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# Exiting venture capital investments: Lessons from Finland

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# Keskusteluaiheita – Discussion papers

No. 781

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## EXITING VENTURE CAPITAL INVESTMENTS: LESSONS FROM FINLAND

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**ABSTRACT:** Because the exit stage may have several feedback effects on the earlier stages (i.e. fundraising and investing) in the venture capital process, the long-run development of the venture capital industry is dependent on the exit possibilities the financial system generates. In this study, we consider the mechanisms through which the financial system enhances the exit possibilities. We examine the Finnish experiences because the historical importance of banks, the volatile nature of the Finnish economy and the young age of the venture capital industry suggest that the co-development of "the market for exits" may be instrumental for the development of the Finnish venture capital industry.

Our analysis of aggregate level data suggests that despite its favorable development during the 1990s, the Finnish financial system may provide less than optimal exit venues for the Finnish venture capitalists. This is because of the strong clustering of initial public offerings (IPOs) and the volatility and certain other documented characteristics of the Finnish stock market. The market for mergers and acquisitions (M&As) has been quite active in Finland by international standards and should in principle provide a steady flow of trade sale opportunities for the venture capitalists. However, the overall time trend of M&As may be decaying once the size of the economy is controlled for. The results of a survey we administered to the Finnish venture capitalists confirm the conclusions based on the aggregate data.

By using the data collected in the survey, we also document that the young venture capital firms are systematically more worried about the impact of their reputation on their fundraising and that they have exited sooner than the old, established venture capitalists. The findings are consistent with the importance of feedback effects and in line with Gompers' (1996) results that indicate grandstanding by the entrant venture capitalists in the US.

**KEYWORDS:** venture capital, exit, stock market, mergers and acquisitions

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**TIIVISTELMÄ:** Mahdollisuudet irtautua tehdyistä sijoituksista kannattavasti vaikuttavat pääomasijoittajien halukkuuteen tehdä sijoituksia sekä heidän mahdollisuuksiinsa kerätä uutta pääomaa jatkossa. Tämän vuoksi pääomasijoitustoimialan pitkänaikavälin kehitys riippuu myös siitä, kuinka hyvin rahoitusjärjestelmä tuottaa irtautumismahdollisuuksia. Tutkimuksessa tarkastellaan suomalaista rahoitusjärjestelmää tästä näkökulmasta.

Tutkimuksen tarkastelu osoittaa, että huolimatta vahvasta kehityksestä 1990-luvulla, kotimaiset rahoitusmarkkinat eivät välttämättä vastaa pääomasijoittajien irtautumistarpeisiin. Osasyynä tähän ovat mm. listautumismahdollisuuksien voimakas syklisyys, kotimaisten osakemarkkinoiden volatiilisuus sekä eräät muut kotimaisten markkinoiden ominaisuudet. Yrityskauppoja on Suomessa tehty aktiivisesti, mutta kehityssuunta näyttäisi olevan pikemminkin laskeva sen jälkeen talouden koon kasvun vaikutus niiden määrän on otettu huomioon. Pääomasijoittajille tekemämme kyselyn tulokset tukevat päätelmiämme. Ne myös osoittavat, että iältään nuoret pääomasijoitusyhtiöt ovat huolissaan heikosta tunnettuudestaan (maineestaan) ja sen vaikutuksesta varainhankintaansa ja että ne ovat myös irtautuneet sijoituksistaan keskimäärin nopeammin kuin jo pidempään alalla toimineet. Nämä tulokset ovat yhdenmukaisia Gompersin (1996) "grandstanding" -hypoteesin ja hänen yhdysvaltalaisella aineistollaan saamiensa tulosten kanssa.

**AVAINSANAT:** pääomasijoittaminen, irtautuminen, osakemarkkinat, yrityskaupat

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# 1 Introduction

If the structure of a financial system is such that it does not generate opportunities to dispose of, i.e., to exit investments in private firms, the functioning of private equity industry may be hampered and the market for private risk capital cannot develop properly. For example, it is often argued that the lack of exit prospects undermined the development of the European market for risk capital relative to the US particularly in the early 1990s (see, e.g., Gompers and Lerner 2000a).[1] One reason for the lack of exit prospects in Europe is that the continental European countries have traditionally had bank-centered financial systems and relatively concentrated and rigid ownership structures. Concerns of this type are potentially more relevant from the point of view of small European economies, because they have limited scope for developing deep and active financial markets, particularly in the presence of significant fixed set-up costs. In this paper, we study the exit opportunities made available by financial systems from the perspective of the investors supplying risk capital to private firms.

The importance of active financial markets for the supply of risk capital and particularly for venture capital stems from the significance of the exit stage for the entire investing process. Achieving a profitable exit lies in many ways at the heart of the venture capital process (Sahlman 1990, Gompers and Lerner 2000a), because the various stages of the venture capital process are, as frequently emphasized by the practitioners, interrelated. On the one hand, venture capitalists' ability to raise capital may have an influence on their contemporary investment behavior by, e.g., affecting both the size and type of investment they wish to make as well as their investment benchmarks. Today's investments in turn create a need for means by which the venture capitalists can dispose of their investments. On the other hand, the reverse direction of the venture capital process is also important. Because many venture-backed firms generate little, if any, cash flow, exiting is critical to ensuring attractive returns for investors. The opportunities for exits influence therefore the venture capitalists' reputation, which determines at least in part their ability to raise capital in the future (Gompers 1996). Because some investments provide a faster track to exits than others, the exit environment may affect the types of investments that the venture capital firms make. Thus, the entire investing process is best viewed as a venture capital cycle (Gompers and Lerner 2000a, 2001).

There is a growing literature that analyses the question how private sources of risk capital, such as venture capital, may emerge and prosper in countries with distinct institutional arrangements (see, Milhaupt 1997, Black and Gilson 1998, Gompers and Lerner 2000a, Jeng and Wells 2000, Becker and Hellman 2000).[2] This literature has identified several conditions and details of the design of institutional and economic environment that support active venture capital market and ultimately what Milhaupt (1997) has called "the market for innovation". Among

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[1] Because financial infrastructure takes time to change, achieving deep markets for private risk capital is, in fact, an on-going challenge for the European financial systems despite the favorable developments of the late 1990s.

[2] See also Black (2001) who considers the legal and institutional preconditions, such as the existence of restrictions against self-dealing, mechanisms of investor protection and functioning of reputational intermediaries, for strong securities markets.

the most important of such factors are the availability of funding from independent sources (e.g. pension funds); the overall structure and efficiency of the financial system; the incentive structures and contracting mechanisms of the economy; the regulation of the labor market and labor mobility; and finally, overall risk tolerance and willingness of entrepreneurs and venture capitalists to pursue high-risk, high-return ventures. All in all, the earlier literature emphasizes the importance of institutions that complement the venture capital industry, suggesting in particular a strong link between the growth of venture capital and the functioning of the stock market (Black and Gilson 1998, Jeng and Wells 2000).[3]

Well-functioning financial markets and, in particular, an active market for initial public offerings (IPOs) create a steady flow of opportunities to exit. However, another important exit route is a trade sale of the investee firm - i.e. selling of the investee firm as a whole to another company - via mergers and acquisitions (M&As), albeit it typically is considered as a less preferable method of exit.[4] The market-centered financial systems may as a consequence have an advantage over the bank-centered systems in supporting the venture capital industry not only because they are likely to generate a steady flow of IPOs, but also because in such systems the market for corporate control and M&As might be better developed.

Besides the overall level of stock market and M&A activity, the intertemporal distribution of exit opportunities matter for the development of venture capital. In volatile market conditions exiting becomes more difficult and the overhang of investee companies waiting the exit may increase. How strongly the exit environment is affected by market turbulence is a characteristic of the financial system and may differ across countries. Too much overhang may translate into lower returns and hence to a lower level of venture capital activity in the long term. Because small economies and their financial systems are - mainly due to lower sector diversification - more prone to suffer from macroeconomic volatility than the large ones, the long run development of the venture capital industry may in such economies be particularly dependent on the characteristics of the financial system.

This paper builds on the view that both of the two characteristics of a financial system, i.e., the level of stock market and M&A activity as well as their (in)dependence of the overall market conditions, enhance firm and financial market dynamics and therefore the prospects for venture capital exits. We consider Finnish experiences and study in particular whether the Finnish financial system have the characteristics that enhance the exit opportunities and hence contribute to the long-run development of venture capital. As we see it, Finland provides a unique platform to study the co-development of the supply of private risk capital and the financial system for several reasons. First, Finland is a relatively small economy, it has traditionally had a relatively small stock market and the main source of external finance for the Finnish firms has been intermediated debt finance. Second, the Finnish economy has recently undergone a major banking crisis as well as one of the most volatile business cycles among the OECD countries since the Great Depression of the 1930s (see, e.g., Honkapohja and Koskela

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[3] There indeed exists evidence that IPOs are a systematic determinant of venture capital investing across countries; see Section 2 for further discussion.

[4] Besides IPOs and trade sales, there are other exit vehicles available for venture capitalists, such as buybacks (share repurchase by the founding entrepreneurs), secondary sales (selling of shares to institutional investors), and write-offs. However, IPOs and trade sales are typically the most profitable routes of exit and also most commonly used.

1999). Third, because the Finnish venture capital industry has grown rapidly during recent years, it is relatively young and at least to some extent immature.[5] Taken together, the historical importance of intermediated debt finance, the volatile nature of the Finnish economy and the young age of the venture capital industry suggest that the functioning of the Finnish financial system and hence the co-development of "the market for exits" may be instrumental for the long-run development of the Finnish venture capital industry.

We approach the research task from many angles. The received literature that suggests several transmission mechanisms through which the exit stage and environment may affect the other parts of the venture capital process.[6] Building on the existence of such feedback effects, we look at data from several sources, with the aim of presenting a systematic evaluation of the exit environment of the Finnish venture companies.[7] We analyze the exit opportunities generated by the Finnish financial system by using time-series data, by comparing Finland to other countries, as well as by gathering data directly from the Finnish venture capitalists. The data we gather allows us to verify the importance of the feedback effects and examine the exit experiences of the Finnish venture capitalists. Finally, the analysis involves field research in the form of interviewing actual market participants, the venture capitalists. Because we cannot aim at being conclusive in a formal meaning due to the multi-disciplinary nature of the study, we hope to present an analysis that is persuasive on the whole.

The remaining of this paper is as follows. In Section 2, we present a brief review of the literature, placing special emphasis on the importance of exits for the different stages of the cycle. Section 3 describes the Finnish financial system and compares the exit opportunities that it provides to some European countries and to the US. In Section 4, we analyze the exit experiences of the Finnish venture capitalists. Section 5 concludes.

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[5] Despite the recent growth, the level of investment and divestment activity has nevertheless remained below the level predicted by the country's GDP share in Europe. In Finland, the peak year in terms of funds raised (EUR 628 million) was 1999 while and in terms of investments (EUR 384 million) it was 2000. When compared to other European countries, it appears that the Finnish venture capital industry is also at an earlier stage of the venture capital cycle, as argued Hyytinen and Pajarinen (2001). Hyytinen and Pajarinen also document that when averaged over the growth years from 1996 to 2000, Finland's proportion of the European private equity funds raised roughly equals the level predicted by its GDP share among the European countries during the period. Its proportion of investments and divestments grew strongly during the period 1996-2000 too, but, as mentioned, the level of investment and divestment activity remained still notably below the level predicted by the country's GDP share.

[6] More generally, our motivation to look at the interdependencies between the different segments of the financial system and venture capital can be deduced from the theory of complementarities, a theory recently advocated by Milgrom and Roberts (1995). The theory suggests that there exist complementary systems in which the components of the system reinforce each other in terms of contributing to the functioning of the system. Financial systems can be viewed as complementary systems (Becker and Hellman 2000, Gilson 2000). In a complementary system, a single institutional innovation, such as venture capital, is likely to perform sub-optimally unless also the other components of the system adjust. Provided that a component's functioning is enhanced by the functioning of the system's other components, and vice versa, any single deviation from the equilibrium is, however, unprofitable (Milgrom and Roberts 1995).

[7] From this perspective, our analysis is close in spirit to that of Milhaupt (1997), who compares the institutional arrangements of the US to those of Japan from the viewpoint of venture capital investing. He does not however emphasise exit or pay attention to the limitations that the size of an economy's financial system may generate.

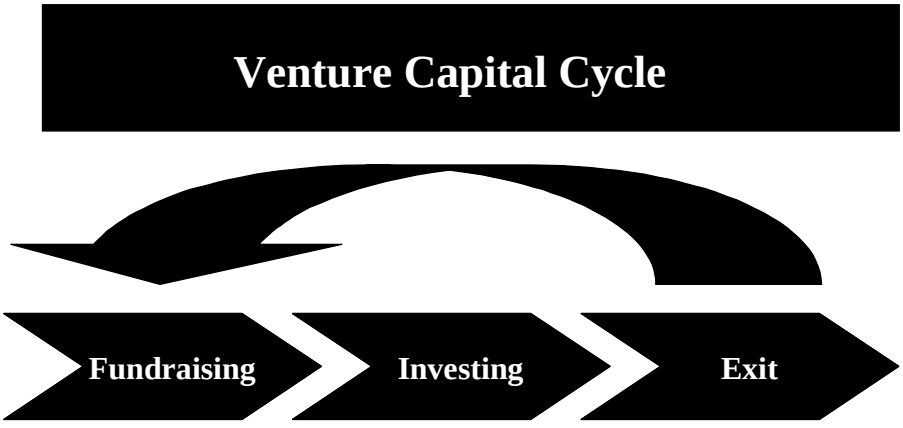
# 2 Venture Capital Cycle and the Importance of Exits

In this Section, we first describe briefly the basic building blocks of the venture capital cycle. In particular, the mechanisms generating feedback effects from the exit stage on the other stages of the cycle are considered (see Appendix 1 for a more detailed literature review). We then discuss the characteristics of a financial system that might enhance exiting.

## 2.1 Venture Capital Cycle

The business of venture capital is best understood by considering the whole venture capital cycle (Gompers and Lerner 2000a, 2001), consisting of three interrelated stages: *fundraising*, *investing*, and *exiting* (Figure 2.1). A typical view on venture capital investing is to consider the logical timing of the different stages: Raising capital for a venture fund is the first step of the cycle that is followed by an investment stage. During the investment stage, potential ventures are screened and the money raised from the investors is invested in several carefully selected investee firms.[8] After providing the investee firms with the financial capital, the venture capital firm provides advisory services and helps the investee firms to mature, with the final target being a successful exit that realizes (or not) the financial rewards and provides liquidity for the investments made. The exit stage completes the cycle.

**Figure 2.1 Venture capital cycle**




[8] Information and incentive problems in the financing of innovative entrepreneurs and technology-based small firms (TBSFs) are typically so severe that they undermine and often block the entrepreneurs' and TBSFs' access to conventional sources of external finance. The firms that venture capital firms finance are plagued with higher uncertainty, deeper information asymmetries, worse incentive problems and higher risk of outright failure than the more traditional firms. Moreover, the firms that the venture capital firms finance are often young, generate limited cash flow, have a short track record, and own only few, if any, assets that they could pledge as collateral. The venture capitalists are therefore thought to solve a more extreme set of agency and informational problems than the traditional financial intermediaries, such as the deposit banks do.

There are however reverse mechanisms also in place. In particular, there are four principal mechanisms through which the exit stage has feedback effects on investing and fundraising and influences the health of the other parts of the venture capital cycle. First, due to costs of writing detailed contracts, the partnership contracts between the venture capitalists and capital providers remain incomplete. Exits are therefore central to the venture capitalists' *accountability* to capital providers (Black and Gilson 1998). The exits enhance accountability, because the exit performance of a venture capitalist reveals his ability to outside investors. The exit success of the venture capitalist translates into financial returns, which signal the ability. Because past performance, i.e. one's track record, is a strong indicator of the ability, the exits have an important effect on the venture capitalist's reputation and thereby on his capability to raise new capital from the investors in the future.

Second, the need to exit is reflected in the types of investments that the venture capital investors are willing to make. A well functioning exit environment enhances the degree to which entrepreneurs and venture capitalists are able to extract the revenues associated with the projects they run. If the exit environment boosts the exits of certain types of investments, it distorts the monetary invectives of the venture capitalists towards those investments. The monetary incentives also depend on how efficiently the venture capitalists are able to address the agency and information problems during the investing stage. Black and Gilson (1998) argue for example that the exit opportunities enabled by stock markets are more important than the other exit avenues because the potential for exit through an IPO allows the venture capitalist and the entrepreneur to contract implicitly over control, in a way that gives the entrepreneur an option to reacquire control if she so desires in connection of listing the firm. The initial transfer of control to venture capitalists may be required because otherwise the venture would not be able raise external financing. The ability to design such options is the more important, the higher the private benefits (the value of control) from running the firm. The analysis of Michelacci and Suarez (2000) suggests another link between exiting and investing. The easier exiting, the faster informed capital, i.e. the human capital of experienced venture capitalists, is recycled towards new ventures. Hence the factors that facilitate exiting also contribute to the flow of capital (both financial and non-financial) towards new firms (see also Kanniainen and Keuschnigg 2001).

