

# THE ROLE OF VENTURE CAPITAL, GLOBAL TRENDS AND ISSUES FROM A NORDIC PERSPECTIVE



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**THE ROLE OF VENTURE CAPITAL,  
GLOBAL TRENDS AND ISSUES  
FROM A NORDIC PERSPECTIVE**

**Thomas Andersson  
Glenda Napier**



## PREFACE

As the world economy enters the 21st century, the merits of technical progress and the instant diffusion of an enormous amount of information offer incredible opportunities. At the same time, the ability to exploit and make use of the new tools remains in part limited, and also unevenly divided. Information and communication technology, research and development, skills upgrading and the accumulation of human capital are all recognised to matter for economic and societal performances. Yet raising R&D or educating a greater number of individuals is not sufficient to ensure the success of innovation in these spheres in an ever more competitive environment.

Large companies continue to dominate in research and development (R&D), and are no doubt generally stronger and more likely to survive and prosper than small and medium-sized enterprises (SMEs). Still, societies cannot rely solely on what was established in the past. New products and ventures need to be developed. Organisational change and entrepreneurship should be embraced.

Greater efforts are needed in many countries to remove obstacles to experimentation and risk-taking in the economy. This applies particularly in regard to the early stages of business formation and commercialisation of new technologies. The kind of financing most commonly highlighted in this context is venture capital, which has been shown to matter greatly for business renewal and economic growth. Venture capital is not the only kind of financing that is important in this context, however. Both formal and informal financing play a distinct role in the early stages, and both government institutions and markets influence what can be achieved by various kinds of actors.

Whereas many countries have recently adopted new policies to support the provision of seed and venture capital, it is important that venture capital issues are not addressed in isolation. At the same time, most attention has been paid to developments in the United States which, owing to its strong and dynamic industry, has towered over the formation of policies throughout the world. However, developments in this field are bound to be highly context-specific. It is important to examine, and learn from, venture capital strategies and industries in other parts of the world as well. Responding to this need, the International Organisation for Knowledge Economy and Enterprise Development (IKED) prepared this report to provide complementary inspiration for measures addressing the issues that we associate with the development of venture capital markets.

The report adds to existing studies on venture capital in at least four ways. First, it views the venture capital industry from a global perspective and examines and compares market trends and policies over a number of years. Second, it emphasises the unique role of venture capital as connected to other players that are greatly relevant to innovation, including entrepreneurs, and underlines the role of policy initiatives to ensure a healthy interaction in this respect. Third, it critically reviews the role of public intervention and the public sector's way of handling risk when fostering technological development. Last, it looks in some depth at both good and flawed policy practices from the Nordic countries – whose experiences are rooted in great strengths with regard to innovation as well as rapidly evolving venture capital markets – and highlights current policy issues which may also be of more generic interest.

Focusing on the value of structured policy exchange and learning, the report aims to advance critical reflections on how policy interventions in this area can become more relevant and effective. The hope is it will serve as inspiration for governments, organisations and individuals seeking to enrich their understanding of venture capital markets and lay the basis for reflections which might help to address present and future challenges in the field.

The report does not aim to provide the full history and details of venture capital development in the Nordic countries. Nor does it seek to include and mention all individual venture capital players in the various markets. Rather, it reviews and compares certain past experience viewed to be of more general relevance, outlines some of the key elements in the development of venture capital markets and policies, links issues between countries and lays a basis for policy conclusions and recommendations in regard to issues that bear on the role of venture capital in enhancing competitiveness and innovation.

The report benefited from fruitful collaboration between a number of organisations in the Nordic region. The authors would like to thank the following organisations for their support and cooperation: the *Swedish Governmental Agency for Innovation Systems* (VINNOVA), the *Swedish Venture Capital Association* (SVCA), the *Danish Venture Capital Association* (DVCA), the Danish National Investment Fund *Vækstfonden* and the two Swedish venture capital funds *Malmöhus Invest AB* and *TeknoSeed*. Substantial input was provided by Ms Sylvia Schwaag Serger, Mr Andreas Mossberg and Mr Glenn Gran. The authors are also particularly grateful for the helpful assistance of Mr Matthieu Roest, Mr Boyan Kostadinov and Ms Karin Hélène.

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## EXECUTIVE SUMMARY

The task of turning new technology and knowledge into commercial achievements is cumbersome and risky. Success is likely to hinge on the extent to which a range of skills – including financial, managerial, technical and commercial capabilities – combine in a constructive manner. Even in the presence of effective cooperation between relevant players, a breakthrough may require a series of risky experiments, each with uncertain outcomes. But while work to capitalise on a specific idea may fail, the activity itself – the attempt – is important for the long-term viability of any economy.

