

Two Worlds of Venture Capital: What Happened to U.S. and Dutch Early Stage Investment?

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ABSTRACT. European attempts at imitation of U.S. venture capital have been less successful in stimulating 'high tech' start-ups. Our analysis of the differences between Dutch and U.S. developments points at institutional and organizational differences as explanatory factors. Disappointing longer term performances of Dutch IPOs have caused the closure of the Dutch Parallelmarket. Indeterminate length of life of Dutch vc funds contributed to a loss of trust in early stage IPOs. The U.S. – in contrast – benefitted from contractually fixed length of life of venture capital funds. The U.S. share of early stage investment displayed a wave-like pattern, which is positively related to the number of IPOs and of vc firms. Interconnectedness and follow-on funds depress early stage investment.

1. Introduction

Venture capital is usually defined as a professionally managed pool of capital that is invested in equity related securities of private ventures in various stages of development. Venture capital thus involves 3 parties; the various suppliers of venture capital; the managers of venture capital funds and the recipients of venture capital monies. Venture capital opens up opportunities for young unlisted companies to obtain equity. Many companies which have now become household names were initially financed by venture capital. DEC, Apple, Microsoft and Federal Express are only a few cases in point. These companies have restructured industries; spurred innovation and created

numerous jobs. Venture capital can also be used for later stage finance. MBOs and LBOs are important investment outlets for venture capital firms.

U.S. venture capital originated in the late 1940s and has since displayed enormous, though irregular growth rates. It spread to Europe in the beginning of the eighties, where it had a flying start, particularly in the Netherlands and the U.K.

However, European venture capital has never been as supportive of start-ups as its U.S. counterpart. Our analysis of the Dutch venture capital industry pointed at a decline of the share of early stage investment. This raises questions involving the determinants of the share of early stage investment in venture capital. We want to analyze the evolution of the Dutch venture capital industry to elucidate these phenomena.

2. 'High tech' investment and venture capital

'High tech' start-ups are important recipients of (U.S.) early stage venture capital investment. These firms can best be financed by equity capital due to the high degree of uncertainty of their prospective revenues. A few great successes are largely outnumbered by the multitude of failures which never reach the headlines. High uncertainty rises interest rates on debt to cover bankruptcy costs, which curbs the demand for loans by start-up firms. Equity capital – in contrast – can absorb uncertainty more easily since losses can be more effectively compensated by gains. Moreover 'high tech' start-ups have little to no tangible assets to offer as collateral, which further impedes obtaining debt finance. Arguably, supply of venture capital will not change as long as expected average rates of return meet their targets.

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Consequently, the supply of venture capital will increase (decrease), if expected rates of return lie above (beneath) expected returns on other securities. The equity character of venture capital accords with finance theory, which predicts that companies which are R&D oriented will have relatively low gearing rates (Myers, 1992, pp. 135–144).

The share of early stage investment in vc investment depends on the expected revenues of these investments vis a vis later stage investments. Overshooting in early stage investment occurs, when expectations are disappointed, which causes the supply of early stage vc capital to contract. The reverse will happen when returns exceed former expectations. The supply of (early stage) venture capital is therefore determined by relative rates of return. Early stage venture capital can only increase its share in total investment, if its revenues exceed those of other types of investment.

The demand for venture capital is constituted by the supply of entrepreneurs and their demand for funding. We can expect the supply of entrepreneurs to move in a countercyclical manner, since unemployment can be a reason to enter entrepreneurship. However, entrepreneurs are in ample supply, since only a few of the hundreds of requests, which vc firms receive each year are found eligible for funding in both the Netherlands and the U.S. Supply of capital seems, therefore, a more constraining factor than supply of entrepreneurship. Excessive demand can be explained by the absence of interest costs. Required rates of return can be 30 percent or up, but these rates depend on expected revenues and do not constitute actual interest payments. The relative stakes of entrepreneurs and capital suppliers in a start-up can be a bone of contention. The vc firm's stake will depend on the perceived worth of the company and the amount of capital it wants to disburse.

The traditional finance pecking order thus seems to be reversed for 'high tech' start-ups. Since internal finance (cash flows) cannot meet their capital demands and debt is hard to come by, equity capital figures as the prime financial resource. Their ranking therefore reads as: equity first; debt second and ultimately internal finance. Alternatives for vc investment can only be found

in funding from entrepreneur's savings or assets (mortgages on homes) or from family and friends (angels).

Venture capital firms – in contrast – can tap from various sources, ranging from private persons to institutional investors, banks and government. Regulatory reform removing constraints on equity investment by banks and pension funds has stimulated venture capital supply.

Requests for vc funding will be ranked according to the perceived worth (valuation) minus investment over the relevant investment period. Capital will be rationed in accordance with this ranking.

The quality of vc backed ventures depends largely on the selection capacities of vc managers. A start-up needs to compete with both incumbents and other entrepreneurial firms. Vc backed entrepreneurs can increase their share in investment, if they outperform incumbents. Equal chances between entrants and incumbents are enhanced by the absence of inflation, which appreciates the valuation of incumbents' assets. Apart from entry barriers in capital markets, start-up investment can also be curbed by entry barriers in product, technology and labour markets, which, however, are beyond the scope of this article.

3. The evolution of U.S. venture capital

U.S. venture capital had modest beginnings. The first U.S. venture capital company (ARD) was founded in Boston in 1946. It got an impetus in 1958, when the Small Business Investment Act came into force. Small Business Investment Companies were established, which benefitted from governmental support. Each dollar of equity invested allowed the SBICs to leverage four low interest government dollars in debt. SBICs soared during the 1960s, riding the high tide of the stock market boom. 1,000 new companies offered their stock to the public in 1968–69 (Bygrave and Timmons, pp. 21–22). However, a declining stock market led to the venture capital drought of the 1970s, when venture capital almost completely vanished. Many SBICs came into difficulties; regulation was tightened and SBICs became almost non-existent.

A new era for venture capital emerged slowly after 1977, when investment in venture capital

rose again. New regulations assisted the renewed surge. The 1978 Revenue Act reduced the prevailing capital gains tax from 49.5 to 28%. The 1979 ERISA 'prudent man' rule enabled pension funds managers to invest in high risk investments. The 1980 ERISA 'safe harbor' regulation separated the responsibilities of general managers of venture capital funds and of pension funds managers. The 1980 Small Business Investment Incentive Act loosened the SEC regulations for venture capital funds and the 1981 Economic Recovery Act lowered capital gains taxes paid by individuals from 28 till 20%. These regulatory reforms supported vc's rebirth, which flourished on the booming stock market of the early and mid 80s.

Venture capital investments rose from 460 million in 1979 to \$3.94 billion in 1987. The number of venture capital companies increased from 225 in 1979 to 658 in 1987. However, investment declined rapidly after 1987 and hit bottom in 1991, when only \$1.3 billion of venture capital was invested. The vc industry, however, rebounded in 1992 and had almost again attained its 1987 high in 1994, when \$3.8 billion was invested (see Figure 1).