Third, the availability of exit routes affects the amount of the revenues that entrepreneurs and venture capitalists are able to extract from the projects they run and the distribution of those returns (Berklöf 1994, Bascha and Waltz 2001). The exits may therefore have an effect on the incentives of the two parties to invest in the relationship. For example, the prospect of exiting a venture via trade sale may reduce the incentives of the entrepreneur to invest if the private benefits of control are important for her. Finally, Gompers (1996) put forward the hypothesis that young venture capital firms bring their investee firm public earlier than older venture capital firms in order to build their reputation, i.e., to grandstand. Such a behavior need not be optimal from the viewpoint of the investee firm's lifecycle and may therefore lead to conflict of interest between the entrepreneur and the venture capitalist.

## 2.2 Exits and Exit Environment

The received literature suggests that there are several mechanisms through which the exit stage has feedback effects on investing and fundraising and hence on the health of the other parts of the venture capital cycle. The feedback effects in turn suggest that functioning (or malfunctioning) of the different segments of the financial system may have important implications for the long-run development of the venture capital industry.

Taken as a whole, the feedback effects impose certain preconditions that the financial system should meet before it "supports" the venture capital cycle and particularly its exit stage. First, the stock market should provide a constant flow of opportunities to take companies public, preferably regardless of the type of the candidates considering listing, be liquid to enable the disposition of the large blocks typically held by the venture capitalists and be not too volatile to allow for planning and timing of exits. The stock market -oriented financial systems are, almost by definition, likely to meet the requirements better than the bank-centered systems.

The exits enabled by the stock market are important because they

- are an important means for the venture capitalists, particularly for the younger ones, to signal their ability, to enhance their reputation and hence to improve upon their ability to attract funds in the long term;
- provide a means to contract over certain types of agency problems between the venture capitalists and the entrepreneurs, particularly if the private benefits of control account for a significant fraction of the entrepreneurs' compensation;[9]
- are necessary for realizing sufficient financial awards from investments in certain types innovative ventures and technologies.

The last motivation is of particular importance in cases in which asset stripping and the like by strategic investors reduces or prevents the realization of returns in a trade sale (cf. Berklöf 1994). This kind of situation might arise in, e.g., emerging industries where the protection of intellectual property may be weak.

Because liquidity externalities create a strategic comlementarity in the going public decisions, stock markets that lack a critical mass of similar listed companies may make IPOs especially costly (Pagano 1993, Michelacci an Suarez 2000). This suggests that from the perspective of the venture capital process, it would be instrumental, particularly in the smaller countries where the stock market can en-

[9] The empirical importance of the private benefits of control is difficult to evaluate. However, some surveys administered by the Federation of the Finnish enterprises provide a hint that the control may be highly valued within the Finnish entrepreneur community. Moreover, a recent study by Nenova (2000) suggests that the control value, i.e. the benefits that controlling shareholders extract out of corporate control, is higher in Finland than in the other Nordic countries but lower than in certain civil law countries.

compass only relatively few industries, to have a match between the sector focus of the domestic stock market and the activities of the venture capital investors.[10]

Second, the market for M&As should be active and liquid (quite like the stock market). In particular, it should provide a constant flow of opportunities to sell companies to industrial buyers that are large enough to have the resources required for the acquisition (e.g., to compensate the initial investors and the entrepreneur). The flow of such opportunities reflects, first of all, a search problem as it depends on the efficiency of the matching process through which the buyers and sellers find each other. Investment banks, consulting firms, specialized M&A advisors, law firms as well as accounting firms are an integral part of the financial infrastructure that enhance the matching process.[11] The flow also depends on the structure of the economy. For example, in smaller countries there are fewer domestic industrial buyers because their economies are smaller and less diversified. In the smaller countries, matching may therefore require that also foreign industrial buyers can be attracted. In such a case, the search costs from the perspective of the venture capitalists are however greater. Concentrated firm ownership reflects too the structure of the economy and may reduce the flow of M&A opportunities. This constraint may be particularly relevant in Europe because of the extraordinary high degree of concentration of ownership (see, e.g., Becht and Röell 1999).

Finally, the flow of trade sale opportunities reflects the dependence of the market for M&As on the overall macroeconomic conditions. Because the link between M&As and the stock market is typically indirect, the changes in the flow of M&A opportunities is likely to correlate with changing stock market conditions imperfectly and with a lag.

The exits enabled by trade sales are important for the venture capital process because they

- are, at least potentially, less dependent on the overall macroeconomic conditions and hence available in difficult market conditions when the exists enabled by the stock market are typically not;
- may have an impact on the types of investments that the venture capital investors are willing to make by providing the venture capitalists with an alternative and yet potentially profitable route of exit.

The last motivation is particularly important for the firms that cannot due to their small size go public. It is also important when there is significant uncertainty over the value of the investee firm at the time of the venture capitalist desires to exit. In such a case, only an industrial buyer with significant industry knowledge

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[10] The existence of such a match cannot be taken for granted in Europe, because only relatively established and old firms have traditionally gone public. Seen in this light, the importance of the recent growth of new hi-tech stock market segments in Europe cannot be over-emphasized. If domestic listing is not feasible, an exit enabled by public offering to an international stock exchange may be required. While listing abroad may be an integral part of the strategy of globally oriented growth firms, it involves, however, higher flotation costs. In the case of smaller firms with some but limited globalization prospects, the listing abroad may be an infeasible choice because of the costs and, additionally, because of the lack of interest by the foreign investors. For a detailed treatment of the benefits and costs of listing abroad, see Pagano et al. (2001).

[11] See also Black (2001) who considers the importance of these institutions for strong securities markets.

may have the ability to verify the value of the firm and pay the premium initially expected by the venture capitalists.[12] The demand for trade sale exits may therefore stem from emerging industries because of the high technological and market risks involved.

In sum, the IPO opportunities enabled by the stock market and the trade sales enabled by M&A activity are, primarily, substitutes.[13] Trade sales are for example substitutes for IPOs in macroeconomic downturns, in the case of smaller firms and when the domestic stock market is fragmented or lacks the critical mass in certain industries. Albeit the substitutability is imperfect, it depends on the characteristics of the financial system how efficiently the venture capitalists can substitute away from the unavailable exit route to the other.

# 3 Finnish Financial Markets - Venture Capitalists' Perspective

In this Section, we benchmark the Finnish financial markets from the perspective of venture capitalists. Because the exits enabled by IPOs and trade sales are typically most profitable and preferred by the venture capitalists, we focus on the Finnish stock market and the market for M&As.

## 3.1 Background

The Finnish financial markets have traditionally been bank-centered and debt-dominated. Besides being the most important providers of external debt financing, the banks have owned simultaneously equity claims in non-financial firms. In some industrial groups formed around the financial institutions, the banks have by tradition had significant influence over the non-financial firms. The cross-owned shares have been regarded as strategic assets, locking the ownership and power

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[12] Johnson (2000) considers this problem from another perspective and suggests a reason why the institutional design of stock markets may matter for the development of venture capital industry. Because many of the high-risk ventures face a considerable amount of uncertainty even at the time when they want to become public, a sufficient amount of disclosure of information is needed for the listing to take place; otherwise investors are reluctant to buy the shares of the company in the IPO and thereafter. Johnson points out that the private contract offered by Deutsche Börse, requiring companies to commit to disclosure and to use US-GAAP or IAS for their financial statements, attempts overcoming the information problems. If companies are willing to adopt this listing contact, Deutsche Börse enforces compliance and provides a basis for successful IPO. Johnson argues that at least in Germany, the use of such private arrangements have proven consistent with a significant increase of venture-backed IPOs and more active venture capital industry.

[13] In other words, the venture capitalists can substitute away from the unavailable exit route to the other. To be sure, IPOs and M&As can also sometimes be complements because occasionally one makes the other available. Such complementarity would for example arise if the most important industrial buyers are the larger companies listed on the stock exchange in which case better liquidity would enhance M&As. It would also arise if the smaller investee companies were merged to increase the company size prior to flotation. The exits enabled by MBOs and LBOs in connection of firm restructuring and de-listings suggest yet another instance of complementarity.

structures of particularly the larger companies of the economy (Kasanen et al. 1996).

Over the period from 1980 to 2000, the traditional set-up underwent a significant reform (see, e.g., Hyytinen et al. 2001 and the references therein). The reform consisted of the liberalization of financial markets in the 1980, the banking crisis in the early 1990s and, finally, the growth of foreign ownership and the stock market in the late 1990s. As a result, the role of financial institutions as the creditors and owners of the non-financial corporations has decreased.

Another important area of development has been the securities regulation. In the 1980s, securities trading and, perhaps more importantly, issuance was regulated only by general laws and self-regulation. In many ways, the transparency of the market was poor, reflecting the lack of incentives to provide accurate information.[14] The introduction of the Securities Market Act in 1989, the restructuring of the Finnish financial markets supervision in 1993, the new rules issued both by the Ministry of Finance and the Finnish Financial Supervision Authority governing securities trading, issuance and disclosure, as well as the changes in the accounting legislation have significantly improved the transparency and integrity of the Finnish financial markets over the past two decades. The level of protection provided by the Finnish legislation for shareholders has also increased while the protection of creditors has decreased.[15]

The stock market infrastructure has too changed. Besides technological advance, an important trend has been the increase in the market share of smaller independent investment banks and foreign investment banks in the broking of stocks. One of the latest trends is the increase of remote brokers in the Finnish stock market. Moreover, quite a few foreign investment banks have become active in the Finnish IPO and M&A -markets.[16] Together with increased foreign ownership, the changes have increased (the need for) market transparency and liquidity.

## 3.2 Stock Market

There are several ways to benchmark a national stock market from the perspective of venture capitalists. First, the larger is the market and the more IPOs take place, the easier it is to exit by bringing investee companies public.[17] Second, the liquidity of the market is an important determinant of the easiness of exit. In a liquid stock market, disposing of a large block should not have an adverse price effect.

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[14] Keloharju (1993) argues, for example, that in the 1980s many of the prospectuses failed to meet the degree of diligence required internationally and that some younger companies that were taken public did not disclose "information on some of the firms' most important characteristics, such as its liabilities" (ibid., p. 265).

[15] See Hyytinen et al. (2001) for a more detailed analysis.

[16] Because the Finnish law allows the same financial institution to operate both in investment and commercial banking, for long only few large commercial banks dominated the underwriting business.

[17] The degree of diversification of the stock exchanges and the size distribution of the listed companies are important characteristics, too. Though a detailed analysis of them is beyond the scope of this study, we briefly touch upon the issue in Appendix 1 where some of the new European hi-tech market segments are examined.

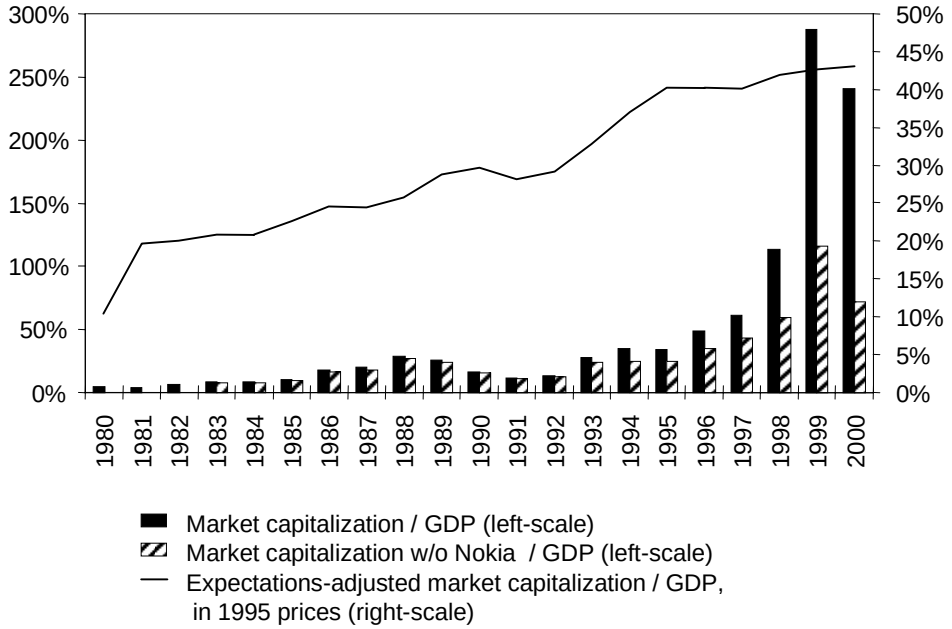
Third, the more volatile the market, the more likely it is that an IPO cannot be executed as planned. Therefore, a very volatile stock market is likely to be less preferred by the venture capitalists.

Among the most usual measures used to characterize stock markets are their size in terms of market capitalization and number of listed companies, the number of new listings and the liquidity in terms of turnover. In addition, the overall price development and the volatility of the price development are important characteristics of the stock markets. We use these measures to quantify the lucrativeness of the Finnish stock market as an exit vehicle for the venture capitalists.

### 3.2.1 Market Size

Figure 3.1 displays the development of the Finnish stock market in terms of its size. The figure reveals that the nominal market capitalization has increased significantly relative to the size of the Finnish economy, which we measure in terms of GDP. However, it is well known that a significant part of the increase reflects the increase of the market value of Nokia, the telecom giant. If the impact of Nokia is filtered out, the increase is clearly more moderate. Another way of looking at the development is to consider the increase of the market capitalization in "real terms" i.e. the increase in the market capitalization after the impact of general stock price movements (reflecting expected future cash flows) have been deflated out.[18] As we can see (the solid line) from Figure 3.1, the adjustment puts the recent growth of the Finnish stock market into a proper perspective; the growth of the Finnish stock market has been stable but by no means phenomenal.

**Figure 3.1 Market capitalization of the Finnish listed companies**

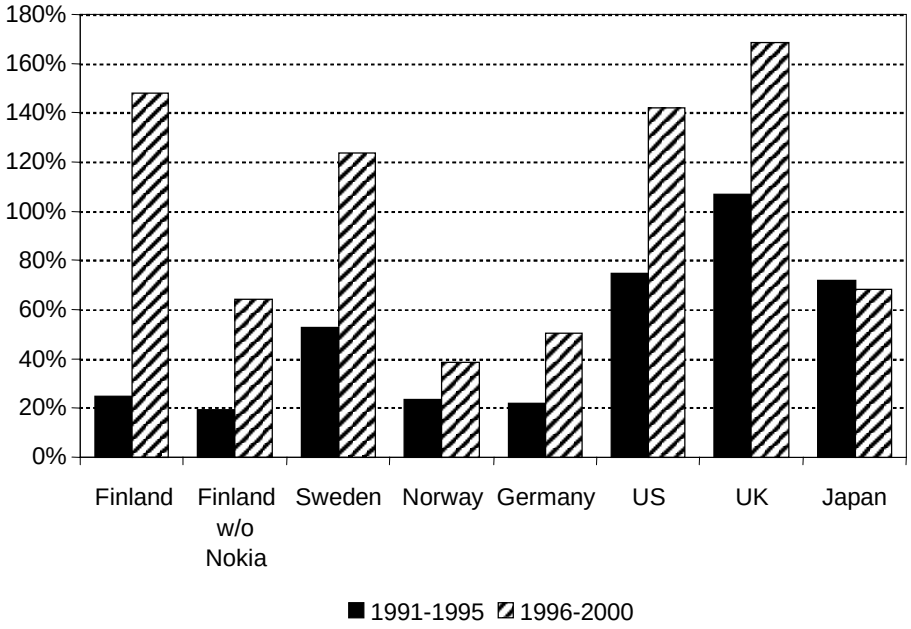



Source: Helsinki Stock Exchange (various yearbooks), ETLA, authors' calculations

[18] The adjustment addresses the forward-looking nature of the stock prices and puts more weight on the dimension of the stock market capitalization that reflects the importance of financing through equity issues and new listings (see Rousseau and Wachtel 2000).