The extent to which new and potentially fast-growing companies are able to access appropriate finance will be critical. There are multiple forms of relevant capital. The late 1990s saw a spurt in formal venture capital markets which led to the rise of dynamic new industries but also to excessive behaviour and costly mistakes. In conjunction with the global economic downturn in 2001, venture capital markets fell back sharply and entered a period of heavy consolidation. The recovery has been gradual and the behaviour of the various players active in these markets has been subjected to changes. Venture capital markets around the world have kept maturing and deepening, however. Although they vary strongly in features and performance between countries, these markets are becoming more responsive to the specific demands of national and regional industrial structures. There is now much to be learnt from experiences and developments in various markets. So far, the US venture capital industry has been studied most extensively and great efforts have been made to replicate this model elsewhere. Whereas many investors are inspired by the financial risk-taking culture that has developed in the US, instructive developments are taking place in other countries and regions as well.

Against the backdrop of international trends, this report examines issues related to venture capital notably in the Nordic countries, and particularly Sweden and Denmark. Both these countries are ranked among the strongest in the world when it comes to innovation and the knowledge-based economy. In both, despite considerable economic swings over the years, venture capital markets have expanded and are now mature and dynamic in a number of respects.

The wider frameworks for investment are introduced in Chapter 1, followed in Chapter 2 by a survey of relevant trends and current challenges in the global venture capital market. The evolution of the venture capital markets in Sweden and Denmark, including the role of the public sector, is reviewed in Chapters 3 and 4 respectively. Venture capital investments are increasingly crossing borders but national regulations and barriers are impeding their effectiveness. In Chapter 5, issues arising from cross-border venture capital flows, and experiences from the cross-border region between Sweden and Denmark (the Öresund region), are highlighted. Finally, Chapter 6 presents conclusions and policy recommendations.

Based on global trends and a comparative assessment of Nordic venture capital markets, the report presents a number of conclusions. First, globalisation and cross-border activities exert a major impact on venture capital markets throughout the world. At the same time, specific local institutions hamper countries' ability to reap the full economic, technological and social benefits associated with this development towards greater cross-border activity. More should be done to enable diversified flows of international and cross-border investments in different countries and regions.

Second, although venture capital activity is perceived primarily as a private sector domain, market forces alone do not generate sufficient investment for the vital breeding ground of new high-risk ventures. The public sector has an important role to play in the early stages of firm formation and commercialisation of technology, and must also take steps to cherish the development of more mature venture capital markets. The public role may be particularly imperative in periods of economic downturn. However, for governments to successfully promote public investment strategies, they must act on market conditions and arrange for socially motivated risk reduction without crowding out private initiatives.

Third, there is a need to appreciate the role played by a number of factors and players in supporting healthy conditions for entrepreneurship and industrial renewal. Through various kinds of interventions, governments often play a counter-productive role. Further, there is no way for government to steer the economy towards greater dynamism. The way forward has to do with reforms that allow the spirit of renewal to grow from beneath. In order to manage this task, however, governments need to become more capable of addressing a range of relevant policies and institutions, each of which may critically hinder success. Outcomes in terms of the commercialisation of new technology and industrial renewal will only be as strong as permitted by the weakest link in the innovation chain.

On the Nordic countries specifically, the report examines the surge in Sweden's private equity market, which was one of the most expansive in the world in the 1990s and showed remarkable resilience post-2001. Still, significant challenges and shortcoming remain in areas such as directing funds to companies in early-stage development and in the commercialisation of new technologies.

In Denmark, the public sector has boosted its seed activity in the past years and investments have been allocated to fragile segments of innovative, early-stage companies. Nevertheless, the market has not reached its potential because the chain of capital suppliers and exit possibilities remains inadequate.

Both Sweden and Denmark should dismantle restrictions on the quantity that institutional investors and private pension funds are able to invest in ventures. Furthermore, the countries are recommended to reduce the taxes on capital gains in order to encourage investments by business angels and entrepreneurs. To improve secondary markets and exit possibilities by increasing international cooperation, a well integrated single Nordic stock market should be beneficial.