U.S. venture capital companies exist in several forms; SBICs, limited partnerships and firms owned by either banks or corporations (captives). Organizational forms have evolved over time. In the United States the 10 year private limited part-

nership – a self-liquidating fund – has emerged as the main organizational form for venture capital during the 1980s. The investors, who supply the funds serve as limited partners and the venture capitalist managers as general partners in those partnerships. General partners only provide a limited share of capital (around 1%) and are entitled to a annual fee of 2 to 3% of capital committed and 20% of realized capital gains (Bygrave and Timmons, pp. 11–12). European venture capital – in contrast – is mostly organized for an indeterminate length of life – the revolving fund.

Corporate vc firms (the captives) controlled 34%; SBICs 21% and private vc firms 45% of U.S. venture capital in 1978. Private limited partnerships had expanded their share rapidly and controlled 80% of the U.S. venture capital stock in 1989. The corporate captive vc share had declined to 19% and the SBIC share to an insignificant 1%.²

The 10-year limited partnership dates back to 1961, when it was pioneered by Rock and Davis and was initially mainly favoured for judicial and tax reasons. The strict separation between limited and general partners grants the limited partners a 'limited liability' status and does not jeopardize pension funds' non-taxable status (Bygrave and Timmons, p. 12). Moreover, the limited partnership is not subject to corporate taxation; instead income is taxable to the individual partners only

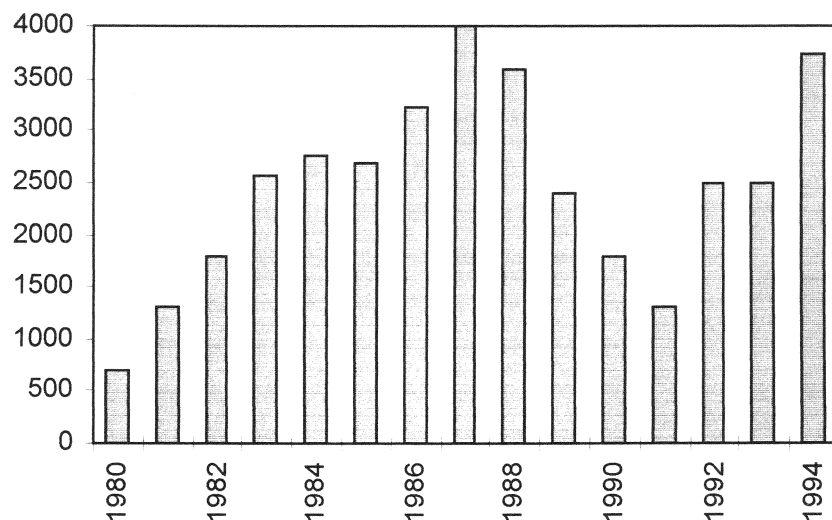


Fig. 1. Annual venture capital investments in US\$ ($\times 1,000$).

at the time, when the capital gain has been realized. Limited partnerships can only qualify for this type of tax treatment, if funds have an agreed upon date of termination. Withdrawal from the partnership before this date is prohibited. At the end of a fund's legal existence, all cash and securities are distributed and a final account is made. General partners bear unlimited liability, but this does not really bite, since vc partnerships generally do not borrow, nor are they exposed to the risk of having liabilities in excess of assets (Sahlman, p. 490).

The supply structure of U.S. vc capital also changed during the 80s. Pension funds had become the most important investors during the 1980s, supplying 47% of capital invested in 1988. Their increase came mainly at the expense of the share of individuals and families (see Figure 2) (Sahlman, p. 477).

4. The development of Dutch venture capital

European venture capital boomed during the 80s. The European venture capital pool amounted to US\$29 billion in 1988, whereas US\$30 billion was invested in the U.S. Japan, Canada and Korea also participated in the vc boom of the 80s (Bygrave and Timmons, p. 70). The United Kingdom and the Netherlands were in the vanguard of European venture capital.

Dutch vc investments grew rapidly from 180 million guilders in 1984 till 700 million guilders

in 1994. The total capital stock amounted to over 3 billion guilders in 1994. Dutch vc investment developed in a wave-like pattern, although with a smaller amplitude than U.S. developments. Dutch vc investment declined in the early nineties, but rebounded quickly. 1994 was an all time high (see Figure 3).

Dutch venture capital has even outgrown U.S. venture capital if we express vc investment as a percentage of all investment in machines and equipment. Dutch vc investment amounted to 1.4% of these investments during the 1984–1992 period, whereas U.S. vc investments amounted to only 0.9% of such investments.³

The rise of Dutch venture capital was also supported by regulatory reform. The ban on equity investment by Dutch banks was partially lifted in 1980, which enabled Dutch banks to invest in venture capital. In contrast to the U.S., banks (32%) and government (22%) are the main suppliers of Dutch vc capital. Pension funds only contributed 12 percent in 1992.

Of particular importance was the installment of the '*Garantieregeling Particuliere Participatiemaatschappijen*' (Guarantee Settlement Private Participation Societies) by the Dutch government in 1981, which gave qualified vc firms (PPMs) up to a 50% retribution of losses suffered on vc investment. Venture capital firms could qualify as PPMs, if they met several conditions. Investments should not exceed a certain size and vc's could not take majority interests. The full 50 percent com-

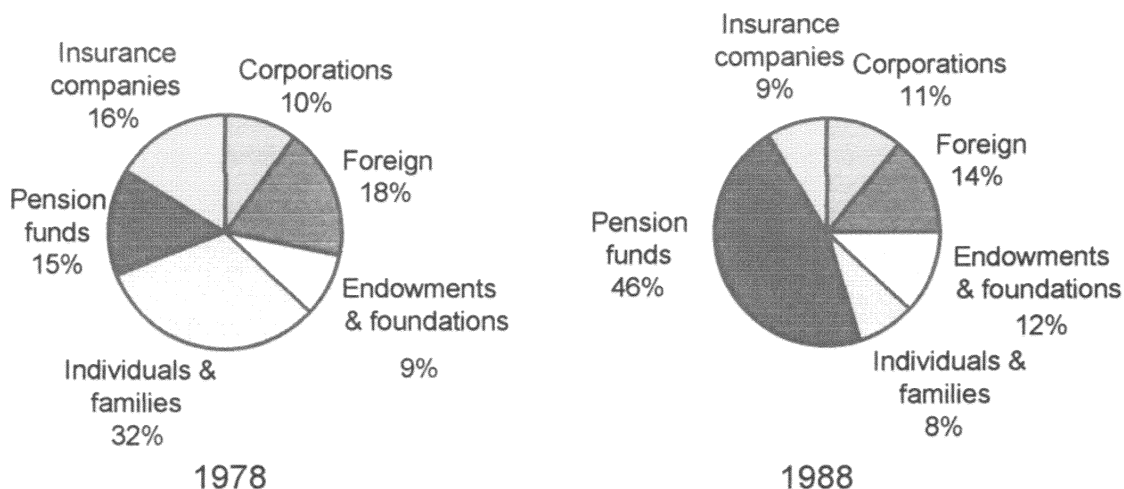


Fig. 2. Investors in venture capital in the U.S.