Figure 3.2 displays an international comparison of the market capitalization as a ratio to GDP, separately for the first and second halves of the 1990s. We use the averages to smooth out the variation in the market capitalization due to changes in investors' expectations and macroeconomic cycles.[19]

**Figure 3.2 Market capitalization of domestic shares as a ratio of GDP**




Source: International Federation of Stock Exchanges (FIBV)

The figure demonstrates that the Finnish market was the smallest in the beginning of the 1990s, reflecting in part the deepness of the economic crisis that the Finnish economy underwent. Since the crisis, the Finnish stock market has gained significance. Over 1996-2000, the ratio of market capitalization to GDP was on average 148%. However, it is again very important to control for the effect of Nokia; the size of the Finnish market is by no means impressive once we filter out its impact. In fact, once we exclude Nokia from the consideration, the size of the Finnish market has, on average from 1996 to 2000, been larger than that of Norway and Germany but smaller than that of the US, the UK, Sweden and Japan.[20]

### 3.2.2 Listing Activity

Figure 3.3 presents an overview of new listings over 1980-2000 in Finland. Historically, the companies that have gone public in Finland have been relatively old

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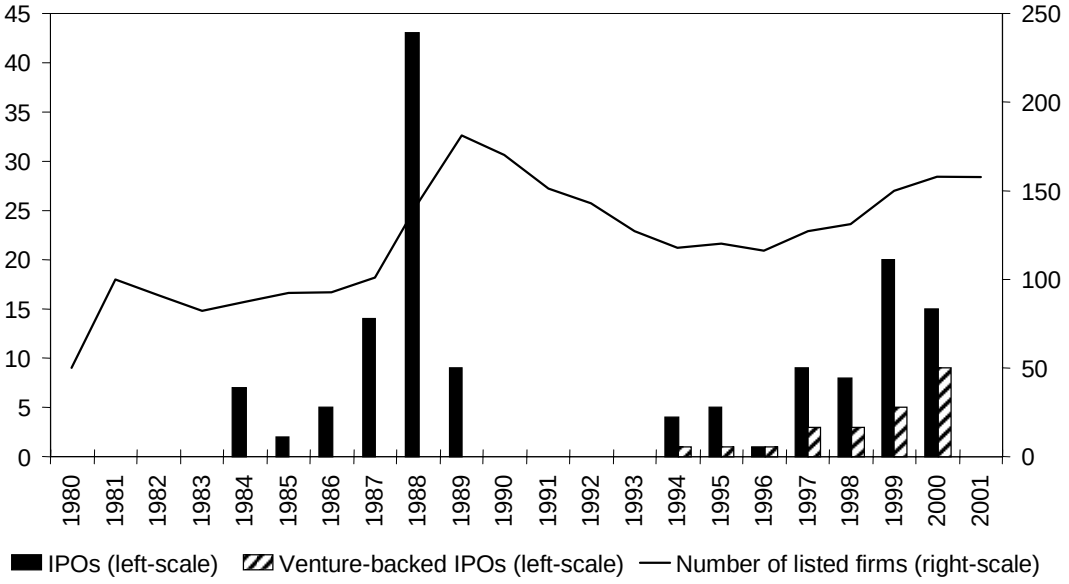
[19] Even in a cross-section, the ratio has varying interpretations, as it reflects, besides new listings and equity issuance, the discounted value of the listed firms' expected future cash flows. The measure's deficiencies notwithstanding, it is an indicator of the relevance of the stock market for an economy.

[20] In terms of the number of listed companies per capita, Finland had 30.6 listed companies per million people at the end of 2000. The corresponding number for Sweden, Norway, Germany, US, UK and Japan were 35.1, 48.5, 12.0, 27.8, 40.4, and 16.6, respectively. Thus, the finding that Finland has a middle-sized equity market is confirmed, albeit the ranking of the countries differ from the one implied by the market capitalization.

and they have had established operations.[21] The Finnish development has in this respect been similar to that of many continental European countries (Jenkinson and Ljungqvist, 2001). During the economic crisis of the 1990s, the opportunities for taking a company public were non-existent. However, the IPO "window" opened again in 1994 when six new companies were listed. In 1994 a first venture-backed company was listed, too, and in total there has been 23 venture-backed new listings in the Finnish stock market. The number of new listings reached a peak in 1999 but since then the market turbulence has reduced the number of IPOs. Since the end of 2000, the IPO window has been closed.

**Figure 3.3 Initial public offerings and number of listed firms in Finland**




Source: Keloharju (1993), Helsinki Stock Exchange (various yearbooks), Finnish Venture Capital Association (various annual publications)

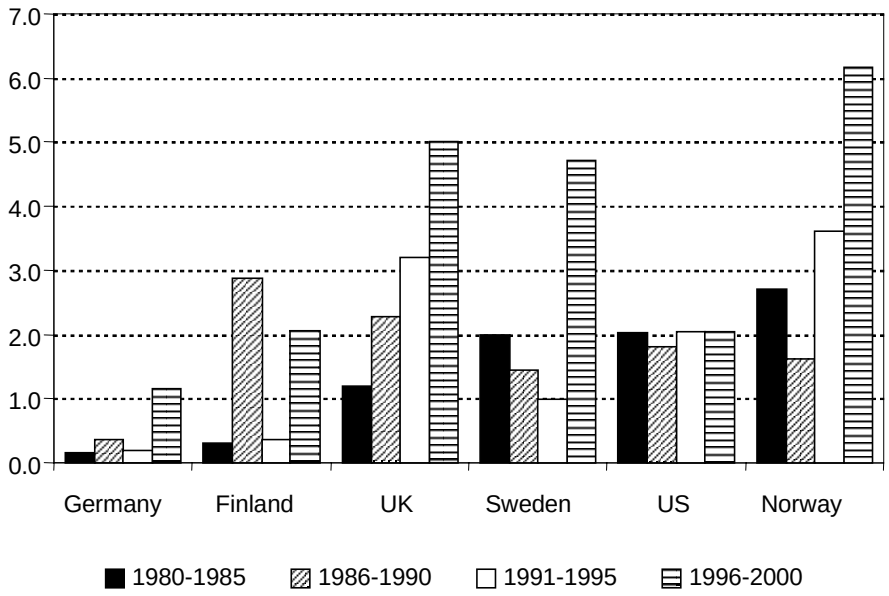
The cycles in IPO volume are strong, suggesting that periods of high IPO volume are likely to be followed by further IPO activity. The pattern is common to many countries, but the reasons for the clustering are not well understood (Jenkinson and Ljungqvist 2001).

To compare the Finnish IPO activity with other countries, Figure 3.4 displays the average annual number of new listings per million of capita for four periods, covering the era from 1980 to 2000 for six countries. The comparison verifies, first, that the first Finnish IPO wave in the late 1980s was strong also by international standards. Second, the latter Finnish IPO wave in the late 1990s has clearly been more moderate; in per capita terms, the Finnish IPO activity, albeit significant domestically, has outpaced only that of Germany. From this perspective, the Finnish stock market does not stand up as a particularly dynamic exit avenue for the venture capitalists.

---

[21] Between World War II and the early 1980s, only a handful of companies went public in total. Amidst the liberalization of the financial markets, the IPO activity increased. The common procedure in the 1980s was to list new companies on a separate list called "Stockbroker's list" and on the OTC market. These companies were typically quite small, operating most often in manufacturing and financial services sectors.

**Figure 3.4 Initial public offerings per capita (per million people)**




Source: Johnson (2000), Keloharju (1993), Högfeld and Holmen (2001), Ongena and Smith (2001), Helsinki Stock Exchange (various yearbooks), Jay Ritter's www-site, the www-sites of the stock exchanges, International Financial Statistics.

### 3.2.3 Liquidity of the Market

Historically, the liquidity of the Finnish stock market has not been very good. In the 1980s, the turnover, defined as the ratio of value traded to market capitalization, was around 15%. The thinness of the stock market affected, if not distorted, the incentives of market participants in many ways. For example, it provided incentives for firms to distribute dividends, because to obtain capital gains by trading of large blocks was problematic, if not entirely impossible (Kasanen et al. 1996).[22] The liquidity of the market has improved since then, and during the 1990s it was on average 41%.[23] The increase in the number of foreign investment banks as the trading members of the market have increased the turnover, particularly during the late 1990s. In addition, the direct positive impact of Nokia on trading volumes and, perhaps more importantly, the associated positive externalities, such as the visibility of Nokia in the international financial press, have increased the visibility of the Finnish stock market and thus the trading activity therein. However, the liquidity is concentrated on the large companies, as the turnover of the small firms and particularly that of the firms listed on the so-called I and NM-lists is rather low. There are several reasons for the low liquidity of the smaller firms, but the difference to the larger firms is at least partly explained by the casual evidence indicating that the recently entered remote brokers are not contributing to the turnover of the small firms' stocks.

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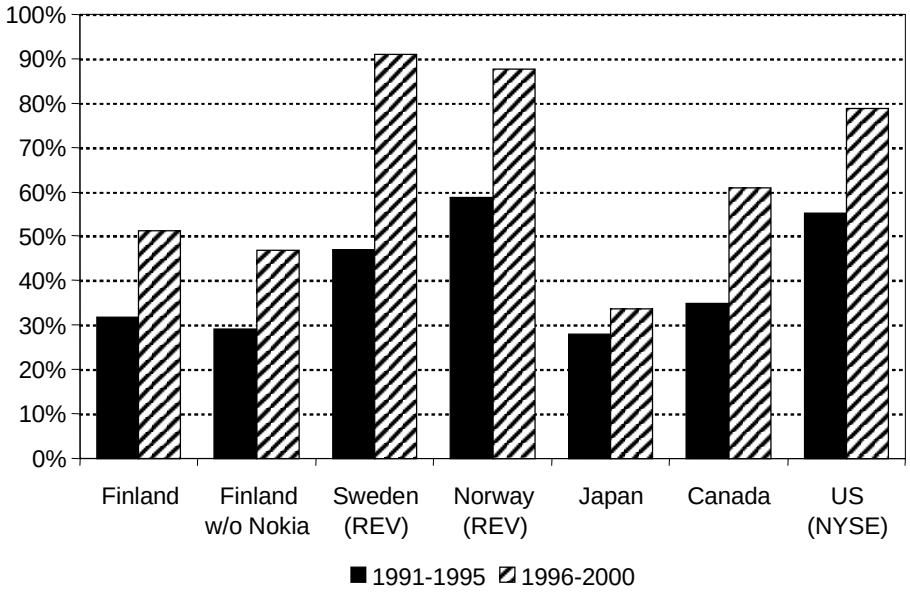
[22] Kasanen et al. (1996) reports that during 1970-1989, the average ratio of annual dividends paid by a group of Finnish listed firms was as high as 100.3% of the annual turnover of the Stock market.

[23] Because the turnover is measured by dividing the value traded by the market capitalization, the forward-looking nature of the stock prices is not driving the improvement.

**Figure 3.5 Stock market turnover**




Source: International Federation of Stock Exchanges (FIBV).

In Figure 3.5 we display an international comparison of market liquidity, based on data from the International Federation of Stock Exchanges (FIBV).[24] The comparison reveals that the liquidity has during the 1990s improved in all countries. It also highlights that even if Nokia's impact is filtered out, the liquidity in Finland has clearly improved. However, when compared to the other countries the Finnish market and its progress do not stand out favorably. The liquidity of the Finnish market has improved in parallel with the reference countries. Despite the increased trading, the Finnish market is less active than e.g. that of Canada or NYSE.

### 3.2.4 Volatility

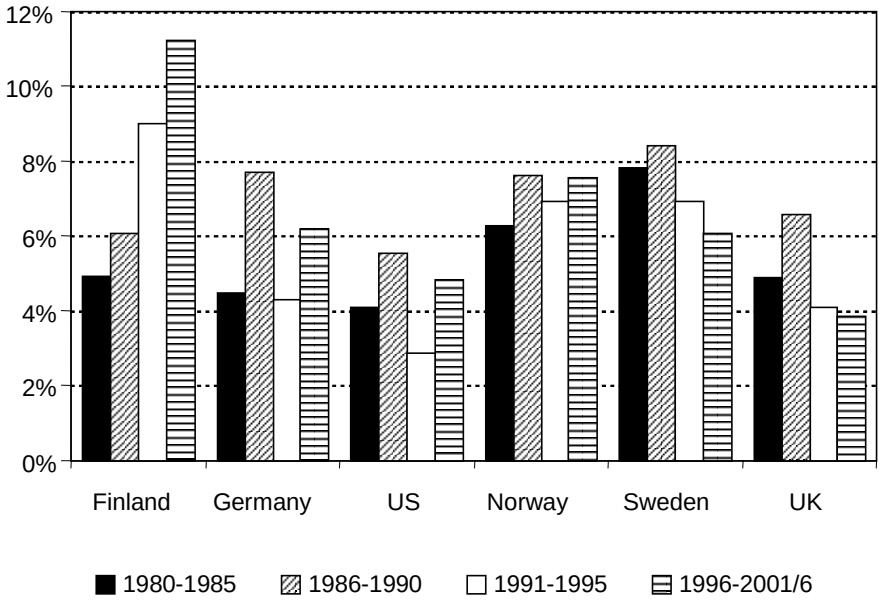
In Figure 3.6 a simple international comparison of market volatility is presented. The volatility measure we use is the standard deviation of monthly logarithmic returns, computed using the price indices of Morgan Stanley Capital International (MSCI). The comparison clearly illustrates the volatile nature of the Finnish stock market. First of all, the volatility has increased quite significantly since the liberalization of the Finnish financial markets. In the early 1980s, the level of volatility was comparable to that of the reference countries. Since then, the volatility has

[24] Because the turnover (value traded) is recorded in international stock exchanges in different ways, the numbers we present should be interpreted with care. The numbers for the Finnish stock market are recorded according to a Trading System View (TSV), which measures only transactions passing through the stock exchange's trading system. The same methodology is used in Japan, Canada and in the New York Stock Exchange (NYSE) in the US. In several other stock exchanges, including Stockholm's and Oslo's exchanges as well as Nasdaq in the US, also off-market transactions are recorded (based on Regulated Environment View (REV) methodology). The turnover under REV is typically higher than the turnover under the TSV concept. Therefore, the Finnish numbers can be compared only to the group of exchanges using the TSV. Albeit a comparison of growth rates can too be misleading, we display the turnover for Norway and Sweden for completeness.

increased if not hit the roof. The Finnish stock market stands out because it has in recent times had the highest volatility among the reference countries considered here.[25] The findings imply that the Finnish environment for new listings and the pricing of IPOs is surrounded by considerable uncertainty.

The volatility of the stock prices is related to the arrival of new information and news about the determinants of the stock prices, such as expected dividends and discount rates. In an inefficient or thin stock market, the observed volatile movements in stock prices may be due to other factors, too. The degree of diversification of the stock exchanges or the size distribution of the listed companies may also drive the market level volatility. Because volatility may spill over, i.e. spread, the presence of a couple of highly volatile large firms in the Finnish stock market may have induced additional overall market uncertainty not experienced in the other markets.

**Figure 3.6 Volatility of monthly stock returns**




Source: Morgan Stanley Capital International, authors' calculations

## 3.3 Mergers and Acquisitions Activity

In this Section, we consider the Finnish M&A-environment and trade sales, which are the second most important route of venture capital exits. Because no official M&A data exist, we use different databases in the comparisons that follow.[26]

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[25] The finance theory predicts that higher risk comes with higher expected returns. The comparison presented here does not take into account the trade-off.

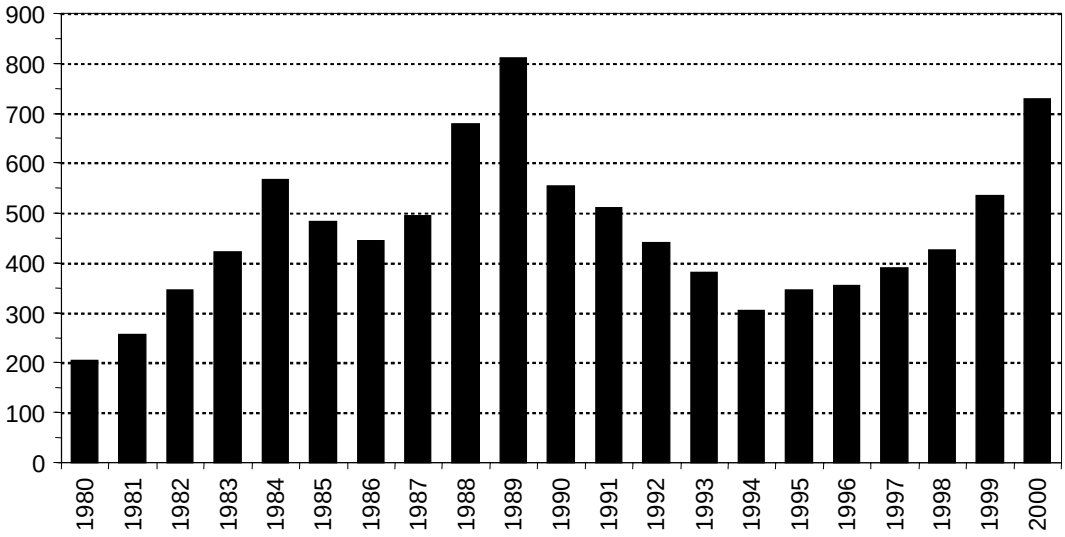
[26] This section uses data from Ali-Yrkkö (2001).

### 3.3.1 Market Size

An overview of the level of M&A-activity over the past twenty years is presented in Figure 3.7. The figure reveals that the volume of M&As has varied quite drastically in tandem with the macroeconomic cycles. In particular, during the economic booms in the late 1980s and 1990s, a large number of M&As was undertaken. In the early 1990s, the economy experienced a deep recession that decreased the level of M&A-activity, albeit with a lag.

The Finnish data is consistent with the international evidence on merger waves (see, e.g., Weston et al. 1998). The reasons for the clustering are not well understood, but the evidence suggests that the waves are different in terms of industry composition and thus that they might result from industry-level shocks. Examples of such shocks are deregulation, rapid technological advance, and supply shocks, such as increasing oil prices. From the viewpoint of the venture capitalists, the volatility of the M&A market is problematic because, as we described earlier, also the IPO activity depends heavily on general macroeconomic cycles.