In both Sweden and Denmark, broader factors continue to hamper advances in risk-taking and the formation of high-growth companies. These have to do with the organisation of public research, taxes and other factors impeding the accumulation of funds, relevant skills and entrepreneurship. In a cross-border context, the Nordic region still presents formidable barriers – in spite of the long-standing and generally harmonious relations between the national economies. This is due to a combination of contradictory market features and financing and regulatory conditions that lock in resource and competency flows nationally. In the Öresund region, cross-border processes are hampered by the weakness of seed capital in southern Sweden and of exit markets in Denmark, and by the lack of effective mechanisms for cross-border networks of both financiers and entrepreneurs.

In short, there is a need for government policy to embrace complementary reforms in related policy areas for the purpose of strengthening conditions for productive venture capital, including its cross-border potential.

## INTRODUCTORY CHAPTER

### Long-Term Economic Growth – What are the Conditions?

The swings of the business cycle have caused consternation on many past occasions but recent years have seen a particularly broad spectrum of reactions to and perceptions of economic peaks and troughs. These in part reflect the rise of concepts such as the “new economy”, the “information society” and the “knowledge based economy” (KBE). The concept of the new economy was coupled with expectations of continuously enhanced productivity growth due to declining costs of diffusing information and new technologies (Stiroh, 1999). Stock exchange valuations, particularly of high-tech stocks, reached unprecedented levels in a number of countries.

Following the turn of the millennium, however, the bubble burst and equity markets collapsed. Foreign direct investments declined sharply in 2001 as global inflows fell by 51 % and outflows by 55 %. This was the largest drop in global FDI in 30 years (UNCTAD, 2004). International investment flows and equity markets have subsequently recovered but the world economy so far remains plagued by heated risks, ranging from macroeconomic imbalances to those associated with terrorism and natural calamities, including rising oil prices. Many markets are thus plagued by an uncertain outlook. In this situation, it is vital that high risk can be managed properly.<sup>1</sup>

Indeed, it may be noted that the world economy did not witness any general strengthening of long-term productivity growth even at the peak of the new economy era of the late 1990s. As far as we can measure, productivity growth was lower in the 1990s than in the 1980s, when it was lower than in the 1970s, and so on. On the other hand, there are a number of ongoing developments whose effects are not easily quantified, such as rapid quality improvements in industries and expansion of new service sector segments. In fact, the mounting difficulties of measuring economic growth and welfare are masking the accelerating rise of new determinants of economic performance, the competitiveness of nations, and the prosperity of millions of people around the world.

The economic cycle and growth patterns taking hold since that time have more than anything else been associated with the breakthrough of information and communication technology (ICT). The presence of tangible benefits was initially disputed, but evidence of significant impacts resulting from ICT on both the production and the consumption side has gradually accumulated (Council of Economic Advisors, 2002; Pilat, 2006; European Commission, 2006a). These increasingly offer potential for new technologies, for knowledge on how to access markets and partners, and for suppliers to be diffused worldwide – to any corner of the globe – in a way never seen before. In the meantime, international trade is in the process of gradually tilting towards products with high skill and technology content. Similar observations are made at industrial and

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<sup>1</sup> Throughout this report, the term risk is used in a broad sense. In economics, a distinction is usually made between risk and uncertainty. Risk refers to events where the probabilities of various outcomes are known, whereas uncertainty describes situations in which the likelihood of an event occurring is not known at all. In contrast to risky events, uncertainty can not be given a probability distribution of possible outcomes. Financial systems are typically well apt to manage risk in this sense, but poorer at managing uncertainty. It is in managing risk in this sense that venture capital plays a central role, in particular since uncertainty is typically greater in new and small businesses.

business level; areas intensive in technology and skills are on the increase. Skills requirements are increasing in many medium and low-tech industries as well.

Yet ICT alone cannot explain the observed variation in national growth performance. Today, ICT is viewed as a catalyst for enhanced growth stemming from a sharp decline in the costs of diffusing and using information and the opportunities this creates. However, the capitalisation of this potential hinges on a number of important enabling conditions. These include the upgrading or adjustment of competences and human capital, organisational changes, research and development (R&D), and other sources of innovation.

For a number of decades, Europe found itself gaining ground on the United States. This trend was interrupted as Europe again fell further behind from the early 1990s. The contrasting performance between the economies of the US and Europe has been ascribed to a combination of factors, such as those noted above (European Commission, 2006a). In addition to a considerably higher level of investment in ICT in the US than in Europe, fundamental differences concerning the functioning of both labour and capital markets and the scope for competition in product markets prevail between the two regions. The programme for establishing the Single Market in 1992 was partly motivated by the need to remove barriers to competition among Europe's small and segmented markets. Similar arguments helped to underpin the plans for the European Monetary Union (Cecchini, 1988). In 2000, the European Council in Lisbon stressed the importance for Europe of improving its ability to capitalise on the opportunities arising from the new economy and set the goal for Europe to become the most competitive and dynamic knowledge-based economy by the end of the decade.

