest venture capital (VC) industry in Europe, with 34 per cent of the deals last year by number and 42 per cent in value. Over £ 2 billion was invested in over 1 200 firms, an increase of 43 per cent over 1993. However, in relation to NTBFs, it is very significant that only 5 per cent of the funds were invested in start-up firms. Only 177 such firms were backed, a 25 per cent fall on the 236 start-up firms backed in 1993.

Venture capital firms in the United Kingdom can be categorised as either mainly concerned with "merchant capital" for the expansion of existing businesses and for management buy-outs and buy-ins (MBO/MBIs), or with "classic" venture capital for the early stage of new business ventures often in a technology field. The United Kingdom's policy on finance for business is outlined in the second Competitiveness White Paper (CWP2). The United Kingdom financial system is exceptional with its concentration of 60 per cent of shareholding held in the major financial institutions: insurance companies and pension funds. The financial strength of these institutions gives large companies ready access to new equity capital, in addition to their sources of capital from retained earnings and loan finance. On the other hand, small- and medium-sized enterprises (SMEs) may not yet be able to build up significant retained earnings and may face more problems in the areas of loan finance and equity capital.

Suggestions related to equity for SMEs include the possibility of "pre-finance evaluation", tax incentives through Venture Capital Trusts and the Enterprise Investment Scheme, the promotion of "Business Angels" introduction services, encouragement of Business Incubators, and the formation of new markets, such as the Alternative Investment Market (AIM), for the shares of young companies. The possibility of "Pre-Finance Evaluation" was raised in CWP2 "to help smaller firms raise medium and longer term finance for innovative and high technology projects". The idea is directed at the well established "equity gap", where innovative firms find difficulty in raising sums of around £ 500 000. Our terms of reference were for investments of £ 150 000 to £ 3 million, say FF 1 million to FF 20 million.

The concept behind the idea is that firms have difficulty raising investments of around £ 500 000, possibly because the cost of evaluation and "due diligence" is high in relation to the amount invested. It may be that a Government backed "Pre-Finance Evaluation service" could help the situation. The approach we took, to evaluate this idea, was to "talk to the customers". This included (mainly) venture capitalists,

business angel networks, academics, business support organisations such as the new Business Links, companies, banks, accountants and academics.

We received some clear messages as a result of these discussions. It was confirmed that there are some very real obstacles to investment in NTBFs. These arise in part because technical risk and time-scales compound the market risks which surround any new venture. Another factor is the high cost of "hands-on" management which the investor needs to put into a venture whose founders are technologists rather than experienced business managers. Finally, there are the difficulties which investors have in making an exit from a shareholding in a young company, since no established market exists for such shares corresponding to the NASDAQ in the United States. All of this also adds up to difficulty in raising institutional backing for some VCs who specialise in investing in the NTBF sector.

However, despite these obstacles, investments are made in United Kingdom NTBFs. The VCs who do invest in this sector obviously operate in ways which are intended to minimise their risks and maximise their potential returns. First, these "classic" VCs are normally specialists; individuals with a technology, industrial and commercial background themselves. Secondly they expect to spend a significant amount of their own time providing "hands-on" management assistance. They tend to be "business builders" rather than just "financial engineers" and will spend more time developing a business strategy with the management team than merely monitoring financial performance.

The people we consulted confirmed that there is an "equity gap" in the £ 150 000 to £ 3 million area. Most thought that the main "gap" is for investments below £ 500 000. There are only about 20 VC firms in the United Kingdom, out of a total BVCA membership of 108, that operate as "classic" VCs. Only about one per cent of the thousands of proposals which they receive actually get funded. There is a total of about one hundred such investments in United Kingdom NTBFs per annum. However our survey indicated that "really exciting" proposals obtain funding nonetheless. Although there is a shortage of institutional backing for some VC funds, in the main there are excess funds chasing too few "exciting" opportunities. The respondents stressed the fact that there is a shortage of good proposals.

The survey showed that evaluation costs, as such, are not really a major issue. The costs of continuing "hands-on" work with management will be an issue *after* investment, but the potential investor must make his or her own evaluation *before* investment. This may involve the use of outside experts, which the investor will normally already know and have used previously. The investors stressed that they do not see a role for a Government backed "Pre-Finance Evaluation" service. Instead, what they would like to see is a better deal flow with more highly attractive funding proposals.

The question that arises then is what makes a "really exciting" proposal? Investors are looking first and foremost for a strong team, which includes significant business experience. The team needs to be seeking to achieve substantial growth and looking at a large potential market. The venture must have a credible marketing strategy to enable a new small firm to reach a substantial, albeit often niche, and probably international market. Finally, a good product is needed, with excellent protected technology.

The early stages of the venture are critical. If high-technology, potentially innovative firms are to be funded they must develop a credible marketing strategy and sound foundations of good management, as well as a good opportunity and a good product. If they do, then the "equity gap" will not appear. There is growing private sector activity in the United Kingdom to provide help at the early stages for the formation of more of these "really exciting" proposals. This early stage assistance can take the form of various combinations of "mentoring", "seed capital" or "incubators". Investors frequently do not have the time or patience to deal with an inarticulate proposer, or to rectify serious flaws in the business. This may mean that potentially good opportunities are missed. Early help for emerging businesses with global potential

may help ensure that these businesses have much better funding prospects when they reach second- or third-round financing. This suggests that a potential effective role for Government, in seeking to facilitate the creation of more successful NTBFs, is to encourage more of this type of early stage help for the formation of more "really exciting" proposals.

Other areas for potential government interest include initiatives, for example tax benefits, which alter the risk/reward balance for the entrepreneur and the investor. The United Kingdom Government has gone some way towards this, for example with the introduction of Venture Capital Trusts and the Enterprise Investment Scheme, but these are not specific to the needs of NTBFs. Government also has a role to play in facilitating the early assignment of value to the shares of young companies. For example the United Kingdom rules for the valuation of insurance company portfolios at present preclude placing any value on an investment in a company which is not yet profitable and paying a dividend.

## B. VENTURE CAPITAL IN THE NETHERLANDS

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### Introduction

One of the key priorities of the Dutch Government is to expand levels of knowledge within the economy. World economic developments are forcing policy makers to devote greater attention to this problem. The message is a simple one. The operating costs of companies in industrialised countries like the Netherlands are relatively high. The Netherlands cannot simply compete in terms of labour costs on the world markets. Companies must therefore profile themselves on world markets through the quality of their products and production processes by incorporating increasing amounts of knowledge into them. Yet competition in this sphere is also becoming more and more intense; the monopoly on knowledge-intensive products and processes which OECD countries enjoyed for decades has now disappeared.

In recent years, the dissemination of knowledge among small- and medium-sized enterprises has been a particular focus of interest in the Netherlands. Some regard SMEs as the driving force behind the economy; others prefer to take a more qualified attitude. Yet a more dynamic SME sector will doubtless help to strengthen the economy. Innovative start-up firms and innovative secondary growth companies are especially important in creating greater dynamism in the SME sector. Although many of these start-up firms may not survive, those that do will make a positive contribution, even if they are not genuine growth companies. However, some of these new technology-based firms can be expected to grow, and those that succeed will ultimately have the potential to increase their original number of (highly skilled) jobs.

Because most of these companies are too small to gain access to the regular capital market, the Dutch Government is devoting special attention to making risk capital accessible to innovative fledgling and secondary growth companies. There are certain flaws in the capital market which the government believes justify its intervention under certain circumstances. These circumstances are as follows:

- There must be clear evidence of a reasonable degree of public benefit or need.

- Government instruments must act as catalysts, providing substantial leverage, or generating additional funding -- in terms of both risk-bearing and risk-avoidance capital -- from the private sector.

- The relationship between policy goals and means must show a reasonable degree of efficiency. The potential to achieve a substantial result at acceptable costs must be demonstrated.

- Private sector involvement is an important way of ensuring that the government is not manoeuvred into a risk participation. There must be a degree of risk sharing in the interests of budgetary effectiveness. The government is in principle not a lender of last resort.

– Wherever possible, the instruments should have a temporary character; if they must be applied for longer, the cost/benefit ratio should justify their continued use.

– Whenever possible, the instruments should work in such a way as to promote long-term, lasting, effects.

Relying on these conditions as a basic premise, the following policy changes were implemented. First, the government withdrew the Private Participation Companies Guarantee Order 1981 (PPM) at the end of 1995. Under the scheme, recognised venture capital companies could supply risk capital to companies in the SME sector, up to an initial maximum of Gld 4 million. A 50 per cent State guarantee on investments has helped create a venture capital supply structure. By the end of 1994, a total of Gld 901 million gross had been invested in over 900 companies.

The scheme was last evaluated at the beginning of 1994 which revealed that:

- A sustainable venture capital supply structure had been created. It is believed that most of the demand from ordinary companies should be able to be satisfied by the existing regular supply.

- The problems experienced at the lower end of the market (i.e. among start-up and fledgling companies) had not been significantly reduced.

- The scheme did not appear to be the appropriate instrument for serving the lower end of the market.

Second, using the above mentioned conditions as a basic premise, the government is currently working on three new instruments which are expected to take effect in 1996:

– The creation of tax concessions aimed at encouraging private backers and funds to provide risk capital to fledgling companies.

– The establishment of special Private Sector Participation Companies exclusively targeted at supplying risk capital to new technology-based firms. These would be known as PMTSs (Participation Companies for New Technology-based Firms).

– The creation of a special scheme, under the SME Credit Guarantees Decree, aimed at providing long-term bank loans under State guarantee to innovative secondary growth companies.

**Tax compensation schemes**

With effect from 1 January 1996, measures are to be introduced under the income tax and corporation tax systems to encourage the supply of risk capital. The exact nature of these measures will differ depending on whether the capital provider is a natural person or a legal entity.

*The following rules will apply to natural persons*:

| | |
|---|---|
| Capital provider: | Natural person |
| Capital to be provided: | Subordinated loan, Gld 5000 minimum. |
| Target companies: | Entrepreneurs liable for Dutch income tax (excluding private or public limited liability companies) who have been established for less than 8 years. |
| Tax compensation: | Extra exemption from interest payments of Gld 5000 (Gld 10 000 for married couples). In the event of insolvency on the part of the entrepreneur or acquittal due to bad debts (within a period of 8 years), the capital provider can write it off as a loss (up to Gld 50 000) by subtracting it from taxable income. |

Capital providers can deduct the loans granted from taxes as a fiscal equity allowance.