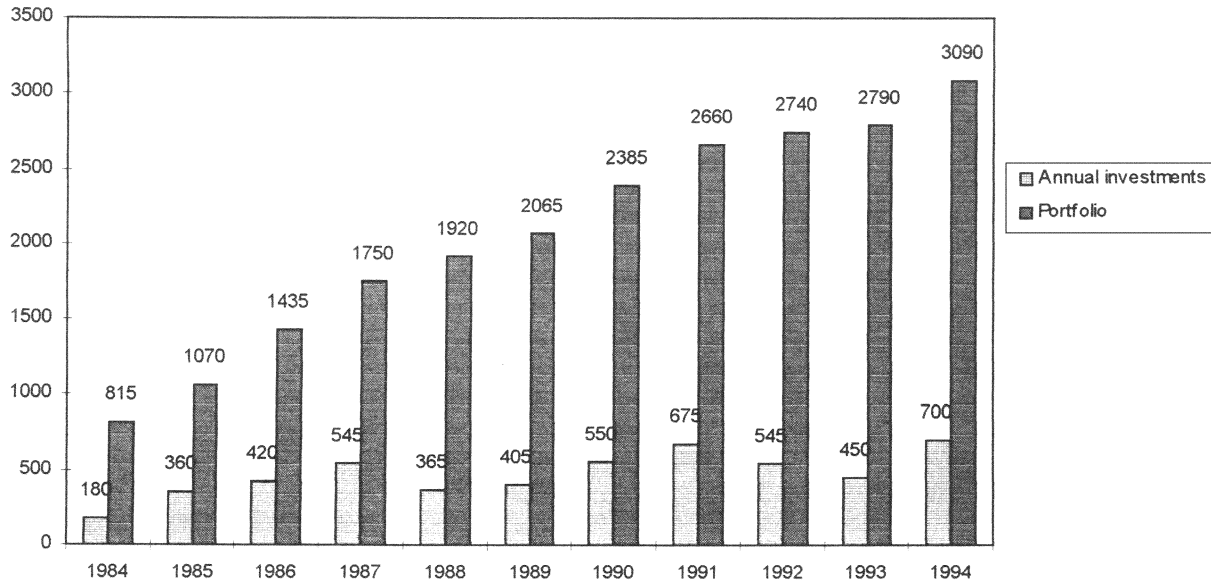


Fig. 3. Annual investments and total venture capital portfolio (in millions of guilders).

pensation was only paid, when the ventures exited within 10 years after foundation. Longer-held investments were paid decreasing retribution percentages. The Dutch Central Bank was commissioned with the execution of the *Garantieregeling*.

Success has its dark sides as the Dutch government has experienced. The popularity of the '*Garantieregeling*' increased sharply, when the maximum guarantee was raised to 4 million guilders of investment per deal in 1986. Private investors now swarmed to start PPMs, whereas regional and captive PPMs (mainly owned by

banks) had been the main beneficiaries of the guarantees before that date. Large deals (> 2 mill guilders) comprised over 50 percent of all guaranteed monies in 1990 (Ministry of Finance 1990, 7). Compensation payments increased sharply as a result of the policy shift, which induced government to tighten regulation.

Quick exiting (within one year after investment) was prohibited in 1988. The '*Garantieregeling*' was limited to a 75 million budget in 1990, which was further reduced to 50 million guilders in 1991. The '*Garantieregeling*' was terminated in

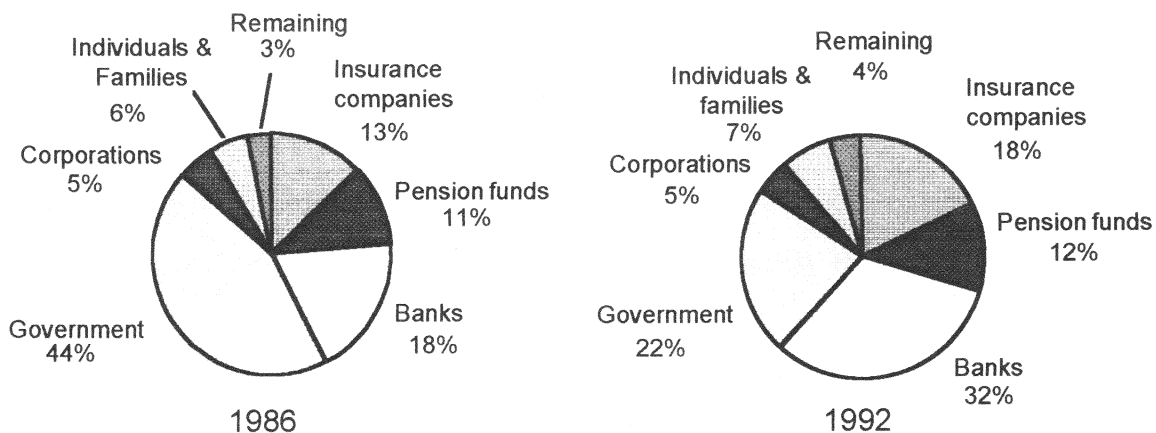


Fig. 4. Investors in Dutch venture capital.

1995. The application deadline was New Year 1996, but investments which were guaranteed before that date can be recouped until 2005.

One should not be surprised by the relatively high retribution payments made by the Dutch government under the '*Garantieregeling*'. Venture capital investment is a risky affair. The 50 percent compensation scheme has attenuated losses and has so expanded vc supply. It can, therefore, be said that the '*Garantieregeling*' has achieved some of its objectives. However, the expected stimulating effect on early stage vc investment has not been fully accomplished as will be elaborated below.

5. Early stage investment in Europe and the U.S.

The European vc industry differs from its U.S. counterpart with respect to the share of early stage investment. European venture capital is much less interested in investing in new firms, but instead favours LBOs and MBOs. Experts, therefore, refer to European venture capital as merchant capital in contrast to traditional entrepreneur-focussed venture capital. Dutch early stage vc investment has never gained the importance of the U.S. The average share of Dutch early stage investment amounted to 16% during the 1984–1994 period. Dutch early stage vc finance attained its all time high in 1988, when it accounted for 27% of all vc investment. However, Dutch early stage vc

investments steadily declined after that date as Figure 5 demonstrates.

U.S. venture capital also seemed to have lost some of its appetite for early stage investment after the stock crash of 1987. However, the U.S. share of early stage investment did not drop below 24% and reemerged in 1994, when it rose to 35% (see Figure 6).

We can, therefore, conclude that the position of early stage venture capital differs between the U.S. and Europe. In the U.S. the share of early stage investment shows a wave-like pattern along a more or less stable trend line of 28%. The share of Dutch early stage venture capital – in contrast – has fluctuated along a declining trend line. Its share decreased from 23% in 1984 till 12% in 1994.