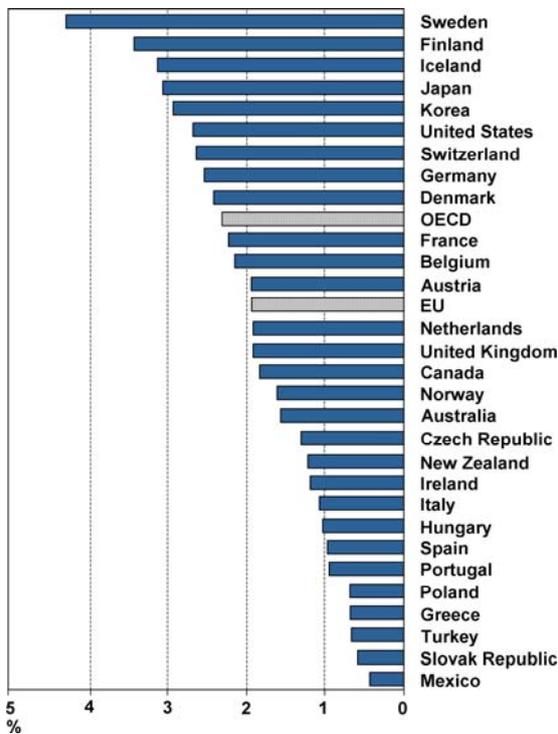
In the wake of Lisbon, although the world economy has mostly belonged in a fairly expansionary period, the European economy has remained largely sluggish. Despite a certain recovery in recent years, Europe continues to be confronted with a multi-faceted set of challenges.<sup>2</sup> The record of the European countries is diverse, however. It is primarily the larger European countries as a group (there are a number of exceptions amongst the smaller ones) which have been clearly outpaced in business and innovation performance when compared to the US, Australia, a number of East Asian countries, and so forth (IMD, 2006).<sup>3</sup>

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<sup>2</sup> At the Lisbon summit, the European Council agreed on the ambition to turn the new economy into an opportunity. The Lisbon process set itself the aim of making Europe the most competitive, knowledge-based economy in the world by 2010. The policy agenda proposes tools such as raising R&D intensity, improving ICT infrastructure and conditions for use of ICT, and establishing a European-wide patent system. Sustainable development was added as an important dimension in Stockholm 2001. In Barcelona 2002, these aspects were incorporated into what increasingly is perceived as a continuous, highly prioritized struggle to strengthen the basic conditions for economic growth in the EU. The Lisbon strategy may be viewed as promoting a development model which aims to improve, in a sustainable manner, Europeans' living standards and quality of life by virtue of strong economic growth affording a high degree of social cohesion and environmental protection.

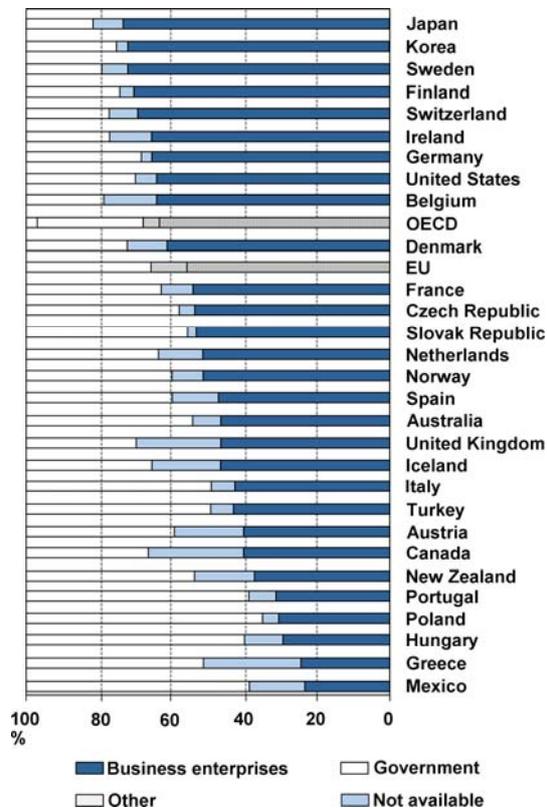
<sup>3</sup> For further inquiry, see the World Competitiveness Yearbook which examines and provides a ranking on the extent to which countries provides an environment that is competitive on economic terms as well as on business terms.