*The following rules will apply if the capital provider is a legal entity*:

| | |
|---|---|
| Capital provider: | A start-up fund or participation company for new technology-based firms (PMTS) that is recognised by the Ministry of Economic Affairs and the Ministry of Finance. |
| Capital supplied: | Subordinated loan or shares. |
| Target companies: | Companies liable for Dutch corporation tax (private or public limited liability companies) which have been established for less than 8 years (PMTS; 3 or 5 years) |
| Tax compensation: | Loss of deduction if the value of the stake in the new technology-based firm falls below the invested amount. |
| Tax compensation schemes for private investors in a start-up fund or participation company: | Additional exemption from interest payments (of Gld 5000; Gld 10 000 for married couples) without time limit.<br>Extra dividend exemption of Gld 5 000 (Gld 10 000 for married couples) without time limit.<br>No possibility of return tax claims under the wealth tax. |

**New Technology-Based Firms (NTBFs)**

The Ministry of Economic Affairs is working on the establishment of five to six participation companies for new technology-based firms (NTBF). These participation companies will likely also be able to benefit from the aforementioned tax compensation scheme for funds supporting 'ordinary' start-up companies, announced recently by the State Secretary for Finance. Under this scheme, stockholders in participation companies for new technology-based firms will, as funders, be able to offset their losses against tax if the value of their stake falls below the invested amount.

On top of these tax concessions the Ministry of Economic Affairs intends to make available between Gld 2.5 and Gld 3 million each in interest-free loans to a maximum of five or six of the participation companies provided that these participation companies focus exclusively on the target group of new technology-based firms (NTBFs) and that other funders invest three times this amount.

A new technology-based firm (NTBF) is defined as:

- a (new) company that has been in existence for less than three years;

- a company that is innovative by nature, engaged in R&D, has access to technical know-how, either through its own efforts or from third parties, or contracts out R&D;

- a company that is more capital-intensive, in relative terms, than an 'ordinary' start-up company. In other words, a company with a capital requirement of between Gld 0.1 and Gld 0.5 million.

Studies conducted in the United Kingdom (by Gordon Murray) and figures from the Netherlands indicate that although the number of innovative start-up companies established in the Netherlands will not be particularly large, some 800 to 1 500 are nevertheless established each year. Of these companies, between 40 and 80 per year will certainly have sufficient potential for growth, but will find it difficult to attract some or any form of risk capital.

The reasons underlying the problem of access to capital providers are as follows:

- the difficulty and high cost of selecting projects;

- the relatively high management costs for private sector participation companies compared with the size of their participating interest;

- the (by definition) uncertain development outlook of these projects (whereby the expected returns must be very high), due to the relatively high risks involved in the spheres of technology and management and in the process of commercialisation; and

- the long lead time required before an exit can be realised.

This situation would benefit from the creation of a type of subsidiary infrastructure offering a specialised (commercial) supply of risk capital to this sector. Ideally, such a structure should ultimately be able to operate wholly independently of the government. The regular venture capital market would also benefit from a 'point of entry' of this kind since it could ultimately serve as a source for its deal flow.

Taking into account the estimated size of the target group, the government intends to create between five and six venture capital companies in collaboration with the private sector participation companies, the regional development companies, banks and third parties. The Ministry of Economic Affairs intends to make available between Gld 2.5 and Gld 3 million each in interest-free loans to a maximum of five or six of these participation companies. The shareholders of each of these participation companies will be required to invest at least Gld 7.5 million. This will create a minimum capital fund of Gld 10 million each per participation company (smaller funds are not viable). Private funders must provide at least three times the government contribution. This will provide an incentive for efficient fund management. These interest-free loans are designed to boost the amount to be invested in the new technology-based firms, and to act as a financial incentive by offsetting the high costs of hands-on management and the increased risk associated with the financing of these firms.

To encourage the participation companies to invest or reinvest in new technology-based firms, the government is prepared, under certain conditions, to wholly or partly waive the obligation to repay the loan. After five years (or seven if necessary), at least 70 per cent of the fund must have been invested. During these five to seven years, the participation companies will also be obliged to reinvest any income from dividends, loan redemption or the sale of participating interests. If these provisions are met, the government will convert its loan of between Gld 2.5 and Gld 3 million into a grant. If they are not met, then the Ministry's loan must be repaid wholly or in part, depending on the size of the investment made.

The participation companies will focus exclusively on the target group in question. To this end, they must ensure in each case that the new technology-based firm can provide an auditor's report demonstrating compliance with the Research and Development Promotion Act (WBSO). Such reports must be submitted if a company has spent half a staff-year or more on research and development. This ensures that the threshold is not set too high.

In view of the high risk profile of new technology-based firms, the participation company should have an experienced fund manager. The rationale is that the fund manager would provide the necessary 'hands-on' support for new technology-based firms and would also have access to an appropriate network of experts who could be brought in to solve specific problems. This integrated form of management is intended to reduce the number of loss-making participating interests.

The participation companies will provide financing totalling between Gld 100 000 and Gld 500 000. Any loan exceeding these amounts must be supplied through the regular capital market. The funders of the participation companies could set up a special parallel fund for this purpose or conclude reciprocal agreements governing the right to award follow-up financing (outside the participation companies). This would remove the possibility of problematic follow-up financing or exits from the participation company. An annual audit will be carried out to assess to what extent the participation companies' goals have been attained and the amount of management and supervision provided.

Ideally, each PMTS (Participation Company for New Technology-based Firms) should at least include a participating interest from a Private Sector Participation Company (which may or may not be linked to a bank), a Regional Development Company and third parties (such as enterprise management experts). There is thus no further involvement by any (semi-official) government agency. The aim is to create a professional commercial collaborative association of capital providers which is independent of the government. This collaborative association should have access to a network of experts capable of selecting projects and providing 'hands-on' management of participating interests.

These and other modalities are to be set down in an agreement between the Ministry of Economic Affairs and the participation companies and their stockholders. This model has met with approval from the private sector participation companies, the regional development companies and the banks. The government will shortly be holding discussions with six co-operative clusters consisting of the aforementioned parties on the completion of the agreements to be concluded. It is assumed that the new participation companies will begin operating from the start of 1996. If the participation companies succeed in investing between Gld 60 and Gld 75 million within the space of five to six years, they will assist between 200 and 250 new technology-based firms (assuming an average of Gld 0.3 million per participating interest). This would be a good score compared with that of the existing private sector participation companies scheme.

**SME Credit guarantee decree (BBMKB)**

Although strictly speaking they are risk-avoidance instruments, the new schemes for innovative companies with a Research and Development Promotion Act declaration (which are issued to companies that spend half a staff-year or more on R&D on an annual basis) are expected to take effect in mid-1996 under the SME Credit Guarantees Decree.

Long-term bank loans often run into difficulties due to a lack of securities and the inability of companies to meet their interest and repayment obligations in their initial operating years. These problems can in principle be resolved through a State guarantee under the SME Credit Guarantees Decree. However, the financing opportunities provided by the existing credit guarantee scheme are insufficient. In practice, the stipulation under the current scheme that the bank must issue a new loan on its own account which is at least equal to the guaranteed loan restricts the opportunities for financing due to the fact that these companies cannot offer adequate securities.

The banking credit facilities for innovative secondary growth companies (up to 100 employees) will therefore be increased by raising the share of the credit guarantee for these companies by two-thirds. In order to match the credit guarantee to the needs and capabilities of this group of companies, the maximum term of these loans will be extended from six to twelve years. This will consequently reduce the annual revenue from their repayment obligations. During the first three years of the loan, the beneficiary will be wholly exempted from repayment obligations. The maximum amount of the credit guarantee will be Gld 2 million. The expected maximum amount of guaranteed loans to innovative companies on a yearly basis is Gld 100 million. Accordingly, the annual budget of the SME Credit Guarantees Decree will be raised from Gld 750 million to Gld 850 million.

**The Technical Development Credits Scheme (TOK)**

The Technical Development Credits Scheme, introduced in 1954, makes available risk capital to innovative companies and projects, and is characterised by:

- the provision of subordinated loans with a 10-year redemption term;
- repayment is based on actual turnover;
- in the event of technical or commercial failure, the loan need not be repaid;
- the size of the loan is limited to 40 per cent of the total project costs;
- interest rate is 6.15 per cent added to the loan in the development phase;
- the annual budget is set at Gld 120 million for the benefit of projects with a total cost of Gld 300 million;
- on average, 40 per cent of the projects succeed. In time, this generates a turnover in the order of 8 to 10 times Gld 120 million, that is, between Gld 960 and Gld 1 200 million. This effect is boosted each year.

**Conclusion**

The Technical Development Credit Scheme, the revised SME Credit Guarantees Decree, the Participation Companies for New Technology-based Firms and the forthcoming tax compensation schemes, provide a good range of instruments for promoting the accessibility of risk capital for R&D applications in Dutch companies -- albeit with limited resources. However, these measures will have to be in place several years before an assessment can be made as to whether they are effective and to what extent. By then, the participation companies should have built up enough expertise to allow the market to decide whether it wishes to carry on operating an independent entry point to the regular venture capital market. Ultimately, it is up to the market to decide whether an economic activity is viable or not.

## C. VENTURE CAPITAL IN GERMANY

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The German market for small and medium-sized firms and for technology financing is heavily influenced by the large German banks which are specialised in credit markets, but not in venture capital, nor in financing technology-based start ups. This would not be a problem were there many active venture capital companies to finance innovation in Germany. However, compared with the United States, Canada or the Netherlands, much remains to be done to ensure that venture capital firms in Germany can become as resourceful as their foreign counterparts. In spite of being dominated by the large banks, venture capitalists receive little support because the banks have not traditionally promoted this market. They have not encouraged entrepreneurs to be listed on the stock market and small and medium sized enterprises often did not achieve the level of ratings to interest venture capital firms.

However, venture capitalists have themselves not been readily accepted by German entrepreneurs who have preferred credit financing. Entrepreneurs fail to realise that as a borrower in a risky situation, they are under more pressure by a traditional bank than by a venture capital company. Most of the German financial intermediaries prefer to invest in large companies which can quickly restructure portfolios due to their high liquidity. In Germany, financing a start-up and even a medium-sized enterprise is particularly difficult. A highly developed "culture of equity-financing" is lacking and the amount of share capitalisation in these firms does not correspond to the importance of capital expenditure. At the end of 1992, German financial assets amounted to more than DM 4.3 trillion, but less than 6 per cent of privately owned financial assets were invested in shares and only a small part in innovative new companies.