We contended above that the size of vc investment depends on expected rates of return. Funds will continue to flow to vc firms as long as expected average rates of return on venture capital investment exceed those of other types of investment. The observed high volatility of vc investment should, therefore, be reflected in irregular rates of return. This hypothesis is corroborated by the evidence. High volatility of rates of return are a striking characteristic of U.S. vc investment. U.S. annual rates of return ranged from 11 to 26% before 1980; decreased during the early 80s, but rebounded sharply to peak in 1983 at 27%. From 1983 onwards annual vc rates of return decreased; till 20% in 1985; 10% in 1987

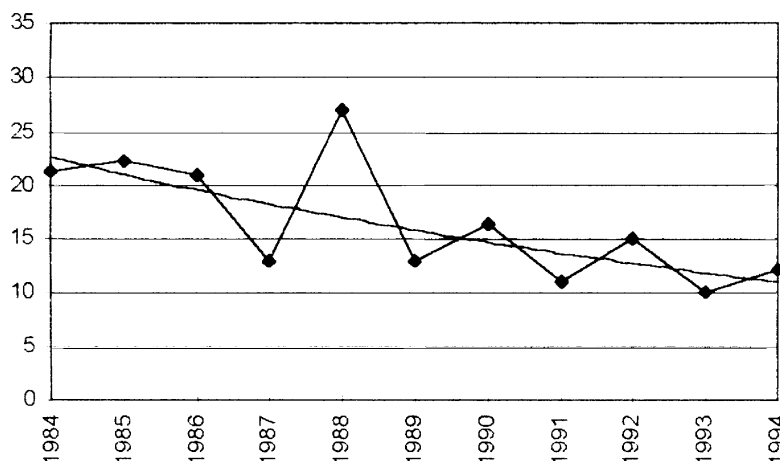


Fig. 5. Percentage early stage financing in the Netherlands.

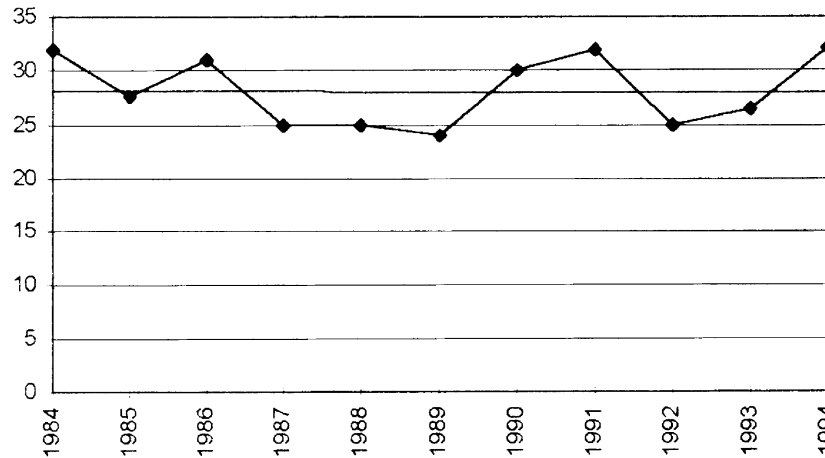


Fig. 6. Percentage early stage financing in the U.S.

and hit bottom in 1989 at 8%. But, (average) rates of return on vc investment reversed sharply and surpassed the 20% mark in the 1991–1994 period.⁴ Returns on early stage investment were somewhat higher than overall returns on venture capital.⁵

Hence, both vc investment and rates of return data demonstrate a cyclical pattern; the two cycles, however, do not coincide. Vc investment follows profitability with a 2–4 year time-lag. Vc investment is closely related to the NASDAQ index, which also peaked in 1987, whereas vc profitability data are closely related to the amount of capital raised by IPOs (Initial Public Offerings). The IPO market peaked in 1983 and declined after that date. Its fall thus preceded the 1987 stock market crash by four years. The capital raised through venture capital backed IPOs fell from 3 billion in 1983 to \$2.1 billion in 1986 to 0.7 billion in 1988. Acquisitions became the most favoured exiting mechanism in the late 80s. Its share of exits rose from 29% in 1983 to 78% in 1989. However, the venture capital backed IPO market rebounded strongly in 1991 and the number of vc backed IPOs has increased dramatically since that date. The 1983 pinnacle when 121 vc backed IPOs were made was surpassed in 1991, when 122 vc backed IPOs were launched. Their number grew till 165 in 1993 and declined somewhat in 1994 with 136 vc backed IPOs (NVCA, 1994). The amount raised by vc backed IPOs amounted to \$16.6 billion in 1993, which outperformed the 1983 pinnacle of \$14 billion. ‘High tech’ firms got about half of all the monies raised by IPOs.

Both U.S. vc investors and buyers of the newly issued shares benefitted from IPO stocks. Buyers of IPO shares obtained 25% on their investment in 1993 and 30% in 1994 (Gleba). Hence, the IPO price was set at a level, which allowed for future price increases (underpricing). The reverse phenomenon (overpricing) exists, when stock prices dwindle after their introductory offering. Buyers of vc backed IPO stocks can therefore be seen as a fourth party involved in the venture capital process, apart from investors, managers of vc funds and entrepreneurs.

Three principal-agent problems can then be distinguished in vc investment:

- Between the investor and the vc manager (the manager may select the ‘wrong’ (too risky) projects)
- Between the vc manager and the entrepreneur (the entrepreneur can put in less than maximum efforts after he has obtained the money)
- Between the vc manager and the buyers of IPO backed stocks (when IPO stocks can be overpriced)

The first two principal-agent problems are addressed by the common interests of investors, managers and entrepreneurs. They all strive for the maximization of the enterprise’s valuation on the exiting day. However, this goal might be achieved at the expense of the fourth party; the prospective shareholders. The unpopularity of stock issues in raising capital for incumbent firms is explained by this principal-agent problem. Managers will be

tempted to overprice newly issued stocks, which makes investors distrust those stocks (Myers, 1992, p. 150). But, as was mentioned above: equity ranks first in the vc financial pecking order and IPOs are their main source of revenues. Venture capital can therefore only thrive, when this principal-agent problem is solved. The solution – in our view – consists of two elements; the fixed life span of vc firms and the sale of only a limited amount of shares by the vc firm (and the entrepreneur) at the time of IPO. The combination of these two elements signal investors that vc backed ‘high tech’ IPOs are not systematically overpriced. The credibility of the IPO price will be fostered, when the remaining length of life of the vc fund is relatively long. Vc backed IPOs are thus most credible if they occur in the first half of a vc firm’s life-span. It can then be contended, that venture capital firms can only invest in ‘high tech’ start-ups during the first two years of their existence.