Figure 1: Levels of R&D Investments (% of GDP)



Source: OECD (2004)

Figure 2: Public and Private Sector R&D



Source: OECD (2004)

Whereas the prolonged sluggishness of the European Union is partly explained by European-wide circumstances, its prospects for growth and dynamism are also determined by national factors. One of the most important and widely discussed observations at the continental level is the considerably higher R&D intensity in the US compared to the European average. R&D is viewed as a major generator of new commercially relevant knowledge and as raising the ability of companies and individuals to absorb and use new technology from external sources (Cohen and Levinthal, 1989; Andersson, 1998). R&D is undoubtedly essential for long-term growth, but expecting R&D automatically to generate economic growth is too simplistic.

While low R&D intensity seems to be a factor at the European level, a country such as Sweden – as shown in Figure 1 – enjoys one of the highest rates of R&D investment in the world. As further seen in Figure 2, the private sector accounts for the bulk of R&D in Sweden – as it does in other countries with high R&D intensity. Nevertheless, during the past decades, Sweden has experienced problems in sustaining satisfactory performance, manifested at times both in weak economic growth and in “jobless growth”, i.e. growth that has not been accompanied by a corresponding increase in new jobs. In recent years there has been a certain improvement and, on average, the Swedish GDP grew by 2.7 per cent between 2000 and 2006, well above the EU average (OECD, 2006a). On the whole, however, the impressive efforts to invest in research have not been fully reflected in GDP growth or related desired socio-economic achievements.

Various explanations for this situation have been proposed, including the observation that the bulk of R&D is generated by a few large-sized enterprises (LSEs) that have invested massively

abroad while maintaining a disproportionately large share of their R&D at home. Such dominance of LSEs in R&D is not merely a Swedish issue. The relatively strong R&D performance of LSEs in most countries, compared to small and medium-sized enterprises (SMEs), is a natural consequence of LSEs' ability to manage high fixed costs and risks. At the same time, in an era in which great demands for restructuring are evident and product life cycles are shortening, it is not possible to depend solely on a static population of already-established LSEs. Some will not survive and some will be footloose to an extent that will leave little behind in the home country. New jobs and companies must come in the place of those that disappear.

## Pioneering Competitiveness and Innovation through SMEs

The difference in performance between the US and European economies has been associated with varying conditions for industrial restructuring, in particular for creating favourable conditions for innovative, growth-oriented enterprises.

Undoubtedly, large established companies are the backbone of most economies in important respects. They dominate R&D, have better access to export markets and are more likely to survive for the next three years. Life in SMEs is more turbulent and offers jobs that are less secure. The performance of SMEs is, however, greatly important for the long-term vitality of any economy. Cross-country studies have, for instance, observed a positive link between the SMEs' share of total economic activity and economic growth (Beck et al., 2003). While there is overwhelming evidence that SMEs account for the bulk of churning in employment, most evidence shows that they also dominate net creation of new jobs (Davidsson, Lindmark and Olofsson, 1988; OECD, 2005a; Hijzen et al., 2007).

An important observation is that new, small companies tend to be more flexible and can shift orientation more easily to grasp shifting opportunities. Their activities have been shown to be greatly important for the degree of competition and for an economy's ability to restructure and innovate and spread risks in the general business environment (Jovanovic and Nyarko, 1996; Peneder, 2002). Former EU commissioner for enterprise Erkki Liikanen emphasised the importance of these companies as follows:

*“Small and medium-sized enterprises form the backbone of the European economy. They are key to entrepreneurial spirit and innovation in the EU and thus crucial to ensure EU competitiveness. A proper definition of which enterprises are SMEs makes it easier to identify their needs and to develop efficient policies to compensate for the specific problems linked to their small size. This is vital for the competitiveness of an enlarged European Union, its growth and employment.”*

Whereas SMEs may be as or more innovative than LSEs, strengthening innovation in SMEs is viewed both as a legitimate task and as a challenge for policymakers in many countries. The task is often misinterpreted to mean that levels of research and development in SMEs should be enhanced. These firms typically lack required advantages of scale, however. Instead, the key is likely to reside in improved conditions for the creation of more sustainable spin-offs and growth-oriented companies capable of carrying out pioneering efforts in risk-taking and commercialization, and making use of technological opportunities in new, innovative ways.