The lack of trading in unlisted companies has resulted in a weakening of primary financial markets. At the same time, there is demand among young and innovative companies for investment schemes. However, survey evidence shows that 35 per cent of small and medium-sized firms lack sufficient equity capital. As new company stockholder, entrepreneurs have a preference for institutional investors. Fifty-six per cent would accept venture capital companies have but only 22 per cent would accept their employees as partners in equity financing.

Apart from obtaining equity capital for small innovative companies, an important task of venture capital companies in Germany is to introduce successfully expanding companies into the stock market. While turnover in the large international quoted securities is increasing, particularly in derivatives, the listed and unlisted primary markets are neglected by German entrepreneurs, by German banks and by German investors.

**Figure 1. Financial assets of German private households in 1994**

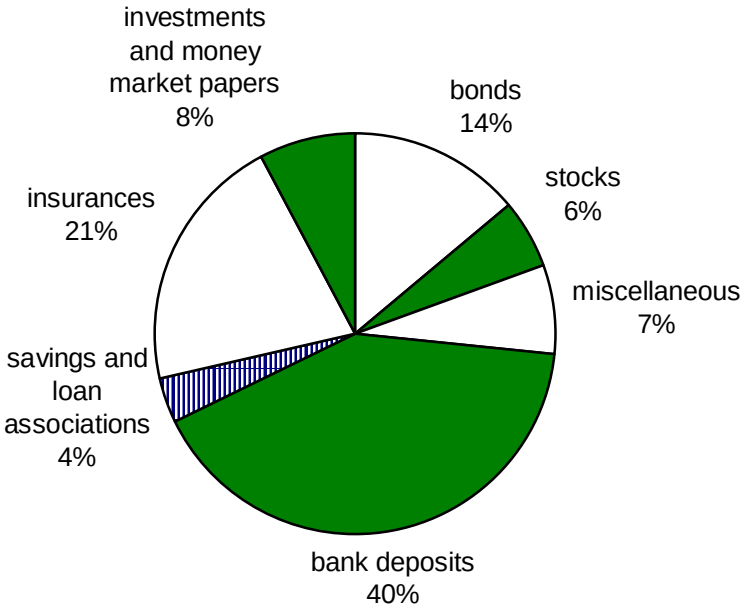
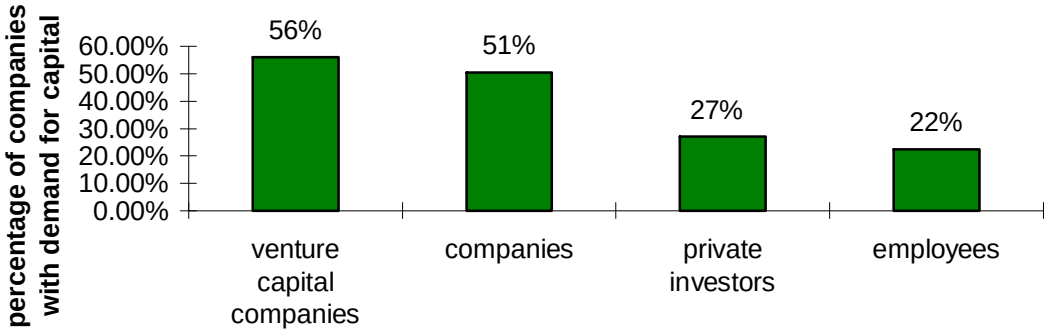



**Table 1. Investors preferred by medium-sized companies**



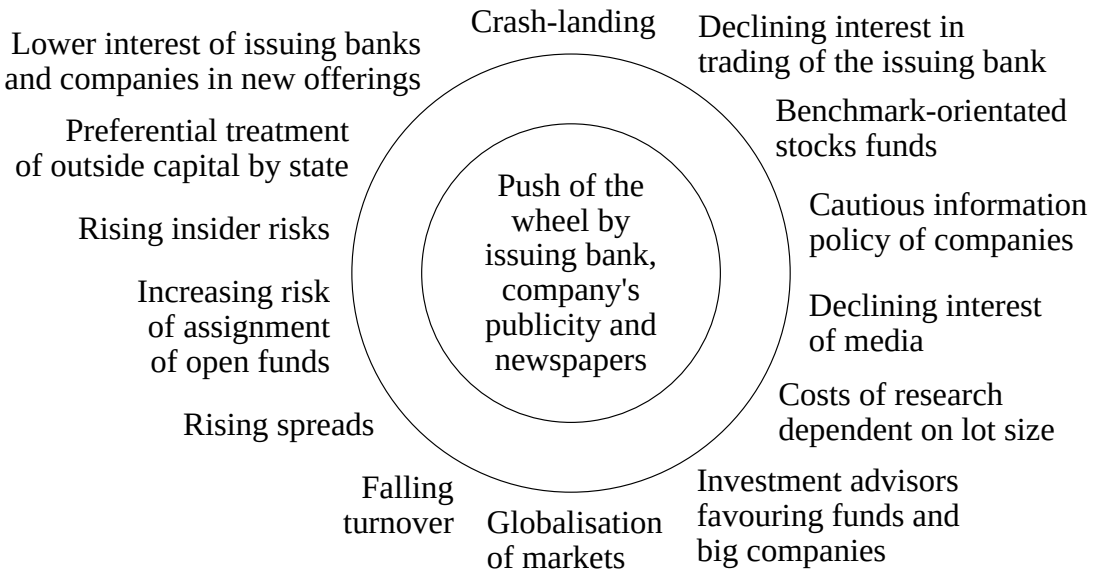
There are several reasons for the low liquidity of companies brought to the stock market by venture capital companies in Germany. Generally, an issuing bank launches its new offerings with a lot of publicity in the market. In doing so, the bank has given stock trading a stimulus in a new offering which is profitable for itself and promising for the issuer. However, the trading department of the issuing bank will not find the new offering as attractive as the issuing department since dealing in important blue chips and in derivatives is far more profitable than cultivating the market in small initial public offerings (IPOs).

In contrast to the United States, large pension funds do not exist in Germany and the mutual fund managers show only little interest in new issues since their performance is rated based on a comparison of yield and the risk development of international companies. Moreover, private investors are hesitant to invest in IPOs. Often, adequate information is unavailable since many German managers generally disclose only relevant facts and investment advisors rarely recommend second-line stocks to their clients. The media thus has little interest in publishing information on the economic development of smaller listed companies.

Large banks and insurance companies have set up their own research departments. For these institutions, recourse to expertise is only profitable if large sums of capital can be controlled. This is why banks and insurance companies also neglect second-line stocks. Capital intermediaries are instead increasingly turn their attention to international stock markets. Therefore, the venture capital companies are taking over an enormous responsibility of financing innovative unlisted companies. Venture capital companies cannot compete with the stock exchange with regard to transparency, liquidity and transaction costs. They do however, offer a considerably easier access to the market.

In 1994, German venture capital companies and other development companies invested DM 1.9 billion in 692 companies. However, for the most part, this was not real equity capital, nor was it invested in start-ups but rather in a combination of the two. In France, the PMB acts as initiative to promote small and medium-sized companies. The German government faces a similar problem, but it has not yet been decided which measures to take. The German government has embarked on a number of measures to promote the venture capital process in Germany. Further, Germany has been quite active in promoting venture capital for new and small technology-based enterprises and will continue this policy.

*Figure 2* **The obstacles to new offerings**




*Source:* W. Gerke

## D. VENTURE CAPITAL IN THE UNITED STATES

*Adam SOLOMON, Chairman, Shaker Investments, Inc.*

### Introduction

This paper examines why the venture capital market is important, particularly since it only accounts for a very small part of the financial industry. It then provides a brief review of the history of venture capital in order to gain some perspective. It identifies the essential elements of government policies in terms of the key policies for fostering the success of venture capital in different countries. Finally, it examines the importance for government policy of having a successful stock market that encourages initial public offerings (IPOs). The existence of an initial public offering market means that successful companies that go public will generate high returns to investors which, over time, changes the investment culture in the country and places pressure on the government to make important regulatory changes in financial markets (e.g. pension fund reforms).

### Why venture capital is important

The venture capital market in the United States is relatively small. In 1995 about US$ 4 billion was spent or invested by the venture capital market out of a total US$ 35 billion of assets under management. In contrast to figures for the European market, these exclude all the leverage buyouts in the United States. Thus much of the corporate restructuring that is included in the figures for the European market has not been included in the United States since 1987. If the leverage buyouts were included, this would double or triple the figures.

This compares with fact that in 1994 some US$ 22 billion of IPO funds were raised, and that in 1993 that peaked at US$ 34 billion, and was expected to reach about US$ 29 billion in 1995. Assuming that initial public offerings generate US$ 20 to 30 billion a year, this represents 5 to 7 times more money than from the venture capital source. With regard to "business angel financing" or informal investors, the estimates range from US$ 30 to US$ 40 billion a year or 8 to 10 times the size of the venture capital pool. Thus the venture capital market in itself is not the largest source of capital for innovative companies in the United States.

Venture capitalists specialise in very high growth companies which results in a lot of spin-off effects, most of which are positive for the economy. According to a study by Coopers and Lybrand, venture capital companies grow at a much faster rate and enjoy higher level of productivity than the fortune 500 firms. Small venture capital companies also invest more R&D per employee than large mature companies.

Another consequence is the cultural impact in terms of innovation. It is difficult to have high risk, innovative ideas accepted in large corporations. The reaction time is often very long. Venture capitalists act as well trained intermediaries experienced in identifying high-growth possibilities. Each time the computer industry has moved onto another generation, it has been achieved with a venture capital backed company. When minicomputers were developed in the early 1960s, IBM was the leader in mainframes.

The emergence of DEC as a competitor was financed by a venture capital concern in Boston. The next generation that followed was the personal computer, led by the Apple Computers. Apple was also financed by venture capital companies, this time on the West Coast. However, in time Apple became a relatively large company that did not take advantage of other innovations available.

One such innovation was basically to drive the cost of computer hardware down, as in the case of Compaq which developed the first IBM compatible computer and created a whole new industry. Apple missed the opportunity of opening up its Macintosh software to the world and becoming the dominant operating system on the software side. Had Apple chosen to do so it could have become the dominant software company today instead of Microsoft. In all these cases, the companies that acquired venture capital backing transformed the computer industry.