6. Skewed distribution of returns

Internal Rates of Return (IRRs) are used to measure profitability of vc funds. IRRs refer to the present value of investments and the residual of a fund. The period over which the net present value is calculated covers the period of funding (take-downs) towards the calculation date. The Net Present Value of a particular venture can be expressed as $I(\text{investment}/(1 + \text{IRR}/100)^t)$ (Bygrave and Timmons, p. 155). IRRs can be calculated at the time of exit. A venture which exits 3 years after investment at 2.2 times the initial investment generates an IRR of 30%.

We mentioned above, that the length of life of a private partnership generally amounts to ten years. The installment payments (take downs) occur during the first 2 to 3 years, whereas the average holding period of investment, before exiting amounts to 3 years. The difficulty in calculating IRRs of a fund resides in the valuation of the residual. Even an exit through an IPO (Initial Public Offering) does not render unambiguous IRRs, because vc firms can only sell a limited share of their equity at the time of the IPO.

IPOs are unequivocally the most profitable exit route. The second best exit route is constituted by acquisitions, whereas liquidations and write-offs

generate negative results. Soja and Reyes investigated 442 exited investments of 26 venture capital firms for the 1970–1982 period.

IPOs generated over 60% of the returns in the Soja and Reyes study. We can, therefore, safely conclude that venture capital is not viable without IPOs. This applies most forcefully to ‘high tech’ firms, which often cannot yet show any profits at the time of IPO date. They need to attract capital on the expectation of future revenues, because 3 years is too short a period to fulfil their promise. The larger share of revenues within the IPO category is generated by only a few ventures. Memorable golden deals are: Apple – 235 times the amount invested – Lotus – 63 times – and Compaq – 38 times. Bygrave and Timmons conclude, that 49% of revenues are generated by 6.8% of investment (Bygrave and Timmons, p. 168).

TABLE I
A distribution of exiting routes and gains

	% of ventures	Average gain
IPO	30	2.95
Acquisition	23	1.40
Company buy-backs	6	1.37
Secondary sales	9	1.41
Liquidations	6	–0.34
Write-offs	26	–0.37

Source: Bygrave and Timmons, pp. 167–168, based on T. A. Soja and J. E. Reyes, 1990. ‘Investment Benchmarks: Venture Capital’.

Revenues of vc deals are, therefore, extremely skewed. One or two golden deals can make a vc firm excessively profitable, whereas, the absence of those outliers renders only meager or negative returns to investors. This skewed distribution does not only apply to deals, but also to venture capital firms; one third of vc firms investigated by Soja and Reyes had been excessively profitable; another third had produced nominal gains, whereas the last third had lost money.

We can, therefore, conclude that venture capital firms have only a limited capacity for uncertainty reduction; the risk run by investing in a venture capital firm is almost as high as by investment in an individual venture. A main *raison d’être* of venture capital firms, therefore, seems to lie in their capacity to tap institutional funds, which are

unattainable for private investors – business angels.

Venture capital firms – especially those investing in early stage ventures – are of limited size. The average vc partnership counts 3–5 managing partners. Since the management of ‘high tech’ start-ups is labour intensive – each partner cannot manage more than 5 start-ups – the number of ventures is limited to 25. The amount of capital that can be managed by those partnerships is thus also limited. A doubling of the number of managing partners can extend the pool of ventures and so reduce risk. The relative small number of partners observed can be explained by the high amount of trust, which is required among partners. Since managing partners are rewarded according to the results of the fund; a partner is as much affected by his partners’ as by his own decisions.

Investors invest in a yet unknown portfolio at the time they conclude a contract with a vc firm. The vc firm – seen as a limited portfolio of projects – is impeded in its ability to reduce uncertainty by its size. But, (institutional) investors can diversify their portfolio over several vc firms. A skewed revenues distribution, therefore, does not need to inhibit investment.

7. Dutch IPOs; bad deals drive out good deals

The profitability of Dutch venture capital investment for the 1986–1991 period amounted to 13%, which is comparable with the U.S. rate for the same period.

We can hypothesize, that capital will flow into vc firms as long as expected average rates of return on vc exceed those of other (equity) investment. All entrepreneurial firms do therefore, benefit from golden deals, because they raise average rates of return on vc investment. A depressed IPO market – on the other hand – will curtail investment opportunities for all start-ups.

The Dutch distribution of returns on vc investment is also largely skewed. One quarter of all vc deals in the period 1986–1992 turned into losses. The percentage of losses in early stage investment amounted to 35 percent.⁶ This distribution largely resembles the U.S. distribution, where 20 percent of all ventures – and 35 percent of early stage ventures turned into total or partial losses (Bygrave and Timmons, p. 168). More important

than the share of losers is the share of exceptionally profitable ventures. It was demonstrated above that IPOs are essential to realize exceptional gains.

The Dutch Parallelmarket – the equivalent of NASDAQ – opened its doors in 1982. One of its aims was to facilitate the public offering of venture capital backed firms. The installation of the Parallelmarket can be seen as one of a number of institutional changes, which intended to give the Dutch vc industry a flying start. The ‘*Garantieregeling*’ and the loosening of bank regulations are other examples. Moreover, capital gains taxes are largely absent in the Netherlands, which furthers equity investment.⁷

Companies, which wanted to go public at the Parallelmarket needed an equity capitalization of at least 5 million guilders, of which 10% needed to be floated at the IPO. Turnover at the Amsterdam Parallelmarket increased steadily from 56 million in 1982 to 5.2 billion guilders in 1986. The Parallelmarket, however, always remained of dwarf-like dimensions in comparison to the Official Market (OM). Market valuation of all PM quoted companies only amounted to 1% of market valuation of OM quoted companies in 1986.

Dutch venture backed IPOs were very successful, measured by the rates of return generated for their investors. A sample of 8 venture backed IPOs in the 1984–1987 period generated average returns of 64 times their nominal investment. A few platinum deals stand out; Pie Medical which was launched at 460 times its nominal value and DICO at 165 times. However, non vc backed IPOs performed even better at an average nominal/stock price multiple of 66 over the 1984–1987 period. This multiple was highly driven by one platinum deal; the software company Management Share, which was introduced at a 550 multiple.⁸

U.S. IPO returns are measured as returns on capital invested. The average returns amounted to 22.5 times the investment for first round investment, 10 times for the second round and 3.7 times for the third round (Bygrave and Timmons, p. 170).

In an attempt at reconstruction of the short-life history of the Amsterdam Parallel Market two elements can be stressed; high IPO multiples and fraudulent dealings around bankruptcies. The PM represented an overheated IPO market during the 1984–1986 period. The initial rate of return

(underpricing) of PM IPOs during that period amounted to 28.4%, compared to an average underpricing on the OM of 8.6% (Eigenhuizen, 1994). Underpricing has also been common of U.S. IPOs. Megginson and Weiss found an average underpricing of 7.1% for vc backed IPOs and 11.9% for non vc backed IPOs for the 1983–1987 period (Megginson and Weiss, p. 893). The smaller return for U.S. vc backed firms indicates the trust that investors had in vc firms' project selection. In contrast; returns on vc and non vc backed Dutch IPOs did not differ during the 1984–1993 period. This indicates, that investors did not put more trust in vc backed IPOs than other IPOs (Munsters and Tourani Rad).