It is important to distinguish between growth and non-growth oriented companies. Some entrepreneurs are not driven by growth aspirations or simply lack expansion potential. It appears that companies which build their business on new and innovative concepts are more likely to

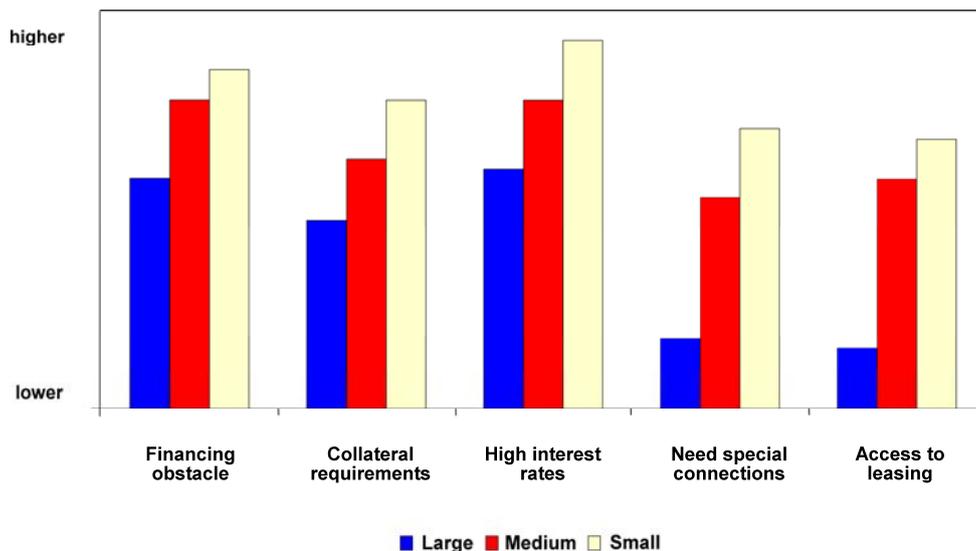
spur economic growth. The Global Entrepreneurship Monitor (GEM) suggests that the vast majority of new businesses are a replication of existing initiatives springing out of necessity-based entrepreneurship. In contrast with opportunity-based entrepreneurship, entrepreneurship based on necessity does not correlate with economic growth in developed countries (GEM, 2004).

In other words, economic growth is not so much dependent on the quantity of new start-up companies, but more on the nature of the businesses. For entrepreneurship to contribute to competitiveness, entrepreneurial activity based on innovation and opportunity needs to be cultivated. The surroundings greatly influence entrepreneurs' interest in starting companies and a business-friendly environment tends to foster more entrepreneurial activity (World Bank, 2004).

In important respects, however, conditions in most countries are relatively unfavourable for new innovative entrepreneurial companies. Funding for such firms is disproportionately negatively affected by market downturns as well as by red tape, heavy bureaucracy and a range of policy-induced limitations hindering innovation and restructuring.

As shown in Figure 3, sub-optimal business conditions emanate from obstacles in financing, collateral requirements and high interest rates and prevent companies from realising their growth potential. In addition, these factors tend to affect growth-oriented SMEs much more than large-size enterprises, in part due to the greater dependency of the former on local finance. It is also widely recognised that the sensitivity of company growth to cash flow is higher the smaller the company, and that lack of access to finance tends to serve as a major barrier to growth in SMEs (World Bank, 2002; EIB, 2003; EVCA, 2002a; European Commission, 2003b). Also, there are observations of mounting challenges in such companies' access to finance – including venture capital and local equity market availability (WEF, 2003).

**Figure 3:** Financial Obstacles Preventing Business Growth (by size)



Source: World Bank (2002)