**The United States venture capital industry: a chronology**

In 1980, the United States had less than US$ 1 billion in venture capital funding. How did it rise from nothing in 1970, to approximately US$ 35 billion today? Before 1970, venture capitalists were mainly wealthy families and the SPICs. However, they tended not to invest in technology or start-ups and innovative firms. These wealthy families included the Rockefellers, the Fifths, the Whitneys who invested in firms such as Eastern Airlines in the 1930s and 1940s. What triggered the venture capital industry was the bull market in 1967-68. There was a tremendous number of mission public offerings as well as great interest in high growth companies (e.g. Electronic Data Systems ). Even though there had been a bear market in 1969 and 1970, investors still remembered the lessons of 1968 and began creating the first professional venture capital pools in 1971, 1972, and 1973. The latter year was the first time that a pension fund channelled money into the venture capital pool. After the bear markets of 1973 and 1974, and until 1978, there was little attention given to venture capital and many firms had a difficult time. Some were financing innovative firms that became famous later on, such as Federal Express. However, no new money was invested in venture capital as it was uncertain whether it was going to be a successful industry.

In 1978 the rules for pension funds were changed allowing pension funds to allocate 5 per cent of their assets to “risky” investments, and that allowed money to flow into venture capital. Even so, in 1980 there was less than US$ 1 billion in venture capital. What really changed things was the 1982-83 bull market, when investors began to see the tremendous returns on venture capital invested in the 1970s after which, investors began to channel money into venture capital.

**Requirement for a successful venture capital industry**

There are several conditions that must be met to be successful in the public markets and venture capital. First, a viable IPO market is needed, as well as a committed management, to maximise the wealth of all shareholders. Second, a culture that encourages entrepreneurs to maximise wealth of all shareholders. This is important as often, because of a history of cross-ownership between suppliers and producers, management teams have an objective other than maximising the wealth of those shareholders. Third, a large domestic market is needed. When Canadian venture capitalists back a venture capital firm, the key question is whether this firm can be successful in the United States. If it is only successful in Canada, the market is too small to allow that company to be financed, which is the reason why Canadians always plan on accessing the United States market. In Europe, a market without trade barriers would make a large difference, and one with a single currency could make a stronger difference. Finally, intellectual property laws and a stable macroeconomic environment, including low interest rates are very important.

Low interest rates tend to make equity very attractive and high growth gets rewarded. Thus this stable environment explains in part why there is now such a strong IPO market. During the 1970s investment in venture capital was weak, partly because of the high interest rates which made it more attractive to place capital in debt than to invest into high risk equity capital. If there is a viable stock market, the pension funds will allocate money into high risk venture capital, but regulations must not prevent from them doing so. A level playing field is important. An example of a potential level playing field is the deregulation of the European telecommunications industry. If its done in a way that allows small firms to compete with big firms. There will be a tremendous amount of money invested in telecommunication companies in Europe.

In the cellular market for example, there is fair play between the two sides. However, when there is a public company that dominates an industry and continues to receive subsidies or have unfair governmental advantages, there will be no innovation from venture capital. Government funds can be allocated to support venture capital if the macro issues can be solved. Also important is meaningful financial statements that are disclosed on timely basis. As a consequence some small firms' poor accounting records, it is difficult for them to go public. To actually redo all the books is a major burden (until the firm reaches a certain size); firms cannot afford to go back and retranslate all their statements. A financial statement that is capable of disclosing information makes a real difference in encouraging investor confidence in the company.

The stock markets of the United States are capitalised at US$ 5.4 trillion and the United Kingdom at US$ 1.3 trillion which make them two of the most viable venture capital markets. The Japanese situation differs from these two stock markets and is beyond the cope of this paper. Despite the size of the economies of Germany and France relative to the United Kingdom and United States, the main reason they lack a venture capital activity is that there is no public market without which it is not possible to finance start-ups or innovative technology-based firms.

*Table 1* **U.S. Venture Capital** *versus* **Other Capital Sources**
($billion)

| Capital Sources | Total Size |
|---|---|
| Venture Capital (1995) | |
| Annual Investment | $4+ billion |
| Total Assets | $34.8 billion |
| U.S. Public Markets | |
| Initial Public Offerings (IPOs - 1994) | $22.0 billion |
| Total Value | $5.4 trillion |
| "Angel" Financing | |
| Annual Investment | $40.0 billion |

*Table 2* **U.S. Venture Capital Industry: Chronology**

| | |
|---|---|
| Before 1970: | Exclusive domain of wealthy families. |
| 1967 & 1968: | Bull stock market. The "go-go years". Strong interest in growth companies, including technology. Hedge fund focusing on the public markets comes into existence. |
| 1969 & 1970: | Serious bear market. Collapse of "Nifty Fifty". |
| Early 1970s: | First professional venture capital companies created; wealthy families invest in blind investment pools focusing on illiquid investments. |
| 1973: | First venture capital fund to attract pension fund money. |
| 1973 & 1974: | Extremely serious bear market. |
| 1973-78: | Venture capital industry languishes. |
| 1978: | ERISA: prudent man rule introduced. Allows pension funds to invest up to 5% of their assets in riskier businesses. Spur growth of venture capital industry. |
| 1982 & 1983: | Bull market in growth stocks. |
| 1984-90: | Venture capital funding stabilises at between $2-4 billion per year. |
| 1990 & 1991: | Bull market in growth stocks. |

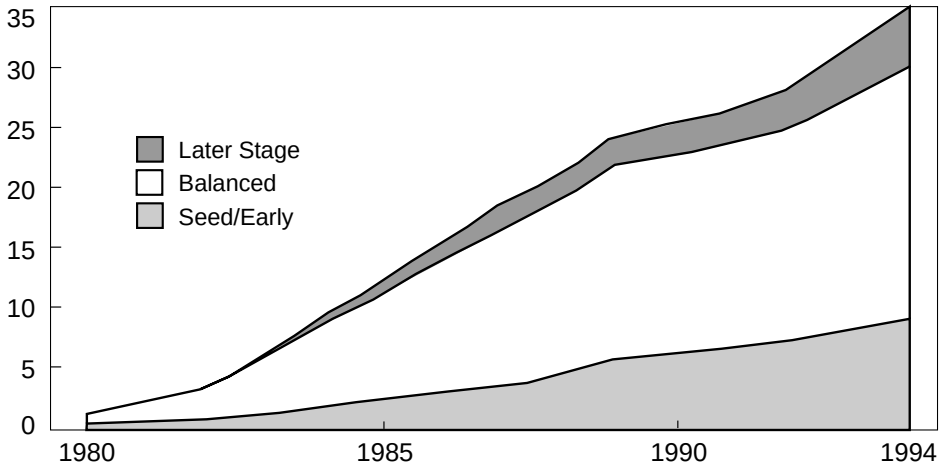
*Source:* A. Solomon

*Table 3* **World Stock Markets**
(Market capitalisation in $billion)

| | |
|---|---|
| **Core markets** | 9,967.7 |
| United States | 5,419.9 |
| Japan | 3,282.7 |
| United Kingdom | 1,265.1 |
| **Europe** | 2,318.8 |
| France | 480.2 |
| Germany | 556.5 |
| Switzerland | 348.0 |
| Netherlands | 273.5 |
| Italy | 169.8 |
| Spain | 134.8 |
| Sweden | 138.1 |
| Belgium | 95.0 |
| **Asia** | 1,376.1 |
| Hong Kong | 246.6 |
| Malaysia | 224.2 |
| Taiwan | 186.8 |
| Korea | 178.7 |
| Thailand | 150.6 |
| India | 147.2 |
| Singapore | 134.8 |
| **Resource markets** | 787.0 |
| Canada | 321.9 |
| South Africa | 227.5 |
| Australia | 206.9 |
| **Latin America** | 391.2 |
| Mexico | 93.6 |
| Brazil | 149.1 |
| **Total** | 14,840.8 |

*Source:* Merrill Lynch

*Figure 1* **Venture Capital Funds**
**Cumulative Capital by Stage**
($billion; 1980-94)




*Source:* Venture Economics

## E. VENTURE CAPITAL IN JAPAN

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### Background

In a 1992 MITI survey, 115 private venture capital firms were identified in Japan. Here, the term "venture capital firm" is defined as a private firm which can supply both commercial loans and direct equity investments to prospective venture enterprises. The number of venture capital firms increased in the 1980's. Due to an economic recession, the balance of loans and investments deceased by 14 per cent during the period of 1991 to 1993. The balance began to increase once again between 1993 and 1994.

Venture capital firms provide only a small percentage of overall venture business financing. Loans and investments by venture capital firms finance 0.3 per cent of working funds, 0.8 per cent of investments in plant and equipment, and 1.2 per cent of R&D expenditure of venture enterprises. However, it should be noted, that the term "venture enterprises" here is too broadly defined. The venture enterprises in which a venture capital firm invests should only include highly prospective enterprises. Most of the private venture capital firms in Japan were established less than ten years ago. Even the oldest firm, JAFCO, was established in 1973. Twenty five per cent of them have capital totalling more than 500 million yen. Few firms are independent and approximately 70 per cent of them have a parent company; i.e. financial institutions such as banks and securities companies. The average number of employees within each venture capital firm is approximately thirty.

Table 1. **Profile of venture capital firms in Japan, 1992**

| **Age** | | **Parent company** | | **Capital** | | |
|---|---|---|---|---|---|---|
| 0-5 years | 25.0 per cent | Banks | 52 per cent | 0.2 | b yen | 46.4 per cent |
| | | | | 0.2-0.5 | b yen | 28.6 per cent |
| 5-10 years | 59.5 per cent | Security Co. | 20 per cent | 0.5-1.0 | b yen | 11.9 per cent |
| | | | | 1.0-3.0 | b yen | 6.0 per cent |
| 10 years | 15.5 per cent | Others | 27 per cent | 3.0- | b yen | 7.1 per cent |

Most of the board members of venture capital firms in Japan are from financial institutions and do not have scientific or technological backgrounds. A very small number of their employees have scientific backgrounds. Therefore, most of the venture capital firms in Japan can not identify and evaluate seed stage technology. This is one reason why the investments are mainly concentrated in middle and later stage venture enterprises.

**Venture capital firms**

In Japan, the average investment balance of a venture capital firms is approximately 10.6 billion yen. In the case of JAFCO, the largest venture capital firm in Japan, the amount exceeds 200 billion yen. Investment by the venture capital firms in Japan can be classified to two types:

1) investing the firm's own capital fund, and

2) investing a fund raised through an "investment partnership" (in this case, the venture capital firm plays a role of fund manager by contract.)

The average balance of the first type investment is approximately 7.5 billion yen per firm. In the case of venture capital firms which were established more than ten years ago, the average is approximately 22 billion yen. The firm's own capital fund is invested in 61 per cent private stocks and 32 per cent private bond-with-warrant-(EX).