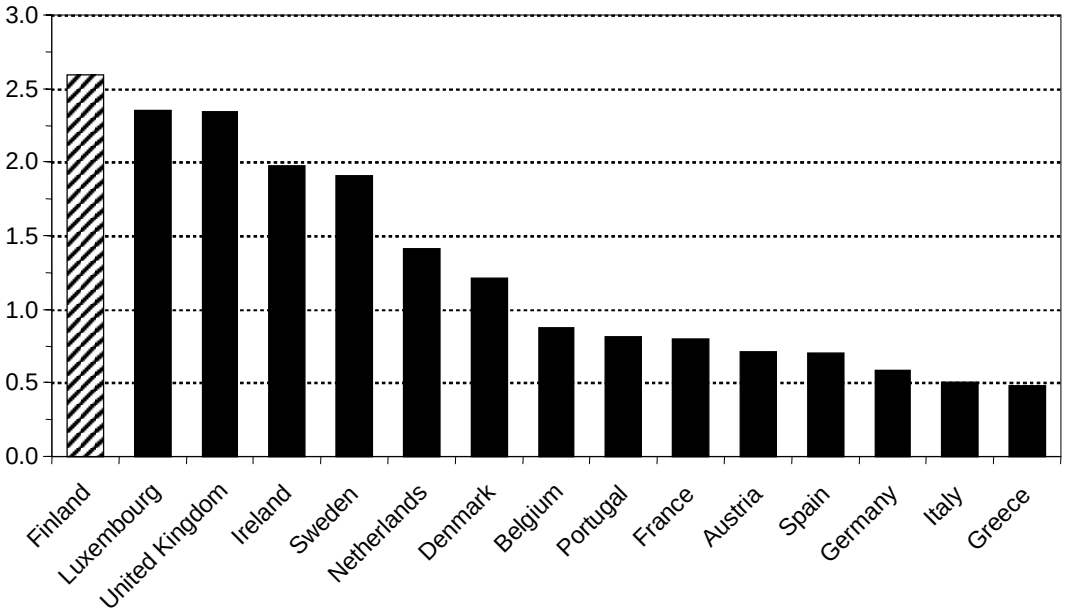
**Figure 3.7 The number of M&As in Finland**




Source: Talouselämä-magazine and ETLA

In Figure 3.8 we benchmark the M&A activity in Finland against other EU member states by comparing the ranking of the countries in terms of their national and cross-border M&As. The size differences between the countries have been taken into account by proportioning each country's share of the total M&As in the EU to each country's share of the total GDP in the EU. The interpretation of the figure is as follows: If the number is higher than one, more M&As are undertaken in that country than would be predicted by the country's GDP share in the EU.

**Figure 3.8 Relative M&A activity in the EU (1991-1999)**




Source: European Economy, Supplement A, No 5/6 – 2000, the authors' calculations. M&A activity = (the country's share of EU's M&A activity)/(country's share of EU's total GDP)

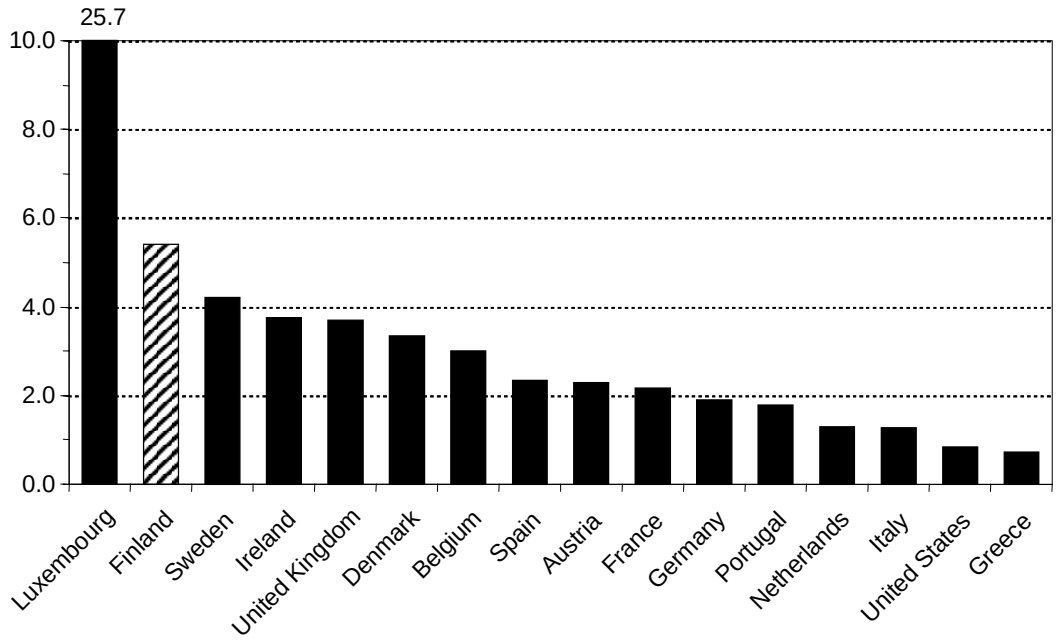
The result of the comparison is surprising. Finland is ranked 1st out of the EU member states in terms of the relative M&A activity. Finland's share of the total M&A volume in the EU area is more than double when compared to its share of the EU's GDP. Thus, once we control for the size of the economy, we find that Finland has had a rather active M&A market.[27]

### 3.3.2 Cross-border Activity

In order to obtain a more complete picture of the M&A activity, we also consider cross-border inward investments. This is done in Figure 3.9 where the EU member states and the US are considered as the "target" countries.

[27] Other relative measurements for the M&A activity produce the same result. For example, when the population and the number of listed companies were used to scale the amount of M&As, the message that Figure 3.8 conveys did not change.

**Figure 3.9 Countries as cross-border M&A targets (1990-99)**

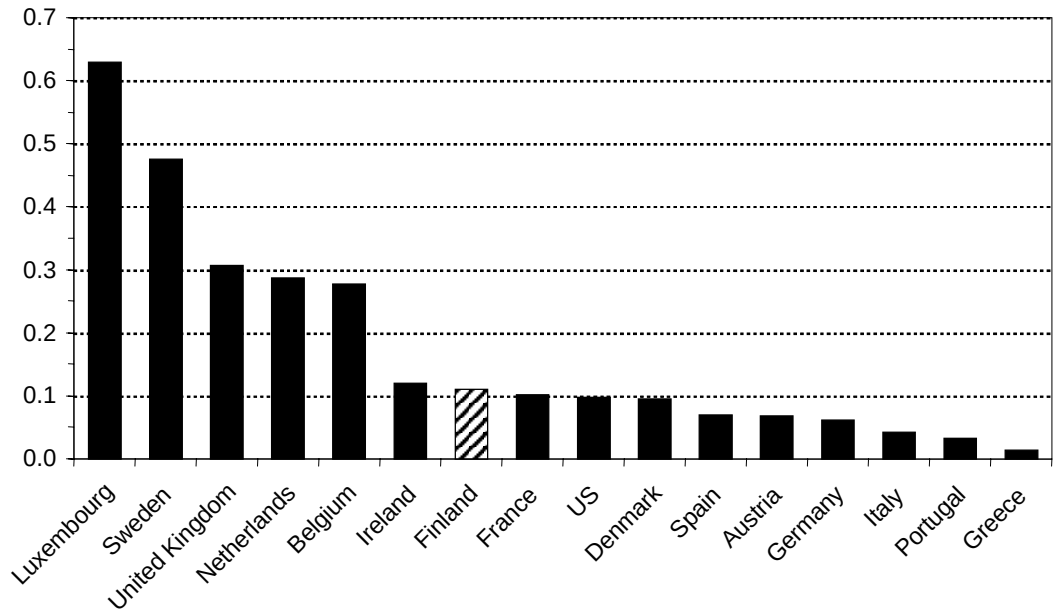



Source: OECD 2001, Ali-Yrkkö (2001). The diagram represents the sum of the number of inward cross-border deals during 1990-1999 relative to GDP at market prices in 1999, in million EUR.

As the figure reveals, the ratio of cross-border transactions to GDP is clearly highest for Luxembourg (25.67), followed by Finland, Sweden and Ireland. The figure indicates that the high M&A activity in Finland is not (solely) due to domestic transactions; also foreign companies have been active buyers in Finland.

Figure 3.10 benchmarks the countries by the *value* of inward cross-border M&As. The method provides a slightly different picture on the merger activity. Because Finland's ranking is clearly lower in terms of the deal value than in terms of the number of deals, we can conclude that the Finnish M&A transactions have not been as large as in the other countries. While Luxembourg and Sweden are the top two countries in terms of the value of inward M&A deals, Finland occupies the seventh position in this comparison. In this regard, the position of Finland is not unexpected high. It is worth noting that unlike one might expect, the position of the US is as low as 11$^{th}$.

**Figure 3.10 The value of inward cross-border M&As in relation to GDP (1990-99)**




Source: OECD 2001 and Ali-Yrkkö (2001) Note that the diagram represents the sum of the value of deals during 1990-99) relative to the GDP at market prices in 1999.

The M&A activity in the EU and Finland shows similar development during the latter part of the 1990s. While in 1995 the number of M&As was roughly 8800 in the EU, in 1999 the corresponding figure was 12800, representing a growth rate of 46%. In Finland, the corresponding growth rate was 55%.

In sum, the Finnish M&A activity has exceeded the EU average in the 1990s. Once the size of countries is controlled for, Finland is one of the top countries in terms of M&A activity, indicating that the Finnish M&A market has been comparatively active.

## 3.4 Assessment

We have examined the Finnish financial markets from venture capitalists' perspective. In this Section, we present a summarizing assessment.

Table 3.1 presents summary statistics for the IPO and M&A activity in Finland. The table tells that the number of IPOs and the M&A activity have during the 1990s decreased relative to the activity in the 1980s.[28] The coefficients of variation moreover confirm that IPOs have been more volatile than M&As. The volatility of both activities has, however, decreased during the 1990s. It also seems that the correlation between IPOs and M&As is high (coefficient of correlation = 0.59), but decreasing. Thus, even though the Finnish M&A market appears to be comparatively active by international standards, trade sales serve at best only as an imperfect substitute for IPOs.

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[28] An explanation for this finding is a reform of the taxation of capital gains in the late 1980s.

**Table 3.1 Descriptive Statistics for IPOs and M&As in Finland**

| | 1980-2000 | | 1980-1989 | | 1990-2000 | |
|---|---|---|---|---|---|---|
| | IPO | M&A | IPO | M&A | IPO | M&A |
| Mean | 7.5 | 457.1 | 8.2 | 467.3 | 6.8 | 447.8 |
| Median | 4 | 423 | 4 | 453 | 4 | 423 |
| Maximum | 43 | 812 | 43 | 812 | 25 | 700 |
| Minimum | 0 | 204 | 0 | 204 | 0 | 302 |
| Std. Dev. | 10.6 | 149.9 | 13.3 | 185.4 | 8.0 | 117.5 |
| Coefficient of variation | 1.41 | 0.33 | 1.62 | 0.40 | 1.17 | 0.26 |
| Correlation | 0.59 | | 0.68 | | 0.37 | |

The decrease in the average number of IPOs and M&As is a bit surprising finding. We therefore examine the development of IPOs and M&As in more detail by using multivariate regressions. In the regressions, the dependent variables are (the logarithm of) the number of IPOs and M&As. The dependent variables are clustered over time and related to overall macroeconomic cycles, but there is no agreement on the determinants of the aggregate IPO activity or the merger movements (Jenkinson and Ljungqvist, 2001, p. 37 and Weston et al. 1998, p. 121). We therefore use the logarithm of real GDP (log(*Real GDP* )) to control for the size of the economy and ask whether a trend in the two variables can be uncovered. We also evaluate the robustness of our results by including variables measuring the stock market returns ($Sreturn_{t-1}$) and the real market capitalization of the stock market ($Rmcap_{t-1}$) into the regressions. The variables are both lagged by one year. We additionally experiment with once lagged GDP (log($Real\ GPD_{t-1}$)), partly to control for the simultaneity problem that might arise if the contemporary GDP is endogenous. Because the size of the sample is small and because there is no formal model linking the real GDP to IPOs and M&As, the regression coefficients should be interpreted as providing descriptive partial correlations rather than estimates of an underlying model.

Table 3.2 reports the results. Note first that the results for M&As remain essentially unchanged if we use the lagged GDP, or include the real market capitalization and the returns into the regressions. For IPOs the results are somewhat weaker, but the preferred regression model is the one reported in the second column.

**Table 3.2 Multivariate Regression Results for IPOs and M&As**

**Panel A. Dependent variable: log(Number of IPOs + 1)**

| | OLS | | OLS | | OLS | | OLS | |
|---|---|---|---|---|---|---|---|---|
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Constant | -75.754 | **0.00** | -90.569 | **0.00** | -26.502 | 0.41 | -73.851 | **0.02** |
| Trend | -0.164 | **0.08** | -0.168 | **0.02** | 0.004 | 0.98 | -0.118 | 0.22 |
| log(Real GDP$_t$) | 12.517 | **0.00** | 14.853 | **0.00** | - | - | - | - |
| Sreturn$_{t-1}$ | - | - | 0.024 | **0.00** | - | - | 0.032 | **0.00** |
| Rmcap$_{t-1}$ | - | - | -0.002 | **0.01** | - | - | -0.002 | **0.06** |
| log(Real GDP$_{t-1}$) | - | - | - | - | 4.451 | 0.40 | 12.135 | **0.02** |
| $R^2$ | 0.51 | | 0.73 | | 0.21 | | 0.59 | |
| Adjusted $R^2$ | 0.45 | | 0.66 | | 0.12 | | 0.48 | |
| S.E. | 0.95 | | 0.74 | | 1.19 | | 0.92 | |
| Durbin-Watson | 1.22 | | 1.89 | | 0.91 | | 1.42 | |

**Panel B. Dependent variable: log(Number of M&As)**

| | OLS | | OLS | | OLS | | OLS | |
|---|---|---|---|---|---|---|---|---|
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Constant | -21.184 | **0.00** | -19.862 | **0.00** | -21.331 | **0.00** | -26.278 | **0.00** |
| Trend | -0.078 | **0.00** | -0.081 | **0.00** | -0.083 | **0.00** | -0.096 | **0.00** |
| log(Real GDP$_t$) | 4.452 | **0.00** | 4.253 | **0.00** | - | - | - | - |
| Sreturn$_{t-1}$ | - | - | -5.0E-04 | 0.77 | - | - | 0.004 | **0.04** |
| Rmcap$_{t-1}$ | - | - | 8.4E-06 | 0.96 | - | - | -1.8E-04 | 0.29 |
| log(Real GDP$_{t-1}$) | - | - | - | - | 4.506 | **0.00** | 5.309 | **0.00** |
| $R^2$ | 0.60 | | 0.64 | | 0.65 | | 0.74 | |
| Adjusted $R^2$ | 0.55 | | 0.54 | | 0.61 | | 0.67 | |
| S.E. | 0.22 | | 0.20 | | 0.18 | | 0.17 | |
| Durbin-Watson | 0.72 | | 1.04 | | 1.31 | | 1.62 | |

The table reveals that as expected, the number of IPOs and M&As grows as the size of the economy increases.[29] The estimates of the second columns for example imply that net of a linear time effect, when the real GDP increases by 1%, the number of IPOs increases on average by around 15% and the number of M&As by 4%. While the estimated partial correlations may seem large, they are in line with the large changes observed in the volume of IPOs and M&As over time (cf. Figure 3.3 and Figure 3.7).

There also seems to be a negative trend in the number of IPOs and M&As in Finland once the size of the economy is controlled for. In other words, holding the size of the economy constant, the dependent variables exhibit a decreasing trend.

[29] The explicit introduction of the trend variable in the regression may be acceptable only if the trend underlying the variables is deterministic and not stochastic. Because in the reported regressions the coefficient of determination is larger than the value of the Durbin-Watson statistic, the Granger-Newbold rule of thumb for a spurious regression suggests that the results are not dubious. We also explicitly corrected in unreported regressions for the possible effects of autocorrelation in the error terms, but the results did not change.

The estimates suggest that the rate of decay of IPOs might be around 16% per year while the M&As have shrank at the rate of 8% per year. The trend variable can, of course, be a surrogate for one or more underlying variables affecting negatively IPOs and M&As. Whatever the potential unobservable variables are, they result in a rate of decay in IPOs and M&As once we account for the influence of the size of the economy.[30]

We have two summarizing conclusions that we wish put forward here. First, because of the strong clustering of IPOs, the volatility and the other documented characteristics of the Finnish stock market, as well as the possible decreasing trend in IPOs, we suspect that the Finnish stock market provides a less than optimal exit venue for the Finnish venture capitalists despite its favorable development particularly during the 1990s. Second, the market for M&As has been quite active in Finland and should in principle provide a steady flow of trade sale opportunities for the Finnish venture capitalists. However, the size of the cross-border deals may have been small, suggesting that at least some Finnish growth firms are sold abroad at a relatively early stage of their lifecycle. The overall time trend of M&As appears moreover to be decaying once the size of the economy is controlled for. Because the venture capitalists typically finance emerging industries, the limited size of the Finnish domestic economy and the absence of large mature companies in many of the emerging fields, such as life science and particularly biotechnology, may undermine the long-run prospects for trade sale exits, too.