The Parallelmarket's stock price index (Van der Hoop & Co index) outperformed the OM index until August 1986. The 1987 stock sent the index southward. The PM index regained some strength in 1989 but underperformed compared to the OM index. PM sales steadily declined after 1986 to 1.5 billion in 1992. The number of introductions also decreased rapidly; from more than 50 in 1986 till 10 in 1991. A bad image was stated as the main reason for the PMs closure in 1993.

The Parallelmarket's image got irreparably damaged, when a series of bad news broke in the early 90s. Many of the early stage IPOs, which had been introduced during the 1984–1990 period got into serious difficulties. We investigated all vc backed IPOs on the PM, which were under 10 years of age at the time of IPO.⁹ We counted 8 firms within this category. 3 out of these 8 firms failed completely in the early 90s: Docdata (1984 IPO), Textlite (1984 IPO) and Newtron (1990 IPO). These ventures had been issued as high potentials. Docdata was introduced at 40 gld. per share and was quoted at 109.80 guilder in February 1987. The firm filed for bankruptcy in 1991, when its stock had dwindled to 2.30 guilders. Textlite had also been a high promise IPO and was promoted to the Official Market in 1987. However, it was banned from the OM in 1990 and degraded to PM. It failed shortly thereafter. The former owners of Textlite have been condemned on judicial charges of fraudulent dealing. Newtron holdings was introduced at 17 guilders. Its stock price headed south quickly and the firm was withdrawn from the Parallelmarket 3 months after its introduction.

However, the bad news was not restricted to vc backed IPOs. Datex (IPO 1985) and HCS (1986) were both accused of insider trading during the early 90s. PM launched IPOs thus became identical to failure. As a consequence, companies, which had been launched in the late 80s and early 90s were suspect and hardly got a chance to prove their worth. The high initial rates of return on IPOs proved unsustainable. The IPO market for 'high tech' firms has vanished as a consequence of these events. Moreover, the Parallel Market as such could not survive the damages wrought by these failures. Sound 'high tech' firms suffered from the reversal of 'high tech' IPO euphoria. Their stock prices declined after 1992. Consequently, all PM listed firms were affected by the bad reputation the PM had built. However, when the remaining firms were transferred to the OM their stock prices did not underperform (Corhay and Tourani Rad).

8. 'Good' markets drive out 'bad' markets

The Parallelmarket had always remained a second IPO-outlet apart from the Official Market. 117 firms were launched on both the Parallelmarket and the Official Market (Amsterdam Stock Exchange) in the 1982–1992 period. If financial institutions are excluded 81 Dutch IPOs can be counted during the 1983–1992 period.

Table II demonstrates that the number of IPOs

TABLE II
Number of total IPOs launched and of venture capital backed IPOs at the Dutch parallelmarket (PM) and the official market (OM) 1983–1992)

Year	Number of IPOs on PM	Number of IPOs on OM	Number of vc backed IPOs on PM	Number of vc backed IPOs on OM
1982/83	7	0	n.a.	n.a.
1984	7	0	4	0
1985	5	3	1	1
1986	13	8	5	2
1987	7	4	4	1
1988	1	2	1	1
1989	4	6	3	3
1990	2	1	1	1
1991	2	1	0	1
1992	1	2	0	1
Total	49	27	19	11

Source: Munsters and Tourani Rad, op. cit. 1994.

(both vc and non vc backed) declined considerably in 1987 and after. The same had happened in the U.S. However – in contrast to the U.S. market – the Dutch IPO market did not rebound in 1992. The number of venture capital backed IPOs never even approached its 1987 peak again. The Parallel Market thus gradually lost out to the Official Market till it closed in 1993. Firms choose the Official Market as their IPO outlet, when the Parallel Market's credibility became increasingly doubtful. As soon as the Parallelmarket came to be seen as a second choice market, its fate was sealed.

Arguably, the few disasters mentioned above have ruined a whole market. They shattered the Parallelmarket's reputation, which drove firms away from this market. For most firms a good alternative was available; the Amsterdam Stock Exchange, which loosened its regulation somewhat after 1993. Minimum capitalization requirements have decreased from 50 till 10 million guilders. Firms need a track record of 5 years, and must show profits over the last 3 years. Consequently, firms which are not yet profitable cannot go public under the Amsterdam Stock Exchange rules.

The experience with the Amsterdam Parallel Market contrasts sharply with the booming NASDAQ market during the 80s and early 90s. It can be contended that separated markets – one for big issues and one for small issues- can prevent a quality ranking between stock markets. The use of different technologies – i.c. screen trading as used by NASDAQ – can contribute to such a separation. However, if a quality ranking emerges, the 'bad' market cannot survive. Ventures, which depend fully on this market are therewith excluded from going public. Consequently, the 'good' market drives out the 'bad' market.

The Dutch experience with the Parallelmarket is not unique, since all other European over the counter stock markets were closed or have announced closure (The U.K. Unlisted Securities Market will be closed in 1997). The most profitable exiting road for not yet profitable European 'high tech' ventures is therewith barred.

9. The short life of 'evergreens'

Dutch rather dismal experience with 'high tech' early stage IPOs can be explained in several ways. Firstly, the limited number of Dutch 'high tech' IPOs can be noted. The non-viability of these firms can then be seen as a case of pure bad luck.

However, such an explanation is unsatisfactory and cannot explain the systemic differences between U.S. and European venture capital. We, therefore, want to propose an explanation, which is based on differences in organizational structures between Dutch and U.S. vc firms.

The following types of Dutch venture capital firms can be distinguished:

- **Independent** private firms, which could both qualify as PPMs or operate as non-PPMs.
- **Captive** participation funds owned by banks, firms or insurance companies, which could also qualify as PPM. Bank PPMs needed to limit their participation to 2.5 million guilders and a 5 year period.
- **Regional** firms; which are initiated a.o. by Chambers of Commerce. They could also qualify as PPMs

Apart from these private funds, government supported vc firms do also exist:

- **Regional** development funds (ROMs), which are owned and funded by local government. Those investments were 100% guaranteed by central government. They could apply for the 'Garantieregeling', if their equity share remains below 49%.

The 'Maatschappij voor Industriële Projecten' (Industrial Projects Fund), which was established to finance big projects of over 5 million of investment, but was dissolved in the late 1980s due to a lack of appropriate projects.

The unlisted or closed corporation (BV) constitutes the most common legal form among Dutch vc firms. Only a few corporations have tradeable shares (NV). The partnership construction (CV) is rare. Some vc companies control several funds. As mentioned above, Dutch vc firms are organized as revolving funds or evergreens, indicating that they have an indeterminate length of life. If evergreens

would really live forever, they need to generate regular annual revenues streams.