An "investment partnership" is similar to "Limited Partnership" in the United States. However, the members of the investment partnership of Japan are actually limited to institutional investors only, such as banks, securities firms and insurance companies. Approximately 40 per cent of all venture capital firms raise money through an investment partnership. Approximately 30 per cent of total investment money by venture capital firms is in the form of an investment partnership. The average balance of the second type of investment is around 7.2 billion yen per firm. In the case of venture capital firms older than 10 years, the average is approximately 25 billion yen. Eighty nine per cent of this type of investment is invested in the form of private stocks. The average annual investment of venture capital firms is 3.2 billion yen per firm and 89 per cent of the investment money is directed to venture enterprises in Japan.

Venture capital firms in Japan are likely to hold onto stocks of venture enterprise companies even after the stock is publicly listed on an exchange. According to one study, 62 per cent of venture capital firms replied that they will continue to hold a stock even after the stock is publicly traded. When a stock, owned by a venture capital firm is publicly traded, its valuation increases 7 times above the initial investment price on average. A third of the venture capital firms make losses in their investment business. However, in the case of the firms more than 10 years old, over 90 per cent of them are profitable.

In Japan, 70 per cent of venture capital firms in Japan engage in lending. The average loan issued is approximately 51 billion yen per firm. It is estimated that the loan balance is around 3.6 times as much as the investment balance provided by venture capital firms. According to one survey, 57 venture capital firms provided approximately 2.9 trillion yen in the form of loans.

Among the venture enterprises in which venture capital firms invest, 63 per cent of the enterprises were established more than ten years ago. Thus, most of them are now in middle or later stages of development. This conservative investment attitude is partly due to the lack of scientific/technological competence in the venture capital firms as described earlier. It is also partly due to the fact that most of the firms are subsidiary companies of traditionally conservative financial institutions. In addition, it should be taken into consideration that the investment fund trust must be dissolved within ten years. Although, on average, a period of 17 years is necessary before registering the stocks of a new venture enterprise to the "over the counter" (OTC) market.

In Japan, direct investment is not popular, thus there are very few individual investors who invest in start-up or early stage venture enterprises. Because of the lack of individual investors and the conservative investment attitude of venture capital firms, the entrepreneur in Japan has to provide a significant portion

of start-up capital as comparison to other countries. This is one of the barriers for starting up a new venture enterprise in Japan.

Only 25 per cent of venture capital firms in Japan have consulting groups to assist the enterprise companies in which they invest. Most of their assistance is concentrated on taking a company public and other financial affairs. Up until August 1995, Japanese anti-trust laws limited venture capital firms to a maximum 49 per cent ownership of a venture enterprise's stock and did not allow board seats to be granted to venture capital investors. This limitation impeded the ability of venture capital firms to gain experience in managing and developing the venture enterprise companies in which they had invested.

In Japan, 46 per cent of venture capitals firms' annual income is from interest on loans, 22 per cent is from capital gains on the sale of public stocks and 17 per cent is from stock dividends. Interest from borrowing accounts for 62 per cent of a venture capital firm's business expenditure and management costs account for 32 per cent. This suggests that a venture capital firm's major source of investment and financing capital is borrowed which further contributes to the conservative investment attitude of venture capital firms in Japan.

**Venture capital challenges in Japan**

The objectives of a venture capital firm are as follows:

1. Identify innovative ideas and technology which can expand the market frontier.
2. Invest in prospective venture enterprises in the start-up and early stages.
3. Advise venture enterprise companies (e.g. in technology, management, marketing).
4. Develop a network of various institutions and individuals to support the growth of venture enterprise companies.

Of these four goals, only some are, even partially, achieved by existing venture capital firms in Japan. In brief, the venture capital firms represent a unique type of financial institution that focuses on mezzanine stage companies that are in position to go public in the near future. Characteristics of the venture capital firm such as incapability, dependence, generalised employee backgrounds, and restricted fund raising strategies contribute to its marginal performance, which may hinder venture capital firms ability to accomplish objectives.

In order to successfully develop a venture enterprise company, a network of the capable players must be established to assist the company. These players will equally share in the risks and rewards. The role of the network organiser/co-ordinator is expected to be played by a venture capital firm. Most of the existing venture capital firms in Japan cannot play this role. In the United States there are ideal models of venture capital firms based on the above criteria. However, because of the differences in social systems, cultural backgrounds, national characteristics, etc., it is unrealistic to expect the emergence of the United States type venture capital firms in Japan. In order to encourage economic structural change, the emergence of venture capital firms that fit into Japanese society are strongly expected. It is a delicate question whether the government can exclusively assist the "real" venture capital firms, the theory behind "real" venture capital is free enterprise and independence. Until now, MITI has resolved the issue and has concentrated on non-exclusive assistance such as deregulation.

In Japan, a period of 17 years is necessary before registering the stock of a new venture enterprise to the "Over the Counter" (OTC) market. This is much longer than the 5 years, required in the case of NASDAQ in the United States. The number of companies registered on the Japanese OTC market is around one ninth of the number registered on the NASDAQ.

Table 2. **Profile of OTM markets in the United States and Japan (end year 1992)**

| | **Japan** | | **US** |
|---|---|---|---|
| Companies | 1.3 million | | 3.5 million |
| Companies in OTM market | 451 | NASDAQ | 4 113 |
| | | Pink sheet | 15 000 |
| Registration (1983-92) | 391 | NASDAQ | 3 401 |
| Withdrawal (1983-92) | 75 | NASDAQ | 2 552 |

The contrast between Japanese and United States OTC markets may be explained by differences in the principle of investor protection. In the United States, it is relatively easy for a company to register its stock on the OTC market. Companies disclose the information which is necessary for an investor to make decisions and the investors make their decision based on the principle of self-responsibility. In Japan, investors can invest safely because the registration criteria for the OTC market are relatively strict. However, companies and investors have less opportunities or choices.

In spite of these differences in the principle, various regulations were lifted or mitigated in Japan since 1983. This has brought about a considerable increase in the number of companies registered on the OTC market in Japan which rose from 111 in 1983 to 477 in 1993. Approximately 70 per cent of the companies registered on Japanese OTC market have capital greater than 1 billion yen, the annual sales of more than 60 per cent of the companies exceed 10 billion yen, and 95 per cent of them employ more than 1 000 workers. This indicates that the Japanese OTC market has not been the market tailored for small- and medium-sized venture enterprises.

Table 3. **Profile of enterprises registered on the Japanese OTC Market, 1992**

| **Capital** | | | **Sales** | | | **Employees** | |
|---|---|---|---|---|---|---|---|
| 0-1 | b yen | 29 per cent | 0-10 | b yen | 35 per cent | 0-100 | 5 per cent |
| 1-3 | b yen | 48 per cent | 10-30 | b yen | 38 per cent | 100-300 | 36 per cent |
| 3-5 | b yen | 17 per cent | 30-50 | b yen | 15 per cent | 300-500 | 50 per cent |
| 5- | b yen | 6 per cent | 50- | b yen | 10 per cent | 500-1000 | 10 per cent |

In order to facilitate the registration of venture enterprises on the OTC market, regulations were relaxed for technology-based enterprises. Furthermore, in October, another set of deregulations was implemented.

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## F. VENTURE CAPITAL IN CANADA

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### Introduction

The aim of this paper is to provide a brief overview of the venture capital industry in Canada and its experience in investing in high technology firms. For Canada, as for other industrial countries, success in the global economy comes from advanced technology and the use of knowledge-based techniques to add greater value in all economic sectors. As stated in the OECD's 1994 *Jobs Study: Facts, Analysis, Strategies:*

> *"The main way to job creation in OECD countries must be through improved productivity in firms that have a solid capacity to innovate and use technology effectively."*

Access to financing is a critical determinant of the success of such knowledge-based firms. Many reports and studies have recognised the particular difficulties encountered by knowledge-based firms in obtaining both debt and equity financing. For new or rapidly growing high-technology firms with relatively few hard assets to use as collateral, venture capital may be the only source of financing available.

Venture capital can be attractive to these firms for a number of reasons. Venture capital firms make a commitment for a longer period than other financial institutions and are usually prepared to provide subsequent financing to companies already in their portfolios. Venture capital's commitment beyond the short-term appeals to growth firms since they frequently require follow-on financing and can thus avoid financing concerns as the firm grows. The availability of funding in the future is an advantage over informal sources of financing, such as family and friends, who by comparison usually have relatively limited resources.

Finally, the active participation of the venture capitalist in the strategic management of the company provides a source of valuable advice and expertise, which often must be purchased if other funding routes are used. Frequently, in contrast to other sources of financing, venture capital firms offer strategic management support for the companies in which they invest.

In Canada, venture capital is usually characterised by three main features.

1) Investment involves equity or equity-like participation.

2) The investment is long-term.

3) Investors are actively involved in the companies they finance.

Canadian entrepreneurs in search of growth capital have a wide range of sources. Of these, the two key sources of outside venture capital for new technology firms are:

– *Informal venture capital market,* composed of "business angel investors", wealthy individuals who are willing to risk their own money in someone else's business.

– *Formal venture capitalists,* professionally managed pools of capital committed explicitly to venture capital investments and invested by professional venture capital managers.

Formal and informal venture capitalists are most likely to display the qualities of long-term equity and involvement in management which characterise venture capital. Publicly traded companies may also take advantage of stock exchanges and over-the-counter markets. However, the latter do not involve the same degree of active involvement on the part of the investor envisaged in the definition of venture capital. Consequently they are not examined in this context.

Because informal investors finance business on a part-time basis using their own resources, it can be difficult to quantify their impact, and relatively little research has been done in Canada on this topic. More information is available regarding the activities of the second category, formal venture capitalists, and it is this group that is the primary focus of this overview. However, informal investors are believed to represent a significant although largely invisible pool of capital in Canada. Therefore, it is useful to note in passing what is known about this key group.

**Informal investors**

One study of informal investors in Canada argued that informal investment is the primary source of equity capital for new firms and for firms undergoing early stages of expansion. It notes that the size of the market for informal capital in the United States has been estimated as being as large as the formal institutional market for venture capital. Although there are no country-wide estimates for Canada, an estimate for the Ottawa region supports the argument that the market for informal risk capital is as large as the institutional venture capital market in that region.

The Canadian study surveyed informal investors to develop a profile of their behaviour and found that in most respects, Canadian informal venture capitalists resemble their United States counterparts, with a few variations. To summarise, it found that:

– Investments were uniformly distributed as to size and covered all industrial sectors. The natural resource, manufacturing, and service sectors accounted for more than half of all investments.