# 4 Exit Experiences of Finnish Venture Capital Investors

In the early 1990s, the Finnish venture capital industry wrote off, in terms of the number of divestments, investments more frequently than it exited via other routes when benchmarked against the other European countries. At that time, the exits via trade sales were more common than the exits via public offerings, reflecting the fact that essentially no exit was enabled by the stock market during the recession years. During the boom years of the late 1990s the exits enabled by the public offerings reached the level that is roughly comparable with Finland's share in the other exit routes.[31]

It is against this background on which we build the micro-level analysis of the Finnish venture capitalists' exit experiences that follows.

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[30] The decreasing trend in M&As can be uncovered even if we control for the stock market returns and the real size of the stock market. As expected, the number of IPOs is the larger, the higher have been the stock market returns in the previous year.

[31] The write-offs would not have been as a prevalent exit mode if the amount of divestments (at cost) were considered, reflecting the small size of the Finnish venture capital investments. See Panels A and B of Table 5.2 in Appendix 2 that present in more detail the exit history of the Finnish venture capitalists based on the data available from the European Private Equity and Venture Capital Association (EVCA).

## 4.1 Data and Survey Design

We used a survey to collect additional primary data. This additional empirical evidence is based on the results of a questionnaire administered to 39 Finnish venture capitalists covering nearly the entire population of the Finnish venture capitalists and corporate ventures. We excluded two funds of funds (Finvest and Proventure) and public venture capitalists (The Finnish National Fund for Research and Development (Sitra) and The Finnish Industry Investment Ltd (Teollisuussijoitus)) from the target sample because our primary interest is in the private part of the venture capital sector that invests directly in the firms in need for external capital.[32]

### 4.1.1 Model of Questionnaire

The model of the questionnaire reflected our special interest in the venture capital cycle and the role of exit stage therein. The questionnaire was divided into six main parts. The parts were roughly about the respondent and the company's background information, investment decisions, exit experiences, fundraising and the Finnish institutional and legal environment.

Several types of questions were used. First, the respondents were expected to provide and estimate quantitative data, such as the number of ventures in their portfolio, achieved exits, type of exits, usage of exit agreements and syndication deals, to name a few. Second, the respondents were presented statements and asked to take a stance on them. These questions were measured with a Likert-scale, which indicates whether the respondent agrees or disagrees with a statement on a scale from 1 to 7. The scale values of the statements were as follows: 1-3 indicate disagreement, 4 indicates indifference and 5-7 indicate agreement. Third, the respondents were asked to provide rankings of certain factors. Some of the answers were expected to be given for a time period covering the past four years, i.e. 1997-2001.

The questionnaire was distributed to the target sample together with a cover letter that suggested the companies to choose a respondent, a single informant, who had strongly been involved in the decision-making in exit processes. The questionnaires were sent to the target firms in the end of June 2001 and received back by the end of August 2001.

### 4.1.2 Achieved Sample

A total of 30 completed questionnaires were returned out of the 39 questionnaires that were distributed. This results in a response rate of 77%. The response rate is higher than in many similar surveys that have involved respondents in high executive positions and that have required the provision of detailed, company-specific information. Albeit the achieved sample is small in absolute terms, it is a

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[32] The National Technology Agency (Tekes) was excluded for the same reason (and because it does not typically make investments requiring an exit).

representative sample of the private Finnish venture capital firms (see also Section 4.2.1).

### 4.1.3 Field Study and Interviews

In addition to the survey, we carried out 17 interviews with the Finnish venture capital companies. The interview questions were designed to support the research questionnaire and in particular to get a closer look at topical issues surrounding exists. The aim of the interviews was also to enhance our knowledge about the nature and stage of the venture capital cycle in Finland, as well as uncover any other factors and problems that might affect adversely the venture capital processes. The interviews took place in July and August 2001.

## 4.2 Empirical Results

### 4.2.1 Description of the Survey Data

Table 4.1 provides background information on the characteristics of the respondent firms. As can be seen from the table, the Finnish venture capital industry is relatively young. Nearly 60% of the private, currently operative Finnish venture capital firms have been established during the past five years. Because of the financial crisis of the early 1990s and the fact that the Finnish financial markets were for long bank-centered and debt-dominated, this finding is by no means very surprising. The age profile suggests, however, that a large part of the industry is relatively inexperienced and may hence lack a degree or two of maturity (see also Hyytinen and Pajarinen 2001). Over half of the companies in our data are independent venture capital firms, and the second biggest group is those belonging to some financial corporation or group. Of the sample companies, 73% manages closed-end funds, suggesting that the Finnish venture capitalists are, as their counterparts in the US, forced from time to time to return the market in order to raise new funds due to the limited lifetime of the funds. Finally, we note that insurance companies and pension funds serve as the main sources of funds while the role of banks and retained capital gains as the source of funds is less important.[33]

The venture capital firms have, on average, 21 investee firms in their portfolio but in 33% of the respondent companies, the portfolio consists of only ten or fewer investee firms and in 55% of the respondent companies, the portfolio consists of only twenty or fewer investee firms (see Appendix 3). The distribution of the venture capital firms is hence skewed towards the smaller-sized firms. The total number of investee firms in the portfolios managed by the venture capital firms in our sample is 630, suggesting that our sample is very representative indeed: at the end of year 2000, the size of the total (population) portfolio was 626 firms (Finnish Venture Capital Association, 2000).

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[33] The class “Other”, which includes capital infusions into the venture funds for example by fund-of-funds and private persons, has too been mentioned to be an important source of funds. It is important to note that the respondents were only asked to name the most significant sources of funds, not to report the actual amount that each source has committed.

**Table 4.1 Background information**

| | |
|---|---|
| Number of respondents | 30 |
| Year of establishment | |
| before 1990 | 13 % |
| 1990-1995 | 30 % |
| 1996-2001 | 57 % |
| Type of business | |
| independent venture capitalist | 53 % |
| subsidiary of non-financial corporation | 3 % |
| international organization related | 3 % |
| subsidiary of financial corporation | 23 % |
| government / municipal related | 7 % |
| other | 10 % |
| Manages closed-end funds | 73 % |
| Main sources of funds | |
| banks | 4 % |
| corporate investors | 8 % |
| insurance firms | 25 % |
| government agencies | 15 % |
| realized capital gains | 2 % |
| pension funds | 23 % |
| other | 23 % |
| Proportion of funds provided or guaranteed by the public sector | 11 % |
| Number of firms in current portfolio | 21 |
| Average size of investments, million EUR | 4.47 |
| Share of technology-based small firms in portfolio | |
| current situation | 61 % |
| over past four years | 59 % |
| Share of seed and start-up firms in portfolio | |
| current situation | 34 % |
| over past four years | 37 % |

The average size of the investments in portfolio companies is EUR 4.5 million. However, in approximately 40% of the venture capital firms, the average investment has been less than EUR 1 million (see Appendix 1). One third of the investee companies are at seed and start-up stage and 61% of them can be classified as investments in technology-based small firms, TBSFs.[34] There seems to be no notable changes in the investment behavior; the portfolio composition in terms of the stage of the investee firms and their type (i.e. TBSF or not) today is about the same as it has been during the past four years.

The structure of the investment portfolio of the venture capital companies is another matter of interest. Table 4.2 reports the concentration of the portfolios of the Finnish venture capital firms based on a question in which the respondents were asked to report the percentage of the venture company's total portfolio in each industry.

[34] The definition for a technology-based small firm was that the firm has less then 250 employees and belongs to a "high-technology" industry.

**Table 4.2 Concentration of venture capitalists' investment portfolios**

| | Share of Companies in Portfolio | | | | | |
|---|---|---|---|---|---|---|
| | 0% | 1-25% | 26-50% | 51-75% | 76-100% | Total |
| Communications | 17 % | 43 % | 20 % | 10 % | 10 % | 100 % |
| Computer related | 33 % | 47 % | 20 % | 0 % | 0 % | 100 % |
| Other electronics related | 53 % | 43 % | 3 % | 0 % | 0 % | 100 % |
| Biotechnology | 63 % | 30 % | 3 % | 0 % | 3 % | 100 % |
| Industrial products | 30 % | 50 % | 7 % | 13 % | 0 % | 100 % |
| Service sector | 57 % | 43 % | 0 % | 0 % | 0 % | 100 % |
| Consumer related | 50 % | 33 % | 13 % | 0 % | 3 % | 100 % |
| Other | 87 % | 10 % | 3 % | 0 % | 0 % | 100 % |

Note: The respondents were asked to report the percentage of their portfolio in each industry. Conditional on an industry, each entry displays the fraction of venture capital firms having the specified share of their investee firms in the industry.

For example, in the entry in the North-West corner of the table (crossing "Communications"-row and "0%"-column) tells that 17% of the Finnish venture capital firms have not invested at all in the communications industry. It seems that the portfolios are rather diversified across industries and in particular that only relatively few companies have concentrated their investment on a single industry. Most of the venture capital firms with concentrated portfolios have investments in the communications industry. Some of the companies with concentrated portfolios have specialized also in the industries related to computers and consumer products/services (e.g. products and services, leisure, retail business).

### 4.2.2 Exit Experiences of the Sample Firms

Table 4.3 reports the exit track record of our sample firms over the past four years. Of the sample firms, 73% has had some kind of exit experience and as many as 67% of the venture capital firms have divested one or more portfolio firms via a trade sale. Only 15 (50%) firms have exited via an IPO. The three most common exit routes are trade sale (37%), management buy-out (27%) and IPO (16%).[35]

[35] The reporting period of exits in our sample is 1997/07-2001/07, which overlaps but does not coincide with 1996-2000. Hence the distribution of the exits should be similar to the one implied by the EVCA statistics considered in the Appendix 2. That is indeed roughly the case except that the fraction of trade sales is higher (37% vs. 20%) and that of write-offs lower (11% vs. 23%) in our sample than the averages based on the EVCA data suggest. It is difficult to judge to what extent the difference reflects sample selection issues and/or changes in the economic environment during the non-overlapping parts of the investigation period.

**Table 4.3 Exit track record**

| | Number of Firms | Share of Firms |
|---|---|---|
| IPO | 15 | 50 % |
| Sale of listed equity | 4 | 13 % |
| Trade sale | 20 | 67 % |
| Management buy-out | 6 | 20 % |
| Liquidation (write-off) | 9 | 30 % |
| Secondary sale/refinancing | 3 | 10 % |
| Has Some Kind of Exit Experience | 22 | 73 % |

| | Number of Exits | Share of Exits |
|---|---|---|
| IPO | 29 | 16 % |
| Sale of listed equity | 4 | 2 % |
| Trade sale | 65 | 37 % |
| Management buy-out | 48 | 27 % |
| Liquidation (write-off) | 20 | 11 % |
| Secondary sale/refinancing | 12 | 7 % |
| Total | 178 | 100 % |

Note: Exits during the past four years or since established if the age of firm less than four years.

In order to understand better the patterns of exit, we asked the respondents to report further information on their past exists. Table 4.4 displays the results.

**Table 4.4 Exit experiences**

| | | |
|---|---|---|
| Duration of VC investment | 2.6 | years |
| Duration of the exit stage | 6.1 | months |
| Looked for buyer in a trade sale | 6.3 | months |
| Stayed in the venture after an IPO | 10.1 | months |
| Duration of the liquidation process | 6.9 | months |
| Syndicated deals | 45 | % of ventures |
| The average size of syndicate | 4 | partners |
| Governmental partner in the syndicate | 13 | % of ventures |
| Syndications that included partners only from | | |
| own country | 56 | % of ventures |
| outside Europe | 20 | % of ventures |
| The use of outside advisors in exits | 95 | % of ventures |
| of which | | |
| Law firms | 73 | % of ventures |
| Accountants | 40 | % of ventures |
| Investment banks | 38 | % of ventures |
| Others | 9 | % of ventures |

Note: The numbers presented are the averages of the answers.

The average duration of an investment, i.e., the period between the first investment and the exit, has been over 2.5 years.[36] Compared to the US, the Finnish duration is short. Gompers (1995) for example reports that the average holding period of the investments leading to an IPO was 2.8 years. It takes, on average, 6.3 months to find a buyer to complete a trade sale and 10.1 months to exit (fully) after an IPO. Considering the turbulent market in Finland, the length of this "lock-up" period sounds rather long. In the US, the typical lock-up period as imposed by the investment banks and the market practice is on average around 180 days, but to dispose of the stocks may of course take longer.

In the past, nearly a half of the exits have been syndicated investments. In addition to the respondent company itself, the syndicates have included on average three partners. In most cases the partners have been domestic investors. Finally, during the exit process, almost all of the venture capital firms have used outside advisors. In particular, in three out of four exits, the services of law firms have been used.

Table 4.5 provides, finally, a comparison between the venture capital firms that have and those that have not achieved exists during the past four years. The companies with exit experience are clearly older than the companies with no such experience. What's more, the companies with exit experience have invested in fewer early-stage firms, have larger portfolios and make larger investments on average. All these findings are as expected, but only the first difference is also statistically significant.

**Table 4.5 Differences between the companies with and without exit experience**

| | Has Exit Experience | No Exit Experience | p-value for *t-test* |
|---|---|---|---|
| Age of venture capital firm | 6 | 3 | **0.033** |
| Number of firms in portfolio | 24 | 13 | 0.195 |
| Share of technology-based small firms in portfolio | 60 % | 65 % | 0.771 |
| Share of early-stage firms in portfolio | 30 % | 45 % | 0.366 |
| Average size of investment, million EUR | 5.0 | 3.0 | 0.436 |

### 4.2.3 Does Exits and Exit Environment Matter?

In this Section, we attempt to understand the governance of exit decisions, the impact of the exit environment on the different stages of the venture capital cycle as well as the degree to which the Finnish financial system supports the venture capital process. In light of our finding that the venture capital firms with no exit experience are smaller and younger, it is also important to examine to what extent the exit experience of the venture capital firms matter for their decision-making and influence the perceptions that they (the venture capitalists) hold on their institutional and operating environment. The smaller and less experienced the venture capital firm, the more likely that it faces exiting problems if the financial system does not support the venture capital process.

[36] By taking into account the average duration of the exit stage (6.1 months), the period from the first investment to the preparation of the exit is, on average, two years.

**Feedback effects**

In our survey, we asked the venture capital firms to report to what extent certain selected factors influence their fundraising, investment and exit. The scale was from 1 to 7, with higher scores indicating agreement. It is important to notice that we now analyze entirely subjective assessments of the importance of the selected factors. Essentially, we can only report to what extent the respondents agreed or not with certain statements concerning the Finnish exit environment and its impacts on the venture capital process. The limitation of this assessment is, of course, that the respondents provided only their subjective judgment of the statement, not a quantitative measure of the actual impact.

Table 4.6 summarizes the results. Beginning first from the first stage of the venture capital cycle, i.e. the fundraising, the available data speak, in addition to the importance of experience for fundraising, for the existence of feedback effects between the exit performance and environment and the ability to raise funds. Mechanisms of this type together with a clear emphasis on the importance of reputation building were also the concern that was most systematically put forward in the interviews we had with the venture capitalists. The table also reveals that the ability to generate returns for investors seem to be of particular concern for the venture capital firms with no earlier exit experience. Together with the emphasis on experience and age of the venture capital firms, the findings of ours are, as we see it, consistent with the hypothesis that demonstrating ones ability is relatively more important in the venture capital business for the less experienced (Gompers 1996). The hypothesis warrants further analysis and we return to it later on. The data shows too that in a considerably high number of venture capital firms, the state of the exit environment is perceived to have an impact on their activity.[37] In particular, investing becomes cautious due to uncertain exit environment. What's more, the uncertain exit environment is perceived to lead to a reduction in the number of full exits that the venture capital firms are able to make, implying a larger overhang of the investee companies.

[37] In the questionnaire, we also asked the respondents to evaluate 18 determinants of investment decisions. The respondents were requested to select and rank the 10 most important factors. The most important determinants were related to growth and sales potential (see Appendix A.1). The other important determinants were found to be "perceived financial rewards", "entrepreneur's track record" and "potential exit routes". It is worth emphasising that in a similar (albeit not identical) survey, the US venture capitalists ranked "potential exit routes" as 12$^{th}$ in a question on the importance of selected investment criteria (Van Osnabrugge and Robinson 2000). Taken as a whole, the reported determinants of investment decisions were broadly in line with the US results reported in Kaplan and Strömberg (2000).