A U.S. 10 year partnership with take-downs in the first and the third year and an average holding period of 3 till 4 years will start to generate revenues four years after its foundation. It hopes to launch its first IPO at that time. However, U.S. vc firms only sell a limited share of their equity at the time of IPO. This applies most forcefully to yet unprofitable 'high tech' IPOs. Extended insider holdings bolster confidence. U.S. vc firms so express their commitment towards the launched firm and signal that they perceive the IPO price as sound. This commitment is most credible, if the vc fund has 4 to 5 years to go before its dissolution.

Dutch vc firms – in contrast – will be pressed from year one on to generate revenues in order to keep investors satisfied. Moreover, all vc firms will be eager to introduce their ventures at high multiples. In our view the revolving fund or 'ever-green' nature of Dutch vc firms has contributed to the IPO euphoria and subsequent decline. Dutch vc firms could afford to be less committed to their ventures and pursue a hit and run strategy due to the indeterminate length of life of Dutch funds. Dutch vc firms possessed on average 39.8% of equity in their ventures before IPO. They supplied 40% of total equity sold at the time of IPO. In only a minority of cases vc firms did not offer (part of) their shares (Munsters and Tourani Rad). U.S. vc firms only sell a small amount of capital invested at the time of IPO. U.S. vc firms held an average of 36.6% of equity before IPO. No vc backed equity was sold at the time of IPO in 56.7% of the cases. Only 6.9% of the offering amount was composed of venture capitalist's sales (Megginson and Weiss). Bygrave and Timmons report that U.S. vc firms sold relatively less of

their shares, when firms were unprofitable at the time of IPO (Bygrave and Timmons, p. 175). We can, therefore, conclude that Dutch vc firms sold more of their shares at the IPO than their U.S. counterparts.

The Dutch vc industry did not address the third principal-agent problem distinguished above, which turned out to be a major weakness. Doubts on the soundness of IPO prices accumulated, as stock prices plummeted. Longer holding could have built trust. But – in contrast – the majority of vc firms was rather short-lived.

We might expect independent vc firms to be particularly pressed to produce revenues. Captives should be capable to sit in longer. Their limited partners can monitor investments more closely, which can enhance patience. Government guaranteed funds can obviously hang in longest.

We investigated the life span of all vc firms, which were members of the Dutch Association of *Participatie Maatschappijen* (NVP). This association organizes 90 percent of all Dutch venture capital firms. Information about NVP members can be found in the *Venture Capital Gidsen* (Venture Capital Guides), which have been published annually by the NVP since 1984. We have tracked survivors, exits and entries for all vc firms, which existed in 1988 over the 1988–1995 period.

Table III demonstrates that survival rates were highest for the Regional Development Corporations (ROMs), as was expected. Only one exit was recorded in this category of vc firms in the 1988–1995 period. This result is not surprising, if we recall that ROM participations are 100% government guaranteed. Independent vc firms had the highest incidence of deaths. Regional private vc firms had a somewhat higher survival rate, but the death rate ranked large at

TABLE III
Survival rates of various types of Dutch vc firms

Type	1988	1990	1993	1995	Survival rate
ROMs	7	7	6	6	86%
RPMs	12	5	4	3	25%
Captives	31	23	13	10	32%
Independents	46	22	12	8	17%
Total	96	57	35	27	28%

75 percent. The death rate of captives was also rather high at 68 percent. Captives of large commercial banks had more chance of survival than those of smaller banks and investment companies. The majority of exited vc firms just disappeared; a few funds were acquired by other vc firms. Most of the 8 independents existing to date have a strong international orientation and belong to (international) syndicates of two or more vc firms. Several captives are also held by international investment groups. Dutch venture capital exports amounted to 10 percent of all new vc commitments in the 90s (Venture Capital Gids, 1995, p. 26).

We can conclude that the Dutch venture capital industry has moved closer towards investment banking (apart from ROMs and regionals). The death toll among Dutch vc firms has been high. The pressure to produce revenues seems to have prompted them to overprice stocks, which undermined investors' confidence. A mass exodus of independent, regional and captive vc firms was the result. The remaining companies emphasize later stage investment.

As a consequence the average life span of Dutch vc funds was considerably less than ten years. Paradoxically, therefore, the indeterminate length of life of Dutch vc firms shortened their lives. Average life spans of Dutch vc firms were calculated from the foundation year to the year of

disappearance. Life spans were only calculated for firms, which were founded after 1975.

The high death rate of Dutch vc firms did not fully deter entry. Entry dropped after 1991. Both the IPO disasters and the tightening of the '*Garantieregeling*' in 1990 can explain the entry drought of the beginning of the 90s. Entry expanded somewhat after 1994, when several subsidiaries of (international) investment companies established themselves in the Netherlands. These vc companies specialize in later-stage investment such as MBOs, LBOs and acquisitions of family firms without successors. A relatively large percentage of entrants disappeared shortly after foundation (see Table VI).

TABLE VI
Death incidence and average life span (years) of exited Dutch vc entries 1989–1995

	Deaths	Life span
RPMs	–	
Captives	7 (37%)	4.1
Independents	4 (33%)	2.5

TABLE IV
Average life spans (years) of exited Dutch vc firms

	Exits
ROMs	–
RPMs	3.9
Captives	7.7
Independents	5.4

TABLE V
Entries of Dutch vc firms 1989–1995

	1989	1990	1991	1992	1993	1994
ROMs	–	–	–	–	–	–
RPMs			1			
Captives	–	7	2	–	4	6
Independents	2	1	1	–	4	4
Cum. total	2	10	14		22	32

10. Organisation and evolution at two sides of the Atlantic

The predominance of exits over entries after 1988 has caused an increase of concentration in the Dutch vc industry. This transpires from a decline in the number of vc firms and increasing market shares of the largest vc firms. The number of vc firms decreased from 96 in 1988 to 43 in 1995; a decline of 55 percent. This, however, underestimates the rise of concentration, since the size distribution has become increasingly skewed; from 10 vc firms covering 75% of transactions in 1991 to 5 vc firms undertaking 80% of all investments in 1995.

The relatively time-consuming character of early stage investment and the limits on the number of vc firms' personnel with decision authority can explain why a shrinking number of vc firms accompanied the shift to early stage investment. Average annual investment per vc firm has increased rapidly as later stage investment got ever more prominent during the 90s. Dutch firm size quadrupled during the 1988–1995 period.

TABLE VII
The evolution of several categories of Dutch vc firms (percentages in brackets)

Year	ROMs	Captives	Independents	Regionals	Total
1988	7 (7)	31 (32)	46 (48)	12 (13)	96
1989	7 (8)	29 (32)	43 (48)	11 (12)	90
1990	7 (11)	27 (41)	26 (40)	5 (8)	65
1991	6 (9)	28 (43)	25 (39)	6 (9)	65
1993	6 (11)	25 (48)	16 (31)	5 (10)	52
1995	6 (14)	17 (40)	15 (35)	5 (12)	43

TABLE VIII
Structure and growth of the Dutch vc venture capital industry

Year	Number of firms	Average investment per firm (mill. glds)	Early stage %
1984	39	4.6	22
1985	50	7.2	23
1986	75	5.6	21
1987	86	6.3	13
1988	96	3.8	27
1989	90	4.5	16
1990	65	8.5	16
1991	65	10.4	11
1992	55	9.9	15
1993	52	8.7	11
1994	46	15.2	12

Source: Venture Capital Gidsen.