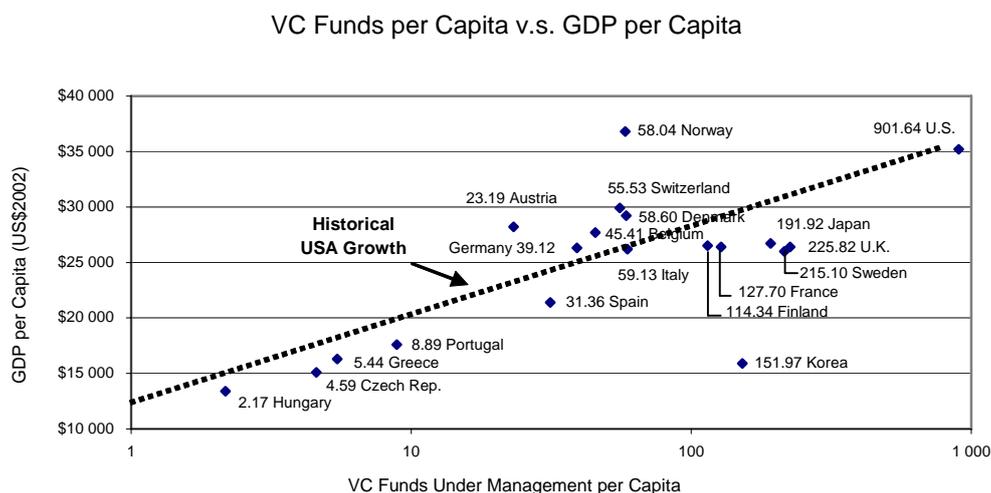
Access to finance is not merely a question of what resources are available. With the integration of financial markets, the availability of the right kind of funding at the right time and under the right conditions is a reflection of much more fundamental mechanisms and conditions. Initiatives that can strengthen innovative companies' access to finance are absolutely paramount to improving

prospects for favourable commercialisation of new technologies, economic restructuring and growth processes.

## Improving Company Performance: The Role of Venture Capital

Turning new knowledge into commercial achievements represents a major challenge for most entrepreneurs and enterprises. Pooling different kinds of expertise, managing risk and planning for future competition all require attention. There is no single form of funding that holds the key to success. Nevertheless, the availability of venture capital stands out as a factor capable of playing an imperative, supportive role in all these respects. Venture capital is vital in fortifying innovative activity and entrepreneurial talent and serves as an important tool for overcoming some of the inherent barriers to growth caused by prevailing industrial and institutional structures.

**Figure 4:** Venture Capital Funds under Management and GDP (2002)



*Sources:* EVCA (2003), Asian Venture Capital Journal (2003), NVCA (2002)

As shown in Figure 4, countries such as the US, UK and Finland, which have high levels of funds under management, tend also to have comparably higher levels of GDP per capita. This might indicate that concentrated venture capital helps to spur macroeconomic growth.

Venture financing has been accredited with remarkable growth and turnover at the microeconomic level too. For instance, as of 2003, venture-backed companies in the US employed 10.1 million people, generated US\$1.8 trillion in sales and accounted for 9.4 per cent of the nation's jobs. In addition, venture-financed companies had approximately twice the sales compared to non venture-backed companies (NVCA, 2004). Moreover, the difference between venture-backed and non-venture-backed companies is particularly marked among young, technology-based enterprises, where annual growth rates amount to 70 per cent on average for venture-backed companies compared to 10 per cent for a comparable sample of companies financed by non-venture investors (Kjærgaard and Borup, 2004). One conclusion is that venture capitalists manage to combine the unique ability to pick the winners with the ability to make the

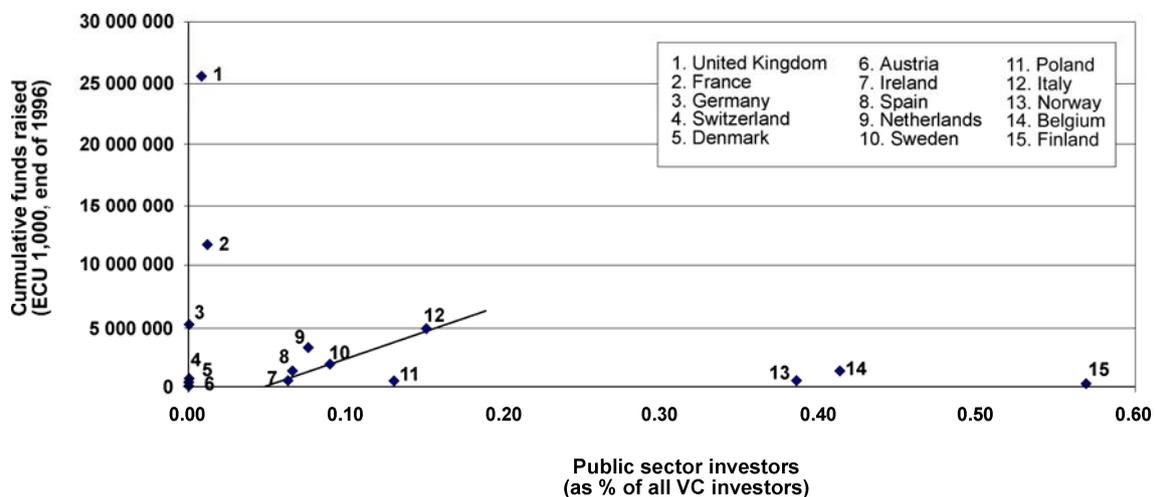
winners grow. Consequently, both the quality and quantity of venture capital markets greatly influence the extent to which a society is capable of capitalizing on its strengths in areas such as ICT, R&D and human capital, and has great impact on economic growth throughout the world.