– The typical investor had a minimum yearly income of C$150 000 and personal net worth in excess of C$1 million.

– On average, such people invested about C$100 000 annually.

– As a rule, they learned about investments through personal contacts, through a network of business associates, and by word of mouth.

– They almost always syndicated.

– Investors expected pre-tax rates of return averaging approximately 51 per cent. This rate was found to be consistent with rates required by venture capitalists.

– Investors expected to hold their investments for an average of 6.35 years.

**Formal venture capital industry**

The first true venture capital firm to operate in Canada was the European-backed Charterhouse Canada started in 1952. Some domestic firms were established in the 1960s and 1970s, but for the most part the Canadian venture capital industry grew slowly until the 1980s, when it entered a new, dynamic stage of development as a surge in venture activity in the United States attracted the attention of Canadian investors. Initially, most of the venture investors generally took a minority equity position and limited their involvement to strategic participation at the Board level. They invested with a long-term perspective, not expecting returns for at least five years and did not concern themselves with liquidity.

Table 1. **Growth of Canadian venture capital industry**

| Year | Capital under management (C$ millions) |
|---|---|
| 1980 | 348 |
| 1981 | 448 |
| 1982 | 578 |
| 1983 | 1 038 |
| 1984 | 1 187 |
| 1985 | 1 388 |
| 1986 | 1 810 |
| 1987 | 2 425 |
| 1988 | 3 082 |
| 1989 | 3 294 |
| 1990 | 3 307 |
| 1991 | 3 220 |
| 1992 | 3 272 |
| 1993 | 4 013 |
| 1994 | 4 958 |

*Source*: ACVCC, Macdonald & Associates Ltd.

However, in the late 1970s economic changes following on the oil shocks and consequent recessions created adverse conditions in the venture capital industry. During this period the environment for realising gains became more difficult and even good investments often took longer than expected to realise their potential. As a result, venture capitalists became more actively involved with their portfolio companies. Many adopted a policy of taking control positions in an effort to gain more control over the liquidity and the outcome of their investments.

By 1980, the environment began to improve and the Canadian venture capital industry entered a new and more dynamic stage of development, spurred by rapid growth in venture investment in the United States. During this period the Canadian industry's capital under management grew steadily from C$350 million in 1980 to C$3.3 billion in 1990. Towards the end of this period, disappointing results, particularly in technology investments, led to a slower rate of growth in the venture capital industry and a reduced share of technology related investments. However, the venture capital industry began to grow again in 1992.

**Structure and sources of capital**

Firms in the formal venture capital industry fall into three main categories, according to structure and source of funds.

I. Private funds of several types, including:

- independent, professionally managed funds;
- corporate venture capital funds -- usually subsidiaries of financial institutions;
- institutional/merchant bank groups.

II. Government funds -- funded by government and investing in support of industrial strategies and regional development.

III. Hybrid funds -- independently managed but receiving special government support such as tax credits to investors in the funds, or immigrant investor funds.

Over the years the sources of funds for the professional venture capital industry have evolved significantly. In the 1980s, as a result of strong growth and profitability in the venture capital industry, particularly in the United States, pension funds rapidly increased their funding of independent venture firms and became the dominant financiers of these firms. In only two years, 1985 and 1986, the share of the new capital committed to independent venture firms by pension funds rose from 37 per cent to 67 per cent of the total. Corporations, insurance companies and individuals still invested in venture capital firms, but their overall significance was lessened.

In the 1990s, however, pension funds and life insurance companies have largely left the market due to lower-than-expected returns. During this same period the role of "hybrid" funds as a source of capital has grown rapidly, encouraged by the introduction of tax incentives aimed at smaller investors. In particular, this reflects the growing importance of Labour-Sponsored Venture Capital Corporations (LSVCC), which are investment funds set up by labour organisations in which individuals pool their money to purchase shares in smaller businesses.

In 1991 hybrid funds accounted for 25 per cent of the capital under management (the three LSVCCs; Fonds de Solidarité, Working Ventures and Working Opportunities Fund accounted for 16.5 per cent). At the end of 1992 the LSVCCs alone accounted for one-third of the C$3.3 billion under management. LSVCCs have continued to grow rapidly and in 1994 they accounted for over half the C$1 billion in new capital raised by the venture capital industry.

Table 2. **New capital raised in 1994**

| | |
|---|---|
| LSVCCs | C$532 million |
| Private funds | C$396 million |
| Government funds | C$ 74 million |

New LSVCCs are being established at a rapid pace, and by January 1995, there were 17 such funds at various stages of organisation. Given the rapid inflow of funds, coupled with their initial slowness to

invest (in part due to waiting until enough capital had been accumulated to permit deal-making and in part to regulatory hindrances in the province of Ontario, since removed) they now account for a substantial portion of the industry's liquidity. At the end of 1994, the hybrid funds managed 50 per cent of the C$2 billion in uninvested funds.

Given the regional nature of some of the funds, they are also affecting the regional distribution of venture capital disbursements. For example: Quebec, the home of the oldest and largest LSVCC, now accounts for the largest share of venture capital disbursements. Atlantic Canada, which has experienced very low levels of venture capital investment, is now beginning to enjoy some interest as the result of the activities of LSVCCs. Because LSVCCs have come to dominate the industry and are growing so quickly, their development is a key issue in the venture capital industry. Their growth has more than offset the withdrawal of private funds from the market and has resulted in a growing government role in the venture capital market.

**Industry Association**

The Canadian venture capital industry is represented by the Association of Canadian Venture Capital Companies (ACVCC), which was founded in 1974. Its objectives are to:

- promote the use of venture capital in Canada as an investment/financing tool;
- represent the interests of venture capital investors to government agencies, other professional bodies and to the marketplace at large; and
- facilitate interaction, dialogue and communication among venture capital professionals.

Some of the activities of the association include:

- sponsoring professional development programs to educate and inform its members on investment opportunities and issues, as well as practices and procedures.
- holding a major national conference every 12 to 18 months;
- organising speaker presentations;
- circulating the "Enterprise" newsletter three times per year; and
- producing an annual statistical review.

**Recent performance**

Since 1991 growth has resumed, with capital under management approaching C$5 billion in 1994, roughly C$2 billion of which is still available for investment (Table 3). At the same time, new investment has grown steadily, reaching C$460 million in 1994.

Table 3. **Venture capital industry resources (C$ millions)**

| | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|
| Capital under management | 3 220 | 3 272 | 4 013 | 4 958 |
| New funds raised | 329 | 409 | 773 | 1 001 |
| Net change in industry resources | (87) | 52 | 741 | 945 |
| Capital available for investment | 835 | 967 | 1 516 | 1 929 |
| New investment | 288 | 308 | 399 | 460 |

*Source*: Macdonald & Associates Ltd. for The Association of Canadian Venture Capital Companies.

There was a major shift in the allocation of capital in 1994 towards expansion financing, which attracted 56 per cent of the total amount invested, up from 39 per cent in 1993. Nevertheless, the strong inflow of new capital allowed venture capitalists to continue to undertake first time investments, so that 108 early stage companies attracted C$117 million, unchanged from 1993.

**Regional focus**

Most venture capital firms are found in Ontario and Quebec. Their location is largely dictated by the concentration of Canadian industry in those two provinces and by the location in Toronto and Montreal of the key financial institutions that fund the venture capital industry. The regional distribution of venture capital and of investments varies, dependent on opportunities and government policies to encourage venture investing. Table 4 shows the evolution of the regional distribution of venture capital investment.

Table 4. **Investee firm location (percentage of funds)**

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| Western Canada | 21 | 28 | 38 | 20 | 18 | 27 |
| Ontario | 33 | 26 | 22 | 39 | 25 | 27 |
| Quebec | 39 | 32 | 34 | 34 | 49 | 37 |
| Atlantic Canada | 0 | 2 | 0 | 0 | 1 | 0 |
| Foreign | 6 | 13 | 6 | 7 | 8 | 9 |

1. In 1994 1 per cent of funds could not be identified by region, so proportions do not sum to 100 per cent.
*Source*: Macdonald & Associates Ltd. for The Association of Canadian Venture Capital Companies.

In 1994, venture capital activity rose significantly in western Canada in terms of the value and number of investments. Although the portion attracted by Ontario-based firms in 1994 was lower than in 1992, because of the growth of the industry, such firms actually received more venture capital money in absolute terms in 1994. The number of investments in Quebec-based firms increased in 1994, although the average size of investment was down. The amount of formal venture capital activity was negligible in Atlantic Canada.

**Technology focus**

The proportion of venture capital invested in high technology firms climbed from slightly over 25 per cent in 1980 to almost 50 per cent in 1984, then declined steadily to 26 per cent in 1989. As noted above, this period reflects disappointing returns from investment in technology firms. After 1989, however, the proportion invested in high technology firms then began to increase, reaching a high of 59 per cent in 1994, as shown in Table 5. Preliminary data for 1995 suggest that this upward trend is continuing. In addition, the average size of technology financing increased from C$1.1 million in 1993 to C$1.6 million in 1994. The largest beneficiaries were the 57 computer-related firms that received 18 per cent (C$83 million) of disbursements.

Table 5. **Proportion of venture capital invested in high technology, 1989-1994 (percentage)**

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| Proportion of amount invested | 26 | 28 | 35 | 59 | 46 | 59 |
| Proportion of total number of investments | 43 | 45 | 51 | 54 | 58 | 64 |
| Proportion of number of investee companies | 43 | 44 | 51 | 56 | 55 | 59 |

*Source*: Macdonald & Associates Ltd. for The Association of Canadian Venture Capital Companies.

Of the 296 companies financed in 1994, 59 per cent were technology-based. The largest beneficiaries were computer-related business.

**Contribution to economic growth**

The venture capital division of the Business Development Bank of Canada (a government-owned lending institution dedicated exclusively to small and medium-sized business) has for the last three years commissioned annual surveys of firms in which the formal venture capital industry has invested since 1991. The 1995 survey concluded that the venture-backed companies in the database have outperformed both the economy as a whole and large companies by a significant margin over the past five years.

For example, the total employment in these venture-backed firms grew by 30 per cent a year (compounded) between 1989 and 1994, while employment in the Canadian economy as a whole was growing by only 3 per cent. In contrast, employment in Canada's largest 100 companies declined by 1 per cent per year over this period. The study concluded that the venture-backed companies are already contributing to the economy in a significant way. Over the five year period from 1989 through 1994, during which many of the firms were founded, in addition to the rapid employment growth mentioned above, they increased:

- R&D expenditures by 40 per cent a year;
- exports by 36 per cent a year;
- taxes paid by 35 per cent a year;

– assets accumulated by 31 per cent a year;

– expenditures on property, plant and equipment by 39 per cent a year.