Average annual investment per firm has exceeded the U.S. figure since 1990 by a wide margin.

It is our view that organizational form and legal structure of Dutch vc firms are ill-suited to finance and nurture young ventures. We already mentioned the impatience which unspecified length of life causes. Apart from that, the corporate legal form (BV), which is predominant among Dutch vc firms can contribute to enlarged deal sizes and hence to later stage investment. All partners of a limited partnership can select and coach ventures. The Dutch corporate legal form, however, restricts responsibility to the director(s) of the firm. All Dutch vc funds have either one or two managing directors. The average number of professionals in a Dutch vc firm amounted to 1.3 in 1989, whereas the average U.S. number in 1988 was 3.8.¹⁰

The continuous increase of concentration of the Dutch vc industry contrasts with U.S. experience.

The number of U.S. venture capital firms shows a more wave-like pattern in accordance with the fluctuating share of early stage investment. The number of firms increased from 225 in 1979 to 650 in 1987. Many new firms (about 80 a year) were founded in the 1983–87 period. Both absolute and relative concentration decreased during the 80s. The top 61 firms managed 57% of the 1982 venture capital pool, whereas the top 95 funds controlled 59 percent in 1989 (Bygrave and Timmons, p. 56/188). New firm formation dropped after 1987 and the number of firms remained constant around 600.

Investment per firm expanded and early stage investment declined after 1987, but regained its strength in 1994 as was mentioned above.

We argued that the logic of the 10-year partnership and the limits on partnership-size causes shares of early stage investment to be positively correlated with the number of vc firms. The first few years of a vc fund's life time is devoted to the selection of ventures. After that investments will drop abruptly. The effect of an increase in the number of firms on early stage investment can be illustrated by the following example.

A constant number of vc firms, which are regularly distributed over time will annually spend 10 percent of its capital pool on new ventures, if the agreed upon length of life is 10 years. An increase in the number of firms and invested capital of 10 percent will increase investment by 100% if all capital is spent in the first year. Accordingly, investment will increase by 50% a year, if take-downs take place in the first two years. The share of early stage investment can remain constant, if the number of managing partners also increases by 10%. Average deal size will then remain unaltered. A shift towards later stage (early stage) investment will occur, if the

number of managers grows less than (more than) capital invested. We can thus hypothesize that an increase of follow-on funds indicates a shift towards later stage investment, if it curtails the number of managing partners. A reduction of personnel seems obvious, since only successful general managers can raise money for follow-on funds 2 to 4 years after starting their first fund.

The number of experienced managers, who can obtain follow-on funds, will be less than 50% of all vc-managers. This follows from our earlier observation, that only one third of all vc funds are successful. A shift towards follow-on funds can hinder the entry of new general managers. Managers of follow-on funds remain responsible for earlier funds due to clauses in contracts concluded between silent and managing partners, which forbid general managers to drop out of current funds and devote all their time to new funds (Sahlman, p. 494). This condition together with the postponement of revenues taking discussed above ties general managers for the full length of the ten year period to a fund. Expanding follow-on finance, therefore, causes a relatively small number of general managers to either spread their attention more thinly over a greater number of projects or to take on larger ventures. Both tendencies promote later stage investment. Another reason for successful general managers to abandon early stage investment can be found in the skewed revenues distribution, which makes a repetition of former successes unlikely. The rareness of golden deals accounts for this. We thus expect the share of early stage investment to rise, when new firms and new personnel flow into the venture capital industry. Consequently, capital will be concentrated into ever fewer hands, when the share of follow-on capital expands.

Interconnectedness can also contribute to the predominance of later stage investment. The U.S. venture capital industry became highly interconnected in the late 80s. Deals were increasingly made with partners of more than one fund. Linkages between vc firms emerged through co-investment or syndication. Hence, the industry became more concentrated with respect to personnel than the number of vc firms indicates. Bygrave and Timmons found, that three out of four deals had an investor of one of the top 61 vc companies (Bygrave and Timmons, p. 188).

Experienced general managers controlled almost two third of total U.S. vc investment in 1988 (Bygrave and Timmons, p. 202). The control of a large pool of capital by only a few general managers inhibits intensive coaching and therefore early stage investment, which can only expand, when new funds are founded and new personnel flows into the venture capital industry.

U.S. concentration with respect to personnel declined slightly during the 90s. Managers with at least 10 years of experience controlled 64% of funds in 1994, compared to 66% in 1988 (NVCA, 1994). The recurrence of U.S. early stage investment in the mid 1990s has coincided with some influx of new personnel in the venture capital industry.

12. Conclusion

U.S. and European venture capital differ in several respects. A smaller share of early stage investment and differences of organizational form stand out amongst them. We found in our comparison of the Dutch and the U.S. venture capital industries, that the increase of later stage investment was accompanied by a dramatic reduction in the number of Dutch venture capital firms. Several factors contributed to this shrinkage; among which too high IPO multiples; overpricing and the termination of the '*Garantieregeling*' are prominent. The U.S. vc industry is more orientated towards early stage investment. However, second and third rounds of investment became more prominent, when the industry became more interconnected.

Differences between U.S. and Dutch vc industries can best be explained by differences in organizational and legal forms. Fixed length of life of vc firms contributes to credibility and hence stimulates IPOs and early stage investment.

Notes

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² Bygrave and Timmons, op. cit. p. 49. A few private venture capital funds were not organized as limited partnerships, but as incorporated vcs or open-end funds.

³ Calculated from OECD, *National Accounts*.

⁴ Sahlman, op. cit. 1990; Bygrave and Timmons, op. cit., p. 163, *Financial Times*, September 23, 1994; *Fortune*, October 31, 1994.

⁵ Bygrave and Timmons, p. 162, from T. A. Soja and J. E. Reyes, 1990. *Investment Benchmarks: Venture Capital*.

⁶ Annual Reports Dutch Association of Venture Capital Firms (NVP), 1992 and 1993.

⁷ Income taxes of 20 percent are levied on capital gains, when their interest exceeds 7%. Corporate investors can benefit from tax exemption on dividends, if their share exceeds 5%. A conflict of interest can thus emerge between those two groups of investors.

⁸ The sample consists of 90 percent of all manufacturing, high tech and services IPOs. *Venture Capital Gids* 1987, pp. 31–32.

⁹ Data were obtained from articles on these companies, which were published in the '*Financieel Dagblad*'.

¹⁰ U.S.: calculated from Sahlman op. cit., p. 476; Netherlands: *Venture Capital Gids* 1995.

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