**Table 4.6 Feedback effects and the importance of market environment**

| | Whole Sample | Exit Experience | No Exit Experience | p-value for *t-test* |
|---|---|---|---|---|
| **Factors that have/have had an impact on *fundraising*:** | | | | |
| recent exit performance | 78 % | 83 % | 60 % | 0.411 |
| domestic stock market conditions | 52 % | 56 % | 40 % | 0.589 |
| previous returns on investors | 83 % | 78 % | 100 % | **0.042** |
| age of the venture capital firm | 83 % | 84 % | 80 % | 0.854 |
| experience of partners and other senior employees | 96 % | 95 % | 100 % | 0.331 |
| ***Investments*: Uncertain exit environment has/has had a negative impact on** | | | | |
| investment activity in general | 79 % | 77 % | 86 % | 0.628 |
| investments in seed and start-up firms | 63 % | 65 % | 57 % | 0.740 |
| investments in technology-based small firms | 70 % | 70 % | 71 % | 0.948 |
| degree of specialisation (in investing) | 54 % | 52 % | 57 % | 0.841 |
| **"*Hot-issue markets*": Considerations about the ability to exit have led to** | | | | |
| too many investments being undertaken in "hot" industries | 71 % | 76 % | 57 % | 0.416 |
| too few investments in industries not in the public limelight | 29 % | 29 % | 29 % | 1.000 |
| ***Periods of market turbulance*: Considerations about the ability to exit have led to** | | | | |
| too many investments in the industries that are perceived less risky | 36 % | 38 % | 29 % | 0.665 |
| too few investments in technology-based small firms | 25 % | 29 % | 14 % | 0.429 |
| Uncertain exit environment has/has had a negative impact on number of full exits you are able to make | 90 % | 91 % | 86 % | 0.747 |

Note: The percentages represent the number of respondents who agreed with the question i.e., they answered 5-7 in a seven point scale with higher score indicating higher agreement. *t*-test (with unequal variances assumption) was applied to test $H_0$: The proportions of the respondents who agree with the question are equal.

There are two patterns worth emphasizing. First, there seems to be an asymmetry in the impact of the market conditions on the investing: during booming markets, too many investments are probably made in the hot industries, but there is, according the available data, no corresponding overreaction during the periods of market turbulence. The result may be due to the fact that our survey was administered quite soon after the market had become turbulent. If the turbulence continues, the assessment might be more symmetric. Second, no notable difference between the experienced and less experienced venture capitalists can be found, except perhaps in the need of the less experienced to generate returns to investors to enhance their fundraising ability.

**Determinants and governance of exit decisions**

In light of our argumentation and survey findings that the number and quality of exits is dependent on the market conditions and that the exit performance matters for the entire venture capital process[38], it is important to understand the determinants of the exit decision and its link to the market environment. To address these issues in our survey, we first asked venture capital firms to report the percentage of their investee firms in which there are mechanisms in place through which the venture capital firm can control the investee firm and particularly the exit decision. The different mechanisms included, among other things, majority ownership, board representation, planning of exit and control over exit, agreement over the exit with other owners, and use of management incentive schemes.[39] Second, we asked the respondents to consider the determinants of exit decisions.

Table 4.7 reports the mean percentage of investee firms (computed on the basis of response category midpoints), by exit experience, for the use of each mechanism. Reading down the first column, it seems that besides being frequently in the board (in 69% of their portfolio firms), the venture capital firms quite often both plan for the exit, acquire control over the exit decision, and agree with the other owners of the investee firms on the exit strategy prior to the actual exit taking place. Albeit the difference is not statistically significant, it seems that the venture capital firms with no exit experience hold less frequently a board position than the venture firms with exit experience and that they ensure less often control over the right to make the exit decision. In addition, conditioning of capital infusions (use of milestones) as a control mechanism is not frequently used on average (in 33% of the portfolio companies), but it seems that the venture capital firms with no exit experience use this mechanism clearly less frequently. They also use convertible securities and receive reports from the investee companies less regularly than the venture capital firms with exit experience. These findings imply that the Finnish venture capital firms with no exit experience may have a degree or two less control over the exit process. The finding may reflect their younger age and the smaller size of their investments and hence their bargaining position in the market during the investment stage. On the other hand, it may also reflect the quality of the recent entrants and their inexperience in venture capital investing.

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[38] Yet another confirmation of this argument is that in our survey, 93% of the respondents expected a positive reputation benefit besides financial rewards from the exits enabled IPOs.

[39] We also asked in the survey the respondents with exit experience to indicate the frequency with which they had had conflicting interests with the entrepreneurs concerning the exit. As reported in more detail in Appendix 3, in majority of the cases no direct conflict of interest has been experienced. However, in 59% of the exits the aspirations of the management affected the final choice of exit and in 56% of the exits, the entrepreneurs wished to remain in the firm after the exit. This suggests that the final choice of the exit vehicle is at least to some extent an outcome of a bargaining process.

**Table 4.7 Governance of investee firms**

| | Whole Sample | Has Exit Experience | No Exit Experience | p-value for *t-test* |
|---|---|---|---|---|
| Majority stake in investee firms | 16 % | 16 % | 16 % | 0.967 |
| At least one board position in investee firms | 69 % | 73 % | 57 % | 0.337 |
| Use of performance requirements (milestones) for the investee firms that must be met in order to receive further financing | 33 % | 40 % | 16 % | **0.038** |
| Planning of exit already at the time of (first) initial investment | 65 % | 62 % | 72 % | 0.337 |
| Ensuring control over the right to make exit decision (timing, route) already at the time of (first) initial investment | 58 % | 61 % | 49 % | 0.478 |
| Use of management incentive schemes (such as options) | 62 % | 61 % | 65 % | 0.802 |
| Agreement with other owners on the exit strategy well prior to the actual exit taking place | 68 % | 68 % | 66 % | 0.897 |
| The use of convertible securities | 29 % | 31 % | 23 % | 0.547 |
| The number of performance reporting per year by investee firm | 6.9 | 7.3 | 5.8 | 0.311 |

Note: The numbers in the table are the means of the answers provided by the respondents.

Even though it is well documented that IPOs and trade sales are typically the preferred methods of exit for venture capital firms, the determinants influencing the choice between the preferred exit strategies are less well understood.[40] The Finnish venture capital firms ranked the various factors affecting the decision to exit by a trade sale and by an IPO as reported in Table 4.8.

[40] Our survey conveys this message, too: of the respondents, 42% (51%) considered IPO (trade sale) as their preferred exit route.

**Table 4.8 Factors influencing the choice of exit route**

| | Trade Sale | IPO | p-value for *t-test* |
|---|---|---|---|
| Industry sector of the firm financed | 65 % | 71 % | 0.802 |
| The firm's expected market position | 77 % | 92 % | 0.104 |
| Quality of management | 52 % | 92 % | **0.002** |
| The current stock market conditions | 48 % | 100 % | **0.000** |
| The firm's current profitability | 63 % | 80 % | 0.212 |
| The firm's future profitability | 89 % | 100 % | **0.083** |
| The firm's expected market cap. | 59 % | 92 % | **0.003** |
| The firm's growth opportunities | 74 % | 100 % | **0.005** |
| The firm's R&D intensity | 70 % | 60 % | 0.265 |
| The number of patents the firm owns | 41 % | 32 % | 0.265 |

Note: The percentages represent the number of respondents who regarded the factor in question important, i.e., they answered 5-7 in a seven point scale with higher score indicating higher importance. Paired *t*-test was applied to test $H_0$: The proportions are equal.

The decision to pursue an IPO is relatively more dependent on the current stock market conditions, the investee firms' future profitability and the firm's growth opportunities. The table also reveals an interesting difference between IPOs and trade sales: in all the other dimensions expect in those directly related to the degree of the innovativeness of the investee firm (R&D and patents), the decision to exit via an IPO is more sensitive, sometimes also to a statistically significant extent, to the factors listed than the decision to exit via trade sale. Thus, venture capitalists clearly consider the nature of the investee firm's activities carefully, indicating that the market conditions are decisive for an exit decision and that there may be demand for specific vehicles of exit depending on the type of investee firms.

### Institutional environment

If anything, the findings presented so far suggest that it is particularly important to analyze the institutional environment for IPOs and trade sales that the Finnish venture capitalists face. Table 4.9 and Table 4.10 report the available data on the questions addressing the Finnish venture capitalists' views on their institutional environment.

Table 4.9 shows that the lack of market sophistication in the form of efficient price formation, the volatility of the domestic market and the capabilities of investment banks bringing firms public is the problem expressed by the majority and more frequently experienced than, e.g., the investment behavior of institutional investors or the securities market regulation. Venture capitalists with no exit experience expressed their concern over the efficiency of price formation and the market liquidity more strongly.[41] Overall, the Finnish venture capitalists' perceptions of the Finnish stock market are a degree or two negative. The same conclusion describes the views put forward in the interviews, in which the problems due to the thinness

[41] In light of this negative assessment, it is a little surprising that the less experienced venture capital firms nevertheless thought that listing a technology-based firm is as easy as it is to list any other firm.

and cyclical nature of the domestic stock market were highlighted. The survey results hence confirm the conclusions that we made at the end of Section 3.

**Table 4.9 Institutional environment of IPOs**

| | Whole Sample | Exit Exper-ience | No Exit Exper-ience | p-value for *t-test* |
|---|---|---|---|---|
| ***IPOs and stock market:*** | | | | |
| In Finland price formation is as efficient and prices as informative as in other market places | 25 % | 33 % | 0 % | **0.005** |
| The anticipation of poor secondary market liquidity affects adversely the primary market | 86 % | 81 % | 100 % | **0.042** |
| Finnish market place as an exit route is more sensitive to general market conditions than the market places of other advanced economies | 64 % | 57 % | 86 % | 0.136 |
| It is very difficult to bring a firm to the public market if there are only few, if any, listed firms in the stock market that are similar to the firm | 71 % | 71 % | 71 % | 1.000 |
| In Finland, it is as easy to list technology-based small firms as it is to list any other firm | 48 % | 35 % | 86 % | **0.014** |
| The anticipation of poor secondary market liquidity affects adversely particularly the primary market of technology-based small firms | 68 % | 71 % | 57 % | 0.543 |
| The institutional investors active in the Finnish market pay only little attention to technology-based small firms | 37 % | 35 % | 43 % | 0.740 |
| Securities regulatory requirements have a significant impact on the cost of taking a firm public | 48 % | 48 % | 50 % | 0.915 |
| ***Investment banks operating in Finland*** | | | | |
| ...screen and evaluate carefully firms that they take public | 26 % | 32 % | 13 % | 0.266 |
| ...have expertise to bring all kinds of firms to the public market | 37 % | 32 % | 50 % | 0.416 |
| ...have sufficient placing power (sales power) to bring also technology-based small firms to the public market | 52 % | 42 % | 75 % | 0.123 |

Note: The percentages represent the number of respondents who agreed with the question i.e., they answered 5-7 in a seven point scale with higher score indicating higher agreement. *t-test* (with unequal variances assumption) was applied to test $H_0$: The proportions of the respondents who agree with the question are equal.

From Table 4.10 we see that 59% of the sample companies reported that the finding of an industrial buyer is problematic. The results also indicate that the use of external advisors is considered beneficial, particularly when it comes to cross-border transactions. To find a buyer for secondary sales seems to be of more concern, particularly in the eyes of the more experienced venture capitalists. Overall,

the Finnish venture capitalists' assessment of the institutional environment for trade sales is more neutral than that concerning the stock market.[42]

**Table 4.10 Institutional environment of M&As**

| | Whole Sample | Exit Exper-ience | No Exit Exper-ience | p-value for *t-test* |
|---|---|---|---|---|
| ***Trade sales*** | | | | |
| There is clear lack of strategic / industrial buyers in Finland | 59 % | 62 % | 50 % | 0.595 |
| In Finland, it is as easy to find a buyer for a technology-based small firm as it is for a less technology dependent ("old-economy") firm | 59 % | 52 % | 75 % | 0.273 |
| The Finnish M&A-market as an exit route is more sensitive to general market conditions than the markets of other advanced economies | 44 % | 40 % | 57 % | 0.476 |
| Trade sale can be executed more efficiently by using outside advisors | 86 % | 90 % | 75 % | 0.402 |
| In a trade sale, outside advisors are useful in | | | | |
| - identifying international buyers | 90 % | 90 % | 88 % | 0.837 |
| - driving cross-border deals through | 83 % | 86 % | 75 % | 0.567 |
| ***Secondary sales and buy-backs*** | | | | |
| It is difficult to find a buyer in secondary sales | 61 % | 75 % | 25 % | **0.022** |
| It is difficult to find financing for a buy-back / MBOs | 30 % | 32 % | 25 % | 0.743 |

Note: See Table 4.9.

## 4.3 Assessment

We have analyzed the exit experiences of the Finnish venture capital investors. In this Section, we present an assessment and a summary.

We focus on two questions that are particularly relevant for the relatively young Finnish venture capital industry. First, we examine factors that might explain why a venture capitalist is uneasy and concerned about the impact of reputation on his fundraising. The uneasiness may be related to the need for reputation building, because reputation enhances the venture capitalist's ability to raise capital for new funds. Young venture capital firms may therefore have incentives to grandstand, i.e., to take actions that demonstrate their ability to potential investors (Gompers 1996). The incentive to do so is likely to be high in immature venture capital markets because the early builders of reputation may for example command a disproportionately large market share in the future. We expect to find that the age of the venture capital firm covaries with factors describing the venture

[42] We asked (in unreported questions) whether the pricing of the services that investment banks (and other external advisors) provide is "competitive". In the case of listing, 37% of the firms reported that the pricing is competitive, while in a question addressing the costs arising in trade sales, (only) 31% of the respondents indicted that the pricing of the services is competitive.

capitalists' *own* assessment of the impact of reputation on their fundraising. Such a finding would verify that the age could be used as a proxy for reputation, which by per se is unobservable and subjective.

Second, we examine the determinants of the length of investment period, defined as the time from the initial investment to exit. Our aim is to examine whether young venture capital firms dispose of their investee firms earlier than older venture capital firms. If they do, the action could be interpreted as an effort to establish reputation in line with Gompers' grandstanding hypothesis. However, we also explicitly account for the possibility that the older venture capital firms can exit sooner than the younger ones, because they learn by doing and become more experienced over time. The set-up suggests a non-linear relationship between the length of investment period and the venture capital firms' age. The non-linearity arises because the less established venture capital firms exit sooner to build reputation, but after a cutoff age, the need to grandstand disappears and the investment period begins to decrease with the age.

We examine the two questions using multivariate regressions. To quantify the venture capitalists' own assessment of the impact of reputation on their fundraising we construct a composite index that describes their assessment of the importance of recent exit performance, previous returns (on investors), age of the venture capital firm and experience of partners and other senior-position employees for their fundraising. We call the index "Reputation effect" and credit it by one if the respondent agrees with the statement in the survey that a particular factor has, or has had, an impact on his fundraising. The index varies between zero and five, with larger values indicating a stronger perceived impact of reputation on the fundraising. We also construct an extended version of the index ("Reputation effect, ext.") that includes two additional measures of the importance of reputation effects. The extended index is credited by one if the respondent answers that his preferred exit route a priori is an IPO or if he always expects a positive reputation benefit besides financial rewards from a successful IPO. The extended index varies between one and seven.

In the regressions we are mainly interested on the effects of the age of the venture capital firm on the indices. When estimating the effect, we control for the type of the venture capital firm (Independent VC dummy = 1 if independent), the characteristics of the portfolio firms (TBSF-investor dummy = 1 if the current proportion of TBSFs in the portfolio exceeds 50%), the size of the portfolio of the venture capital firm (Size of portfolio = the current number of investee firms in the portfolio) as well as IPO experience (IPO experience dummy = 1 if the venture capitalist has had an exit enabled by an IPO).

The length of investment period is the average number of years the venture capitalist has held the stakes in the investee firms, measured from "entry to full exit". In these regressions, we control for the type of funds managed (Closed-end fund dummy = 1 if the funds managed are closed-end), the type of main source of funds (Fund source dummy = 1 if the main source of funds is a financial institution), the type of the venture capital firm (Independent VC dummy = 1 if independent), the stage of investments (Early stage VC = the average percent of ventures that over the past four years has been in seed and start-up firms), the size of the portfolio of the venture capital firm (Size of portfolio = the current number of investee firms in the portfolio) and the quality of the portfolio firms (Share of

TBSFs = the proportion of TBSFs in the portfolio during the past four years).[43] The age -variable is included in the regressions linearly and squared to capture the postulated non-linearity.

The results of the two sets of regressions are presented in Table 4.11. Because of the small size of the sample, the regressions are meant to be illustrative and should be interpreted with caution. The results for the reputation effect -indices in Panel A reveal that the IPO experience -variable notwithstanding, the regressors obtain statistically significant coefficients. In particular, the age of venture capital firm is negatively correlated with the reputation effect.[44] This finding verifies that the younger the venture capital firm, the more important the firms' reputation for fundraising.

The finding is consistent with Gompers' grandstanding hypothesis. Holding the other variables constant, the index value decreases by 8% as the venture capital firm ages by one year. The size of the venture firm is also an important determinant of the reputation effect. The data suggests that the larger the firm, the more important the firms' reputation for fundraising. The estimated impact seems to be relatively small however.

Panel B reports the results for the determinants of the length of the investment period.[45] Because the linear age term is positive and the squared term negative and they both are significantly different from zero at least at 10% significance level, the results are consistent with the grandstanding hypothesis and the hypothesis that the more mature venture capital firms dispose of investments sooner. Given the small size of our sample, the relatively high significance of the coefficients is, in fact, a bit surprising. The estimated cutoff age is from nine to ten years, which is higher than the average age of 5.4 years in the sample. The cutoff age sounds, however, plausible.