More than half of the firms surveyed were technology-based. These technology-based companies continued to depend heavily on knowledge workers with over half of the employees in these firms being engineers, scientists, senior managers or marketing professionals. The survey group collectively spent C$788 million on research and development over the 5 year period ending in 1994. As noted, over the five year period, R&D spending for the sample grew by 40 per annually, primarily because of aggressive R&D spending by technology-based companies. Even though they account for only 60 per cent of the firms in the survey, the technology companies accounted for 91 per cent of all R&D spending, reinvesting 11 per cent of their sales back into R&D activities. Of the top 100 corporate R&D spenders in 1994, as identified by *Research Money* nine were venture-backed companies.

**Policy measures to encourage venture capital**

***Taxation of capital gains***

A number of taxation incentives, although not designed exclusively for the promotion of venture capital or high technology firms, can be advantageous to individuals who invest in those areas.

For example:

– Canada allows a C$500 000 lifetime capital gains exemption to individuals who invest in small business shares. As venture capitalists typically realise their return in the form of capital gains when disposing of their investment, the capital gains exemption could encourage the activities of informal investors with smaller companies.

– Under Canadian taxation rules, capital losses arising from the disposition of shares and bonds are generally deductible only against capital gains. However, if the capital loss is in respect of shares or debt of a small business corporation, 75 per cent of the loss may be used to offset other income, thereby minimising the investor's income tax liability.

In addition, venture capital firms may elect to have Canadian securities treated as capital property for taxation purposes. The general administrative position of Revenue Canada with respect to corporations that hold securities and realise gains/losses on their resale is that such gains/losses should be treated as income gains/losses. However, venture capital firms may opt to have gains on Canadian securities treated as capital gains and thus benefit from the more favourable rate of taxation.

***Government-owned venture funds***

Governments in Canada have established venture capital funds which concentrate on both high technology and small business. These funds include:

*Business Development Bank of Canada* (federal government) As noted earlier, the Business Development Bank of Canada (BDB) is a government-owned bank dedicated to small business. In view of the special needs of its small business clientele, it also provides a wide range of business counselling, training and mentoring services. It charges higher interest rates than commercial institutions which also enables it to finance higher or unconventional risks. It does not offer commercial lines of credit, so its clients are also

customers of commercial banks, which enables the BDB to develop co-operative funding arrangements with other institutions.

The BDB has a range of programs and services, including:

- *Micro-Business Program* to support early growth needs of some of the smallest businesses through a mix of counselling, training and financing.

- *Patient Capital* -- a product aimed especially at knowledge-based businesses that are in their early stages of development.

- *Venture Loans* which provide quasi-equity for expansion and market development when a firm's cash flow is positive but its collateral is limited; and

- *Venture Capital* for high growth companies which provides flexible long-term capital with the BDB holding an equity participation in the firm. This division finances some private venture capital funds as well, such as First Merchant Equities, a Saskatchewan-based private venture capital firm.

*Soquia* (Province of Quebec). Soquia, which is wholly owned by the Quebec government, was established in 1975 to assist agriculture and fishing businesses in the province, providing both equity and debt financing.

*Innovatech* (Province of Quebec). Innovatech, established in late 1992, is a community-oriented funding mechanism, geared exclusively to innovation and technology ventures in the greater Montreal area.

*Innovation Ontario Corporation* (Province of Ontario). Innovation Ontario, which was established in 1986, is a provincial crown corporation providing equity and quasi-equity financing to technology-based enterprises situated in Ontario. It participates in venture capital investing, primarily in start-up, development and second-stage financing. The maximum contribution per investment is generally limited to C$1 million. Innovation Ontario suspended operations in late 1995 pending a review of its role by the government of Ontario.

*Discovery Enterprise Inc.* (Province of British Columbia). Discovery Enterprise Inc. was formed in 1986 as a subsidiary of an independent non-profit organisation formed by the British Columbia government in 1979 to promote investment in high-tech business. In 1994 it was sold to private interests.

*BC Focus Initiative* (Province of British Columbia). The BC Focus Initiative, established in 1993, is a privately-managed fund in which the province has invested as a silent partner with two venture capital firms and three merchant banks.

*Alberta Opportunity Company* (Province of Alberta). The Alberta Opportunity Company was established in 1972 to provide financial assistance to firms based in Alberta that are unable to obtain conventional financing. Its Venture Funding Division focused on the high technology area, although this division has now reduced its activities considerably.

**Labour sponsored venture capital corporations**

Labour Sponsored Venture Capital Corporations (LSVCCs) are investment funds set up by labour organisations in which individuals pool their money to purchase shares in smaller businesses. The federal government and most provincial governments have LSVCC programs which provide tax credits to individuals who invest in the funds. The oldest and largest of these funds is the Quebec Fonds de Solidarité, established in 1983.

To be eligible for tax credits from the federal government, the fund managers must abide by certain rules -- for example, restricting their investments to smaller businesses (with total assets up to C$50 million) and requiring contributors to leave their money in the fund for a minimum of 8 years (before 6 March, 1996 the minimum holding period was 5 years) to avoid tax penalties. These rules are aimed at making sure that smaller businesses are the focus of the fund's activities and that the fund is sufficiently stable to make longer term investments.

The federal government provides a tax credit for labour-sponsored venture capital funds. Until the Budget of 6 March 1996 the federal credit for investments by individuals in labour-sponsored venture capital funds was equal to 20 per cent of the cost of the shares acquired on the first C$5 000 per year of investment (maximum credit of C$1 000 per annum). The 1996 Budget announced a reduction in incentives, such that the tax credit for investment in LSVCCs was reduced from 20 per cent to a maximum of 15 per cent. The maximum share purchase eligible for the federal tax credit was reduced from C$5 000 to C$3 500. As noted above, the minimum holding period applied to federally registered LSVCC shares was also increased from five to eight years. As well, all provinces except Alberta and Newfoundland offer a 20 per cent tax credit. With the federal incentives in effect before 6 March 1996, the combined federal and provincial incentives could result in a total tax credit of 40 per cent.

In addition, investments in LSVCCs are eligible for inclusion in Registered Retirement Savings Plans (RRSPs), which would entitle the investor to a tax deferral (by enabling the taxpayer to deduct the investment from taxable income). As with all RRSP investments, the return of this investment to the investor as a lump-sum or in the form of retirement income is subject to full taxation at normal tax rates and does not qualify for the C$500 000 capital gains exemption. As a result, when LSVCC shares enjoying the pre-1996 incentives were sheltered in an RRSP, the initial after-tax cost to investors in the middle-income tax bracket could be less than 20 per cent of the investment. Higher income earners paid even less. With the changes announced in the March 1996 budget, the total incentive will be reduced by at least 5 per cent of the amount of the initial investment.

Part of the rationale for providing special tax credits was to attract individual small investors who would not normally enter the venture capital market. As well, they were intended to encourage investment in smaller businesses by offsetting the higher transaction costs and risks associated with a concentration by venture capitalists on small and early stage deals. The transaction cost of doing a small deal is proportionately higher than that of doing a large deal, making venture funds reluctant to concentrate on small businesses. The tax incentive was seen as necessary to overcome this perceived market imperfection. Similarly, LSVCCs, with their government support, should be able to shoulder a greater share of the high risk start-up deals.

As noted above, the LSVCCs are rapidly growing to dominate the formal venture capital market in Canada. This rapid growth, coupled with the special tax incentives to investors in these funds, is leading to increased scrutiny of their investment behaviour to determine whether they in fact are directing venture capital to small and medium-sized businesses. Initially they were criticised for their slowness to invest

and their failure to invest in the smaller deals for which they were designed. However, more recent data suggest that their investment behaviour is evolving. Generally speaking, it is too early to draw definitive conclusions as to the longer term impact of the LSVCCs. The fact that the LSVCCs had accumulated a large pool of capital which was available to be invested in small businesses, was one of the factors cited when the March 1996 Budget announced a reduction in the federal incentives available to encourage investment in LSVCCs.

**Conclusion**

This overview of the history and recent trends in the venture capital market in Canada suggests several conclusions:

- Informal investors are strongly believed to be a significant source of venture capital in Canada, but not enough research has been done to substantiate this.

- The formal venture capital industry in Canada is well-developed and has grown strongly since 1990. There appears to be an adequate supply of equity capital in the formal market. It is now generally accepted that formal venture capitalists have a three year supply of uninvested capital available.

- This industry has experienced rapid structural change and shifts in sources of funds. It is now characterised by the rapid growth of hybrid funds (LSVCCs in particular) to a dominant position;

- The technology share of venture capital investment, after dropping to a low of 26 per cent in 1989, has since risen steadily to a high of 59 per cent in 1994.

- Data for 1995 suggest that these trends are continuing.

- Venture backed companies contribute to economic growth. They show high R&D performance, as well as rapidly growing exports and employment, outperforming the rest of the economy.

- The role of government in providing venture capital, either directly through government agencies, or indirectly through tax incentives to individual investors is significant.

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## G. VENTURE CAPITAL IN KOREA

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### Introduction

In the past the Korean economy had experienced high inflation and high interest rates which made access to investment by firms difficult. Moreover excess demand in the money markets did not provide any incentives for commercial banks to be concerned with technology financing. Commercial banks were reluctant to finance risky projects related to technology development and small enterprises. It was, therefore, difficult to obtain financing for a new business or a new technology development project. In addition to the tight money situation in the domestic market but also some contemporary economic factors have played the main role in the early development of venture capital in Korea.

One of the factors that gave rise to the development of venture capital was the change in the government's industrial policy, which shifted the major focus of policy from big conglomerates, or "chaebol", to small and medium businesses. In the late 1970s, there were many criticisms about the industrial policy that concentrated mainly on heavy and chemical industries in terms of market structure and resource allocation. Policy-makers came to realise the importance of small enterprise and tried to support them by various means.

Another factor that helped accelerate the establishment of venture capital was Korean firms loss of comparative advantage in world markets. Price competitiveness of domestic products that accrued to cheap labour, began to disappear due to drastic wage increases since the late 1970s. To maintain industrial competitiveness, entrepreneurs began to launch technology development projects with government support. During that time, government financial support was one of the most effective policy tools to encourage firms to invest in the technological development projects.

### Dual development of venture capital

The first venture capital institution in Korea was the Korea Technology Advance Corporation (KTAC), which aimed at commercialising R&D results of a government supported research institute, the Korea Institute of Science and Technology (KIST). Due to increasing importance of technological development as well as technology financing in the early 1980s, three more venture capital companies were established with partial fund support from the government. The Korea Technology Development Corporation (KTDC), funded by the World Bank, was founded in 1981. In 1982, several domestic investment companies, the International Financing Corporation (IFC), the German Foreign Investment Corporation (DEG), and the ADB jointly launched the Korea Development Investment Corporation (KDIC). Finally, the Korea Technology Financing Corporation (KTFC) was introduced in 1984 by the Korea Industrial Bank.

The above four venture capital institutions (hereafter VCIs) were originally designed to finance technology development projects regardless of firm size. Despite attempts to redefine the private sector roles and

functions of these four VCIs through subsequent legislation, their focus is still on financing technology projects rather than start-up businesses. In contrast to the above new-technology VCIs, some of the start-up-business VCIs were introduced under the "New and Small Business Investment Act" in 1986. The start-up-business VCIs, which require less capital stock for establishment than the new-technology VCIs, were to support entrepreneurs rather than technology projects. Since 1986, a total of 52 start-up VCIs have been established throughout Korea.

**Legal basis and definition**

There are three Acts regulating the general roles and activities of the VCIs: the "New Technology Financing Act," the "Small and New Business Investment Act," and the "Korea Technology Banking Corporation Act." These Acts originated from three ministries which defined their role in venture capital differently from one another. The "New Technology Financing Act" set out the legal basis for several VCIs, including the KTAC, KDIC, and KIFC, which are under the control of the Finance and Economic Planning Board. This Act defined venture business as new-tech oriented firms or technology development projects and narrowed the scope of the VCIs' business to research projects on product and process innovation; commercialisation of R&D results; and technology transfer and adaptation.

Unlike the other three new-tech VCIs, the KTDC had evolved into the Korea Technology Banking Corporation (KTB) through the enactment of the "Korea Technology Banking Corporation" as a special Act in 1991. Based on the act, KTB began to raise funds by operating an instant lottery called "Technology Lottery". The "Small and New Business Investment Act," which is the base law governing start-up VCIs, places some limitations on their role and provision of business. According to the Act, the VCIs are to deal only with start-up businesses that are under seven years old.

**Role and function of venture capital**

Venture capital is distinct from traditional investment forms by its concurrent provision of business and managerial advice to the borrower. Higher levels of risk are associated with venture capital financing with the expectation of greater returns on promising products or services. Venture capital *per se* is characterised by the following:

1. Investment in high risk financial venture.

2. Investment in unproven ideas, products, or in start-ups as a seed capital.

3. Investment in growing firms that are unable to raise funds from conventional public or commercial sources.

4. Investment in large publicly traded companies and possibly obtaining controlling interest in such companies where uncertainty is significant.

Table 1. **Comparison of the Acts governing the VCIs**

| Acts | New-tech VCIs | | Start-up business VCIs |
|---|---|---|---|
| Items | New Technology Financing Act | Korea Technology Banking Corporation Act | Small and New Business Investment Act |
| Effective Date | December 1986 | July 1991 | May 1988 |
| Objective | Support new-tech oriented development projects | | Support start-up businesses |
| Provision of Business | Project related with R&D(small business only) | Project related with R&D | New business under 7 years old |
| Means of Support | . Direct Investment<br>. Conditional Loan<br>. Loan<br>. Lease<br>. Factoring | | . Direct Investment<br>. Conditional Loan |
| Authority | Finance and Economic Planning Board | Ministry of Science and Technology | Ministry of Trade and Industry |

Venture capital is also associated with equity financing as a type of direct investment in the securities of new speculative firms or technology-intensive enterprises. The main lines of business of Korean venture capital institutions are as follows:

- R&D projects - self or contracted R&D; R&D device and facilities.
- Commercialisation of R&D results - prototype products; mass production line; marketing, public relations.
- Upgrading production process - productivity enhancement; quality test or control; technical training.
- Start-up business - technology-intensive small firms; expert-oriented or import-substitution enterprises.

As illustrated in Table 1, various means of support are provided under the provisions for the VCIs such as direct investment, conditional loans, credit loans, leasing, and factoring. The main form of support is the

conditional loan in which an entrepreueur pays a royalty if the project is successful and repays only a portion of the principal if it failed. The VCI and the entrepreneur negotiate the amount of royalty and repayment by calculating risk and expected returns of a project. Investment can be done in the form of either stock purchase, convertible bond, or contract investment, and should not exceed 50 per cent of recipient's total value of issued securities.

VCIs have played a major role in helping small firms solve the problem of funding for technology. As discussed above, a shortage in the money supply has affected SMEs more acutely during the economic expansion. The allocation of money, including government and commercial bank financing, was controlled by the government which has traditionally favoured large firms over SMEs. Government financial supports, which included loan guarantees with preferential interest rates and export financing, concentrated only on large firms that were thought to have strong inter-industry linkages. In this context, VCIs were seen as an important source of money for SMEs. The performance of VCIs can be summarised as follows: first, VCIs support SMEs in the expansion of equity capital through investment since it is not possible for SMEs to raise funds in the stock market without the support of VCIs. The investment by the VCIs, without intervening in the entrepreneur's management and ownership, helps SMEs maintain a sound financial base and reduce financial costs. Also, SMEs can be listed on the stock market earlier in partnership with VCIs. Second, VCIs play a role in discounting commercial bills for SMEs. As a bridge loan, the commercial bill is discounted regardless of its due. Discounting has been very effective in accelerating the flow of money because commercial bills are the most popular intermediary of payment between Korean firms.

**New-technology VCIs and start-up VCIs**

As discussed above, VCIs in Korea can be classified into new-technology VCIs and start-up VCIs. Looking at the accumulated amount of investment and financing as of 1995, it is clear that new-technology VCIs, in comparison to start-up VCIs, have concentrated their business on loans rather than direct investment.

Table 2. **Accumulated investment by type of financing**
(Unit: million US$, Year: March 1995)

| | Start-up business VCIs | | New-technology VCIs | |
|---|---|---|---|---|
| Investment | 9.152 | 54.5 per cent | 3.503 | 7.2 per cent |
| Conditional | 7.656 | 45.5 per cent | - | - |
| Loan | - | - | 41.182 | 74.7 per cent |
| Loan | - | - | 1.623 | 3.4 per cent |
| Factoring Lease | - | - | 2.292 | 4.7 per cent |
| Total | 16.808 | 100.0 per cent | 48.600 | 100.0 per cent |

1. Investment includes stock purchase, convertible bond, contract investment, etc.
*Source*: Korea Association of Investment Companies.

Thus the percentage of investment accumulated over the last twenty years is only 7.2 per cent for new-technology VCIs compared to 54.5 per cent for start-up VCIs. Again, this is because the two types of VCIs differ from each other in terms of the scope of business provisions according to the relevant legislation. First, new-technology VCIs are allowed to deal in all kinds of investment including direct

investment, conditional loans, leasing and factoring, while start-up VCIs can only deal in investment and conditional loans. Second, new-technology VCIs, especially the KTB, can deal with any firm regardless of size while start-up VCIs are confined to only small- and medium-sized firms that are less than seven years old. The total amount of funds of four new-technology VCIs in 1993 was US$ 1.16 trillion. The amount of loans from government finance and foreign funds was US$ 408 million (35.2 per cent), and funds raised by the sale of corporate bonds totalled US$ 402 million (34.6 per cent). The mean capital per institution was US$ 53 million.

Table 3. **Funding source of new-technology VCIs (1993)**
(Unit: million US$)

| | Amount | Share |
|---|---|---|
| Floating Debt | | |
| Bond[1] | 75.9 | 6.5 |
| Loan | 387.0 | 34.6 |
| Government | 408.6 | 35.2 |
| Finance | 99.8 | 8.6 |
| Foreign Fund | 109.5 | 9.4 |
| Others | 199.2 | 17.1 |
| Capital | 215.2 | 18.5 |
| Balance carried | 59.4 | 5.2 |
| Total | 1554.6 | 100.0 |

1. This includes corporate bond and an extra bond named "Technology Development Financing Bond".
*Source*: KTB.

On the other hand, the sources of funds for start-up-business VCIs are capital, government loan, and limited partnerships. In 1994, the average source fund was only US$ 21.7 million. Fund raising has declined because the requirements for listing on the stock market were reinforced and the over-the-counter market has not been stimulated. Although the over-the-counter market has been operating since 1987 to assist in the direct financing of unlisted SMEs, the share of transactions in the market is only 0.08 per cent of total stock transactions.

Table 4. **Size of start-up business VCIs**
(Unit: million US$, Years: 1994)

| | |
|---|---|
| Average source of funds | 21.7 |
| Average capital | 15.6 |

*Source*: Korean Association of Investment Companies.

Furthermore, few limited partnerships are established due to the low rate of capital returns of start-up-business VCIs which is around 2.6 per cent while that of merchant banks is 18.4 per cent.

Table 5. **Comparison of rates of return on equity capital**
(Unit: per cent Year: 1994)

| | |
|---|---|
| Start-up business VCIs | 2.6 |
| New-tech VCIs | 8.8 |
| Merchant Banks | 18.4 |
| Commercial | 7.0 |

*Source*: Compiled from the above institutions.

**Summary and lessons**

In general, Korean VCIs consider the United States as a benchmark given the excellent business environment for venture capitalists in terms of the technology level of firms, availability of risk capital, technology evaluation capacity, and efficient stock markets such as the NASDAQ. The situation in Korea, however, is quite different from that in the United States. The availability of funds, level of technology, market size, and the stock market are still not developed enough for venture capital firms. The development of Korea's VCIs can therefore be considered as ad hoc. New-tech VCIs are managing their funds mainly in the form of loans rather than investment, and start-up-business VCIs invest in new and small business within a limited scope.

Among the major obstacles to stimulating the venture capital firms is the dual structure of the VCIs and the complex restrictions on their business. Although it may appear complimentary to divide the roles of new-technology and start-up-business VCIs, the latter have suffered from small returns because their clientele is limited to SMEs under seven years old. It would be more efficient to allow them to deal with all SMEs, regardless of company age and to expand their scope of business into technology development projects.

Second, promoting tax incentives for investors in limited partnerships should be considered. As in the United States and Taiwan, raising funds from institutional investors, alleviating tax rates on capital gains and investment by pension funds should also be considered. Finally, the over-the-counter (OTC) market needs to be stimulated to generate faster returns on investments. To do this, a transaction information system and a professional dealer system should be established in the market.