The validity of the regression models reported in Panel B is reinforced by the finding that the venture capital firms that manage closed-end funds exit sooner than the ones that do not manage such funds. The negative coefficient is expected, because the variable controls for the need of the venture capital firms to return from time to time to the market and to raise new funds. The coefficient for the dummy describing the main source of funds is positive, reflecting possibly the patience of capital provided by financial institutions and particularly pension

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[43] We have also experimented with various other control variables, such as the ones describing the governance of the exit decision. They did not gain significance in the regressions.

[44] We have estimated the models using OLS even though the dependent variable could be regarded ordered. In unreported estimations, we experimented with an ordered probit model that accounts for the ordinal nature of the reputation effect -variable. The signs of the coefficients were the same as in the reported estimations. However, the interpretation of the coefficients in the ordered probit models is difficult, as they do not correspond to the standard marginal effects (see, Greene, 1993, p. 674).

[45] The grandstanding hypothesis, broadly interpreted, suggests that any successful exit might enhance reputation. It is the average length of such investments that we would like to measure. The average length of the investment periods in the data pertains however to the holding period for all types of investments, i.e. it does not discriminate between the investments that have been exited via write-offs and the other routes. This means that the dependent variable can only be measured with errors. Moreover, we know that 11% of the past exists has been failures, i.e. write-offs. Because venture capital firms may want to postpone the realization of the losses, the average length of the investment period we are measuring may be biased upwards. The measurement errors will be captured by the error terms of the regression equations (and possibly by the constant) and are not likely to bias the estimates of the (other) parameters.

funds. It loses significance once we control for the size of the current portfolio, which obtains a positive coefficient that is significant at 11% significance level.[46]

**Table 4.11 Multivariate Regression Results for Reputation Effect and the Length of the Investment Period**

| **Panel A.** | Dependent variable | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Log(Reputation effect) | | | | Log(Reputation effect, ext.) | | | |
| | OLS | | OLS | | OLS | | OLS | |
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Constant | 1.74 | **0.00** | 1.80 | **0.00** | 2.02 | **0.00** | 1.97 | **0.00** |
| Age | -0.04 | **0.08** | -0.08 | **0.01** | -0.04 | **0.10** | -0.08 | **0.01** |
| Independent VC (Dummy) | -0.32 | **0.09** | -0.34 | **0.06** | -0.33 | **0.07** | -0.40 | **0.02** |
| TBSF-investor (Dummy) | -0.26 | 0.22 | -0.56 | **0.03** | -0.21 | 0.30 | -0.41 | **0.08** |
| Size of portfolio | - | - | 0.01 | **0.03** | - | - | 0.01 | **0.04** |
| IPO experience (Dummy) | - | - | -0.04 | 0.83 | - | - | 0.17 | 0.29 |
| $R^2$ | 0.23 | | 0.42 | | 0.22 | | 0.45 | |
| Adjusted $R^2$ | 0.10 | | 0.25 | | 0.10 | | 0.29 | |
| S.E. | 0.40 | | 0.36 | | 0.39 | | 0.34 | |
| Number of obs. | 23 | | 23 | | 23 | | 23 | |
| F-statistic | 1.85 | | 2.51 | | 1.80 | | 2.80 | |
| p-value for F-stat. | 0.17 | | 0.07 | | 0.18 | | 0.05 | |

| **Panel B.** | Dependent variable: Length of investment period (in years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | OLS | | OLS | | OLS | | OLS | |
| | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value | Coeff. | p-value |
| Constant | 1.06 | **0.05** | 1.34 | **0.01** | 1.32 | **0.03** | 1.58 | **0.05** |
| Age | 0.42 | **0.02** | 0.40 | **0.06** | 0.40 | **0.07** | 0.38 | **0.07** |
| $Age^2$ | -0.02 | **0.08** | -0.02 | **0.08** | -0.02 | **0.09** | -0.02 | **0.06** |
| Closed-end fund (Dummy) | - | - | -1.08 | **0.05** | -1.08 | **0.06** | -1.14 | **0.05** |
| Fund source (Dummy) | - | - | 1.30 | **0.04** | 1.28 | **0.06** | 1.04 | 0.14 |
| Independent VC (Dummy) | - | - | - | - | 0.04 | 0.91 | - | - |
| Size of portfolio | - | - | - | - | - | - | 0.03 | 0.11 |
| Share of TBSFs | - | - | - | - | - | - | -0.01 | 0.14 |
| Early stage VC | - | - | - | - | - | - | 0.01 | 0.29 |
| $R^2$ | 0.40 | | 0.55 | | 0.55 | | 0.65 | |
| Adjusted $R^2$ | 0.34 | | 0.45 | | 0.42 | | 0.48 | |
| S.E. | 0.86 | | 0.79 | | 0.81 | | 0.77 | |
| Number of obs. | 23 | | 23 | | 23 | | 23 | |
| F-statistic | 6.73 | | 5.51 | | 4.17 | | 3.91 | |
| p-value for F-stat. | 0.01 | | 0.00 | | 0.01 | | 0.01 | |

[46] The size of the current portfolio may, however, be endogenous wherefore it should be instrumented. The small sample size effectively prevents us from examining the question in more detail.

Taken together, the survey results together with the interviews and the above analysis hints the following conclusions. First, they confirm the earlier conclusion of ours that despite the advance achieved in the 1990s, the Finnish financial system does not necessarily have the characteristics that enhance the exit opportunities of venture capitalists. The venture capitalists' assessment of the stock market is a degree or two negative and more negative than their assessment of the M&A environment.

Second, because a large fraction of the Finnish venture capital industry is very young, the long-run prospects of the industry depend crucially on the industry's success in generating returns to investors and in building reputation. The exits enabled by the stock market are instrumental to achieving the goals, particularly for the less established venture capital firms. The young venture capital firms are systematically more worried about the impact of reputation on their fundraising than the older venture capitalists. These conclusions together with our findings supporting grandstanding are consistent with the received theory and the earlier empirical results studies using the US data.

Third, the type of the investee firm influences the choice of the exit route. The decision to exit via an IPO is more dependent on the market conditions, while the decision to exit via a trade sale is influenced by the degree of innovativeness of the investee firm. As a consequence, the survey results confirm the argument that the exit environment is likely to influence the distribution of venture capital investments between different types of firms and industries.

# 5 Conclusions

The received literature suggests that because the exit stage may have several feedback effects on the earlier stages in the venture capital process, the long-run development of the venture capital industry is dependent on the exit possibilities the financial system generates. The exit opportunities in turn depend on the structure of the financial system. In this study, we have considered the mechanisms through which the overall financial markets structure might support and complement the venture capital process and the exit needs of the venture capitalists. We have examined the Finnish experiences because the historical importance of banks, the volatile nature of the Finnish economy and the young age of the venture capital industry suggest that the functioning of the Finnish financial system and hence the co-development of "the market for exits" may be instrumental for the long-run development of the Finnish venture capital industry.

Our analysis of aggregate level data suggests that despite its favorable development particularly during the 1990s, the Finnish stock market provides a less than optimal exit venue for the Finnish venture capitalists. This is because of the strong clustering of IPOs, the volatility and the other documented characteristics of the Finnish stock market, as well as the possible decreasing trend in IPOs. The market for M&As has been quite active in Finland and should in principle provide a steady flow of trade sale opportunities for the Finnish venture capitalists. However, the overall trend may be decaying once the size of the economy is controlled for. Because the venture capitalists typically focus on emerging industries, the limited size of the Finnish domestic economy and particularly the absence of large

mature companies in many of the emerging fields, such as biotechnology, may undermine the long-run prospects for trade sale exits, too.

The survey we administered to the Finnish venture capitalists confirms the above conclusions. The survey results suggest that the Finnish financial system does not necessarily have the characteristics that enhance the exit opportunities of venture capitalists. The venture capitalists' assessment of the stock market is a degree or two negative and more negative than their assessment of the M&A environment. Consistent with the importance of feedback effects, the young venture capitalist firms are systematically more worried about the impact of reputation on their fundraising than the older venture capitalists. The finding that the young venture capitalists have also exited sooner than the established venture capitalists reinforces this conclusion and is consistent with Gompers (1996) evidence for grandstanding by the entrant venture capitalists in the US.

Taken as a whole, our analysis cannot reject the hypothesis that the long-run development of the Finnish venture capital industry very much depends on the industry's success in generating returns to investors and in building reputation. The main reason for the dependence is the young age of the Finnish venture capital firms. The exits and particularly those enabled by the stock market are instrumental to building reputation, predominantly for the less established venture capital firms.

The results of this paper suggest some policy lessons. First, it cannot be taken for granted that the Finnish financial system meets the preconditions that are imposed by the exiting requirements of the young Finnish venture capital industry. If financial infrastructure develops further towards that underlying the market-oriented systems, the Finnish venture capital industry would benefit from the change. The governance problems of some of the recently listed firms that have been reported in the Finnish financial press echo this lesson (see also Arenius et al. 2001). Second, even though a fair amount of risk capital seems to be available currently, the analysis indicates reasons why the situation may well change. In particular, in volatile market conditions, the overhang of investee companies waiting to exit may increase. The level of the overhang varies however across countries, depending on how well a country's "market for exits" functions over the macroeconomic cycles. The current macroeconomic turbulence can therefore be seen as a kind of stress test both for the Finnish venture capital industry and the Finnish financial system as a whole. If the overhang becomes excessive, the venture capitalists may find it difficult to raise new capital when the demand for venture capital increases next time.

Finally, the Finnish exit environment seems to be quite vulnerable to changes in the macroeconomic conditions. The economic crisis of the early 1990s and the recent sharp decline in GDP growth moreover suggest that the Finnish economy is not among the most stable economies. If the conclusions are correct, then the private-to-public process that the growing Finnish firms go through is particularly exposed to the overall macroeconomic fluctuations. Hence, it may be that the bottleneck for the emerging industries in Finland is related to macroeconomic shocks. In particular, one might argue that the macroeconomic shocks that hit at the time of firms' expansion and globalization phase have potential to create a death valley both for the Finnish growth firms and for the Finnish market for private risk capital.

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# Appendix 1. Exiting and Feedback Effects

In this Appendix, we consider in light of the recent literature the mechanisms through which the exit stage of the venture capital process and the exit environment might have an impact on the health of the other parts of the venture capital cycle.

## Fundraising

The first task of a venture capitalist is to raise funds from capital providers, such as institutional investors. To do so, the venture capitalist must be able to convince the investors that they are paid back their initial investments and offered returns that are high enough to compensate for the risks involved. The investors cannot however observe the ability of the venture capitalist, i.e. whether he has the ability to select investee firms carefully, nurture them toward maturity and exit successfully. Nor can the investors control the risk-taking of the venture capitalist, who may choose a sub-optimal portfolio risk or engage in wasteful expenditures from the perspective of the investors.

The information and agency problems are the reason why the structuring of funds requires complex and lengthy contracts and brings a degree of sluggishness into the venture capital process. They are also reflected in the structure of venture capital partnerships (see Gompers and Lerner, 2000a). The partnership contracts between the investors and the venture capitalists have for example numerous covenants that provide proper incentives for the venture capitalists and restrict and direct their behavior.[1] The writing of such covenants is however costly, implying that fewer covenants are used when there is less room for opportunistic behavior. There are also significant differences between the compensation schemes of older and larger venture capital organizations and other venture capital groups. In particular, it appears that (at least in the US) the fixed component of the venture capitalists' compensation is higher for younger and smaller funds and for funds that focus on more risky sectors.[2]

Due to costs of writing detailed contracts, the partnership contracts between the venture capitalists and capital providers remain incomplete. Exits are therefore central to the venture capitalists' *accountability* to capital providers (Black and Gilson 1998). The exits enhance accountability at least in three ways. First, because past performance, i.e. one's track record, is a strong indicator of the ability,

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[1] A negative implication of the covenants is emphasized by Milhauput (1997). He argues that the type of the investors may have an adverse impact on the type of investments venture capitalists are willing to make. In Japan for instance, banks have had a major impact on the venture capital industry. Milhaupt argues that as a result, Japanese venture capital firms have been conservative, supplied funding to firms in the form of loans and financed only relatively mature firms.

[2] The supply and demand conditions appear to be important in determining the contractual provisions in the US (Gompers and Lerner 2000a). One the one hand, less restrictive agreements are written when a lot of new capital is inflowing. On the other hand, compensation schemes are more generous during the years with greater inflows of new capital. As noted by Gompers and Lerner, the findings are somewhat puzzling in that the optimal structure for investing in venture capital organizations and solving many of the associated agency problems is not likely not correlate with changes in the supply and demand conditions.

exit performance reveals the ability to outside investors. The exits therefore allow high-quality venture capitalists to signal their type to potential investors. The downside is that this may lead to grandstanding, i.e. to young venture capital firms taking companies public earlier than older venture capital firms in an effort to build reputation (Gompers 1996). Second, investors want to measure the relative attractiveness of venture capital, its risk and returns, against other asset classes. Exits in general and IPOs in particular are a means to do so. Third, exits provide the opportunity for investors to withdraw their funds from less successful managers, from the entire sector, or from managers whose industry-specific expertise no longer matches current investment opportunities.

The need for accountability also explains why the lifetime of a typical venture capital fund is, at least in the U.S, typically predetermined. Because of the finite lifetime, there is mounting pressure to dispose of the investments as the life-cycle of the fund approaches its end, implying that the venture capitalists are eventually forced to sell their stakes in successful firms and write off failures. The need pay back the committed capital forces the venture capitalists to periodically return to markets if they are going to raise new funds and remain active in the business of venture capital. The more successful the previous cycle, the easier it is for a venture capitalist to raise new funds, and to restart the cycle. It is this characteristic of venture capital that generates the strong link between exiting and the long run development of the venture capital industry.

Empirical research supports the importance of reputation and previous performance for raising new capital and, in particular, the link between the exits and and the fundraising activity. In their empirical study of the determinants of venture capital fundraising, Jeng and Wells (2000) for example relate venture capital flows to the availability of exit mechanisms for venture capitalists (particularly to the strength of the IPO market and the size of the stock market), labor market rigidies, financial reporting standards, the availability of funding from pension funds, macroeconomic conditions and government programs. They find that IPOs are a main driver of venture capital fundraising over time and across countries.[3]

Because the strength of the IPO market is strongly related to the overall level of stock market prices (see, e.g., Jenkinson and Ljungqvist 2001), it is not surprising that capital inflows into venture capital funds coincide with booming asset markets. It is, however, an open question how different types of capital providers are affected by changes in the market conditions. Jensen (1991) has for example argued that the cyclicality of the amount of venture capital raised in the US would be more related to the desire of institutional investors to jump in bandwagon, i.e. to herd in speculative markets than to rational investment decisions (see also Gompers 1998).

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[3] Raw U.S data also supports the link between fundraising and stock market conditions. The correlation between the volume of IPOs in general and particularly the volume of venture-backed IPOs and the (subsequent) fundraising appears to be strong (Black and Gilson 1998). Another paper that examines the determinants of fundraising is Gompers and Lerner (1999).

**Investing**

The second task of a venture capitalist is to invest the money he has raised into entrepreneurial firms, particularly in TBSFs. The venture capitalist is understood to address the problems in financing such firms in various ways. Perhaps the most important one is the combining of capital infusion with nonfinancial contributions. The venture capitalist for example provides the portfolio companies with the venture capital firm's reputational capital in order to enhance the creditability of the portfolio companies with third parties (Lerner 1994). Besides advising and hence becoming an informed investor, detailed contractual arrangements between the venture capital fund and the portfolio companies are frequently used (Gompers 1997, Kaplan and Strömberg 2001), including the possibility of replacing of the founding entrepreneur (Hellman 1998). Among the other mechanisms of corporate governance on which the venture capitalist may rely are intensive oversight and control (via e.g. board representation; see Lerner 1995) and staged timing of venture capital investments (Gompers 1995).

There are several mechanisms through which the exit environment may affect venture capitalists' investment decisions. Perhaps the most obvious of such mechanisms is the one affecting the monetary incentives of venture capitalists to invest in certain firms and industries. A well functioning exit environment enhances the degree to which innovators and entrepreneurs as well as the venture capitalists are able to extract the revenues associated with the inventions they have commercialized and the projects they have run.

The monetary incentives also depend on how efficiently the venture capitalists are able to address the agency and information problems and enhance the value of the investee firms. Black and Gilson (1998) for example argue that the exit opportunities enabled by stock markets are more important than the other exit avenues because the potential for exit through an IPO allows the venture capitalist and the entrepreneur to contract implicitly over control, in a way that gives the entrepreneur an option to reacquire control if she so desires in connection of listing the firm. The initial transfer of control to venture capitalists may be required because otherwise the venture would not be able raise external financing. The ability to design such options is the more important, the higher the private benefits (the value of control) from running the firm. Thus, the exit environment has an effect on the ability of venture capitalists and entrepreneurs to contract over the agency problems with which for example TBSFs are often associated.

The analysis of Michelacci and Suarez (2000) suggests another link between exits and investments. The easier exiting, the faster informed capital, i.e. the human capital of experienced venture capitalists, is recycled towards new ventures. Hence the factors that facilitate exits also contribute to the flow of capital (both financial and non-financial) towards new firms (see also Kanniainen and Keuschnigg 2001). The recycling is important because the theories of, e.g., Repullo and Suarez (1998) and Black and Gilson (1998) suggest that the venture capitalists' financial and non-financial contributions are complementary to each other. In other words, the venture capitalists' non-financial contribution requires the recycling of their financial contribution, too.

The availability of exit routes may have distributional consequences between the entrepreneurs and the venture capitalists (Berglöf, 1994). The distribution of surplus is important, because an entrepreneur is typically required to make large firm-specific investments when initiating a venture. Her incentive to make

the investments in the venture is reduced if the prospects are such that an exit is going to take place in a way that does not compensate her for the efforts of hers and for the private benefit that she derives from running the firm. The venture capitalists are on their part worried about the prospect of not getting the full market value of the firm in connection of the exit. Such a situation might arise if, for example, a new owner in a trade sale is able to strip assets from the company due to incomplete protection of intellectual property.[4] The analysis hence suggests yet another link between the exits and investments.[5]

Empirical evidence supports the link between the exits and the venture capitalists' investment patterns. In the US for example, venture capital investments have tended to cluster in a quite narrow set of sectors, such as ICT and biotechnology (see, e.g., Kortum and Lerner 1998). At least to a certain extent, the concentration of flows of private risk capital is related to the degree to which entrepreneurs and innovators are able to extract profits ("appropriability") from their new products and innovations (see, e.g., Gans and Stern 2000).[6] Consistent with this view, Jeng and Wells (2000) have found that IPOs are the strongest driver of venture capital investing, both over time and across countries.[7] Moreover, the analysis of Gompers (1996) provides evidence that the younger venture capital firms may indeed have an incentive to take actions to grandstand. The finding suggests that less established venture capitalists' might wish to concentrate their investment on industries and later-stage companies that are expected to provide a fast track to exits. Because the achieved exits are a determinant of a venture capitalist's reputation, they can also have an impact on the types of entrepreneurs that the venture capitalist is able to attract (see, e.g., Smith 2001).

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[4] Berklöf shows that because control and incentives cannot be separated, using appropriate financial instruments may mitigate these concerns. In more general terms, Berglöf's analysis focuses on a trilateral bargaining problem that arises when the initial parties to a venture capital relationship (i.e. the entrepreneur and the venture capitalist) take into account the implications of a future sale of the firm (and the arrival of an outsider buyer) when designing the firm's capital structure. The model explains the prevalent use of convertible preferred stock and convertible debt as a solution against dilution and extracts by the future buyer of the firm. The idea is to give the control rights and therefore the right to bargain with the future buyer either to the entrepreneur or the venture capitalist, depending on which party is more vulnerable to the dilution / stripping that the new buyer may cause.

[5] In a recent paper, Schwienbacher (2001) considers the interaction between the product market characteristics of the investee firm and the most typical vehicles of exit, i.e. IPOs and trade sale. The paper shows that highly innovative ventures are more likely to go public than the less innovative ones. The reason is that an incumbent firm may be willing to acquire less innovative ventures in order to reduce competition. Because in an IPO, the entrepreneur is more likely to retain control in the firm (and therefore the associated private benefits), the entrepreneur might take more risk, i.e. pursue more profound innovations, in order to increase the likelihood of an IPO. The exit environment may thus have an impact on the willingness of entrepreneurs to pursue high-risk projects.

[6] A somewhat distinct reason for concentration of investments is the possibility that certain technologies or industries are subject to fads and become therefore "hot". Such behaviour may be completely rational, or simply reflect herding. The downside of fads is that an industry not in the public limelight may receive too little funding, albeit the industry might be generating promising technologies (Gompers and Lerner 2000a).

[7] However, different types of venture capital investing are affected differently, because the variations in the strength of the IPO market explain less of the yearly variation in early stage than in later stage investments. Jeng and Wells conjecture that some of the unexplained variation in the early stage investments in their regressions might be accounted by the amount of trade sales that takes place.

A somewhat less direct mechanism from the exit environment to investing derives from the empirical phenomenon that the industry practitioners have summarized into the phrase "too much money chasing too few deals" is (Gompers and Lerner, 2000b). The phrase describes the situation when the inflow of venture funds overwhelms the number of profitable ventures. As a result, the growth of supply of funds to the venture capital industry drives up the valuation of private equity transactions because there is, in the short run, only a limited number of ventures worth financing. Because during booming markets exiting is easy and venture capital firms are making large profits, the peak of inflow of capital into venture funds is likely to coincide (or lag slightly) peaking stock prices. This may lead to larger funds with more capital per partner, and therefore to a movement to financing later-stage ventures that can accept larger amounts of financing, as well as to greater competition and less syndication. Hence, a period of successful exits may be followed by over-investment and "valuation competition" via its impact on the inflow of funds. Such a phenomenon can potentially explain the observed clustering of venture capital investments both over time and across industries.

## Exiting

The timing of exit and the choice of exit vehicle are not without governance problems. Quite like fundraising and investing, exiting is affected by the constraints that the finite lifetime of the venture capital funds imposes, by agency considerations and incentive problems as well as by overall market conditions.[8] The paper by Berklöf (1994) suggests, for example, that the entrepreneur and the venture capitalist may be concerned about the possibility of misconduct by the new strategic owner in case of a trade sale.

Bascha and Waltz (2001) emphasize the uncertainty over the value of the investee firm at the time venture capitalists would like to divest and the potential conflict of interest between the venture capitalists and entrepreneurs when choosing between an IPO and a trade sale. In the latter case, the entrepreneur has to give up the private benefits of control, while in an IPO, the venture capitalist expects that the market listing would benefit its reputation. Because these non-monetary benefits accrue to the participants asymmetrically depending on how successful the investee firm is estimated to be, there is room for conflict of interest in the decision over the exit vehicle. Finally, Gompers (1996) put forward the hypothesis that young venture capital firms bring their investee firm public earlier than older venture capital firms in order to build their reputation. Such a behavior need not be optimal from the viewpoint of the investee firm's lifecycle and may there-

[8] The decision to exit is, of course, closely related to the going public decision and to the motives for mergers and acquisitions. There are numerous studies analysing these questions. The going public decision is for example studied in a recent paper by Maksimovic and Pichler (2001). The paper analyses the impact of technological and competitive risk on the timing of private offerings and IPOs in an emerging industry and predicts that early IPOs take place in industries that are perceived to be less risky, in which there are low initial R&D (first-stage) costs, and where the probability of being displaced by more technologically advanced competitors is low. For a further discussion of the determinants of the going public decision, see Jenkinson and Ljungqvist (2001) and the literature referred therein. The literature on the determinants of mergers is summarized in Weston et al. (1998).

fore lead to conflict of interest between the entrepreneur and the venture capitalist.[9]

Systematic empirical evidence on the determinants of exit decisions is relatively scant. An exception is Cumming and MacIntosh (2000) who provide some evidence for the commonly held view that IPOs are the most frequently selected exit vehicle for high-quality firms.[10]

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[9] Potential agency problems notwithstanding, venture capitalists can have a positive role in the exit stage by contributing to the going public process. Besides advising which investment bank or law firm to hire, there is a certification role for venture capitalists. Brav and Gompers (1997) find for example that in the US, venture-backed IPOs have suffered less from the long-run underperformance than other IPOs, supporting the certification role of the venture capitalists. Ljungqvist (1999) however finds that after controlling for differences in entrepreneurs' incentives to control underpricing, no evidence of certification can be found. The evidence on the role of venture capital firms in taking private firms public is hence mixed.

[10] In Cumming and MacIntosh (2001), the question of when venture capitalists choose a partial exit, i.e. sell only a part of their holdings in the investee firm, is considered. The results provide some support for the view that the extent of exit reflects the degree of asymmetric information between firm insiders and outsiders.

# Appendix 2. Specialization of Stock Markets

Stock exchanges tend to have different sector focuses and many of them also have specialized trading segments, so-called “new stock markets”. In this Appendix, we briefly consider the characteristics of selected new stock markets.

The underlying motivation for introducing the specific markets is that they provide a specialized platform for young, technology-based firms to raise funds for their growth and for private equity investors to exit their investments. For example, Johnson (2000) has recently argued that in Germany, Neuer Markt has contributed significantly to the growth of equity culture. Bertoni et al. (2001) examined several new markets and reached similar conclusions.Table 5.1 reports the distribution of IPOs and market capitalization of selected European growth markets as well as a measure of the liquidity of these markets.

**Table 5.1 Data on the growth segments of selected European stock markets**

***Panel A. Distribution of initial public offerings***

| | Neuer Markt | SWX New Market | Nuovo Mercato | Nasdaq Europe | Nouveau Marche | AIM | NM-list (HEX) | Total number of IPOs |
|---|---|---|---|---|---|---|---|---|
| 1998 | 43.0 % | - | - | 16.0 % | 42.0 % | 0.0 % | - | 101 |
| 1999 | 49.5 % | 1.9 % | 2.9 % | 5.8 % | 11.6 % | 24.3 % | 3.0 % | 269 |
| 2000 | 31.3 % | 2.9 % | 6.8 % | 1.0 % | 11.7 % | 44.0 % | 2.2 % | 446 |
| 2001/7 | 9.0 % | 0.0 % | 6.0 % | 0.0 % | 13.0 % | 72.0 % | 0.0 % | 79 |

***Panel B. Distribution of market capitalization***

| | Neuer Markt | SWX New Market | Nuovo Mercato | Nasdaq Europe | Nouveau Marche | AIM | NM-list (HEX) | Total market capitalization (EUR bill.) |
|---|---|---|---|---|---|---|---|---|
| 2001/1 | 53.2 % | 3.3 % | 11.1 % | 10.5 % | 10.7 % | 10.8 % | 0.4 % | 227.7 |
| 2001/7 | 48.8 % | 3.0 % | 8.0 % | 8.0 % | 8.0 % | 15.9 % | 0.5 % | 131.7 |

***Panel C. Relative monthly turnover (the ratio of value traded to market capitalization)***

| | Neuer Markt | SWX New Market | Nuovo Mercato | Nasdaq Europe | Nouveau Marche | AIM | NM-list (HEX) | Average |
|---|---|---|---|---|---|---|---|---|
| 1998 | 55 % | - | - | 4 % | 8 % | 3 % | - | 17 % |
| 1999 | 41 % | - | 19 % | 2 % | 4 % | 6 % | 7 % | 13 % |
| 2000 | 32 % | 7 % | 11 % | 3 % | 4 % | 6 % | 8 % | 10 % |
| 2001/7 | 23 % | 8 % | 8 % | 1 % | 4 % | 3 % | 2 % | 7 % |

Source: Deutsche Bourse Neuer Markt Report (2000), Helsinki Stock Exchange

The table suggests three conclusions. First, the Finnish high-tech market segment is small, and as a comparison of Panel A and B suggests, the firms traded on the segment are small. Second, only the larger markets have been able to continue listing firms during the market turbulence that began in mid 2000. Third, the liquidity has dried up in all markets, particularly on the NM-list of the Finnish stock market.

The new stock markets vary a lot in terms of sector allocation. For example the German Neuer Markt consists of the Internet, technology, financial services and biotechnology sectors, which together account for 75% of the NEMAX. Nuevo Mercado is focused on fewer sectors, the Internet, software and telecommunications, which account 71% of its total market capitalization. The Finnish NM-list is even more concentrated, as the IT services and software sectors together account for around 78% of its total market capitalization.

# Appendix 3. EVCA Exit Data

In this Appendix, we describe the exit history of the Finnish venture capital firms based on the data available from European Private Equity & Venture Capital Association (EVCA).

Panel A of Table 5.2 presents the distribution of different exit vehicles in Finland for the periods of 1991-1995 and 1996-2000. The data reveals that in the early 1990s, trade sales were the third most important exit route, preceded by write-offs and "other means". Essentially no exit took then place via a public offering. During the latter part of the 1990s, the venture capitalists have to a significant extent been able to exit via public offerings, while the relative importance of trade sales as an exit route has decreased. This finding confirms the cyclical characteristic of the stock market enabled exits.

**Table 5.2 Distribution of exits in Finland**

**Panel A. Distribution of different exit vehicles in Finland**

| | Trade Sale | Public Offering | Write-Off | Other Means | Total |
|---|---|---|---|---|---|
| Number of divestments | | | | | |
| 1991-1995 | 27 % | 2 % | 44 % | 27 % | 100 % |
| 1996-2000 | 20 % | 15 % | 23 % | 41 % | 100 % |
| Amount of divestments (at cost) | | | | | |
| 1991-1995 | 32 % | 0 % | 38 % | 30 % | 100 % |
| 1996-2000 | 18 % | 28 % | 15 % | 38 % | 100 % |

**Panel B. The share of the Finnish venture capital exists of the European total**

| | Trade Sale | Public Offering | Write- Off | Other Means | Total |
|---|---|---|---|---|---|
| Number of divestments | | | | | |
| 1991-1995 | 0.7 % | 0.1 % | 1.2 % | 0.8 % | 0.8 % |
| 1996-2000 | 1.3 % | 1.7 % | 2.8 % | 1.8 % | 1.8 % |
| Amount of divestments (at cost) | | | | | |
| 1991-1995 | 0.2 % | 0.0 % | 0.6 % | 0.6 % | 0.3 % |
| 1996-2000 | 0.2 % | 0.9 % | 0.6 % | 0.8 % | 0.5 % |

Source: European Private Equity & Venture Capital Association (EVCA), various yearbooks.

The exists enabled by the public offerings have in Finland been large relative to the exists via other routes, because Finland's share of the European total public offering exits drops less than in the case of the other exit routes when divestments at cost are examined instead of the number of divestments. Almost the opposite holds for trade sales. Finland's share of the European total exits enabled by the trade sales has within the past five years been clearly lower when measured by the amount of divestments than in terms of the number of exits. This suggests that when compared with the other European countries, the exits enabled by trade sales have in Finland been small relative to the exits via other routes.

# Appendix 4. Survey Data Tables

**Figure 5.1 Portfolio size and the size of investment**

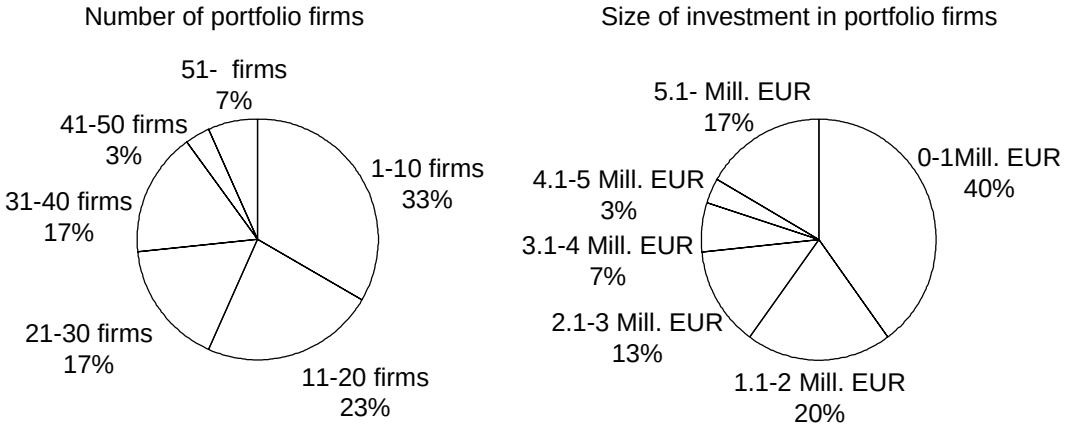


**Table 5.3 Ten most important determinants of the investment decision**

| | Average Rank |
|---|---|
| 1. Growth potential | 6.6 |
| 2. Sales potential | 5.4 |
| 3. Financial rewards | 5.4 |
| 4. Entrepreneur's track record | 4.4 |
| 4. Exit routes | 4.4 |
| 6. Competitive protection | 3.6 |
| 7. Innovativeness | 3.5 |
| 8. Entrepreneur's expertise | 3.3 |
| 9. Entrepreneur's trustworthiness | 3.3 |
| 10. Own understanding of business | 3.2 |

Note: Respondents were asked to rank ten most important determinants of their investment decisions among 18 alternatives by marking 10 for the most important determinant, 9 for the second most important, etc.

**Table 5.4 Governance of the exit decision and process**

| | |
|---|---|
| Only partial exit | 31 % of ventures |
| Present on board of directors priot to the exit | 81 % of ventures |
| Preferences on exit aligned with those of the management team | |
| prior to the first financing round | 74 % of the time |
| during the exit process | 83 % of the time |
| Aspirations of management affected the final choice of exit | 59 % of ventures |
| Entrepreneur(s) wished to remain in the firm after the exit | 56 % of the time |
| Former entrepreneur(s) were replaced prior to the exit | 8 % of ventures |

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