## The Growing Importance of Public Sector Involvement

Financial risk-taking is likely to speed up the pace of innovation. But what is the role of public and private capital in financing innovation and how should public initiatives interact with private sector efforts? In many countries, venture capital has been perceived as a merely private sector domain. Public sectors have hitherto only played a limited role. But along with a growing recognition of venture capital as fuel for successful entrepreneurship, the withdrawal of private venture capitalists from markets in recent years is causing great concern to policymakers in terms of how it might worsen overall growth prospects.

As a result, public initiatives designed to kick-start and strengthen venture capital markets are generally becoming more accepted and widespread – although they are more prevalent in “high state” compared to “low state” societies (Etzkowitz et al., 2001). For instance, there is no doubt that governments have played a key role in improving access to finance in the Nordic countries – societies that generally are perceived as “high state”. Operating in early stages of the industry’s development or in limited, high-risk segments, public investors can increase the total capital supply without crowding out private sources. On the other hand, the Nordic countries also pursue policies that counteract the development of healthy seed and venture capital funding. Other “low state” countries have opted to let venture capital industries be developed by private actors alone (or at least that is how it appears).

Figure 5: Public Investors and Funds Raised in Markets (1990-1996)



Source: Leleux et al. (1998)

Whereas in some countries public investments seem to increase the overall supply of private sources in the market, many national markets also suffer from smaller amounts of cumulative funds raised as a result of public intervention, as indicated in Figure 5. Thus, the direction of causality (in other words, is the lack of venture capital the reason for state intervention in industry or vice versa?) is not ascertained (Leleux et al., 1998).

Despite significant public involvement in recent years, the role played so far by governments is highly controversial. An efficient venture capital industry is not guaranteed through public intervention, nor does it necessarily develop by market forces alone. Undoubtedly, there is an important need for governments to reflect and, in many cases, rethink their positions. On the one hand, the public sector plays a role in supporting and fostering technical progress. At the same time, it should be able to identify market failures in order to justify intervention, including in venture capital markets. Hence, to be efficient in policymaking, governments must ask questions such as: in which ways are various policies hindering or enabling venture capital activity, why intervene in venture capital markets, which market or policy distortions are best left alone or worth addressing, and what ways are most effective when doing so?

As will be further discussed in this report, venture capital markets worldwide respond to demands from national and regional industrial structures alike. There is much to be learned from the various markets. The size and history of the venture capital industry has resulted in the US market being studied in detail and much effort has gone into replicating this model elsewhere. Still, very little effort has been directed towards evaluating whether this is desirable or appropriate. Whereas nations are trying to learn from the financial risk-taking culture that has developed in the US, instructive developments are taking place in other countries and regions. In the Nordic countries, venture capital industries have expanded and are highly mature and competitive in some regions. Domestic and international investors are intensifying their activity. As will be shown, the Nordic countries have experienced some distinctive developments in their venture capital markets, e.g., with noticeably smaller declines in investments following the 2001 crash. Moreover, public and semi-public actors are playing a pivotal role in the advancement of private sources in the Nordic countries, though severe challenges still remain to create adequate conditions for new entrepreneurial companies.

Against this backdrop, this report starts out by reviewing key issues with regard to seed and venture capital funding. It then surveys international trends and developments in venture capital before considering the Nordic venture capital markets. After introducing the investment universe in Chapter 1, an overview is provided in Chapter 2 of trends and current challenges in the global venture capital market. The evolution of the venture capital markets in Sweden and Denmark, including the role of the public sector, is discussed in Chapters 3 and 4 respectively. Whereas venture capital investments are increasingly crossing national borders, national regulations and barriers are, in effect, impeding the effectiveness of such activities. In Chapter 5, issues arising in cross-border venture capital flows and experiences from the cross-border region between Sweden and Denmark (Öresund region) are highlighted. Finally, recommendations for policy reforms are made in the concluding remarks.

## CHAPTER 1: THE INVESTMENT UNIVERSE

### Introduction

Traditionally, companies obtain financing through an assortment of capital sources ranging from bank loans and public money to investments made by informal and formal provision of venture capital. In the following section, two different stylised kinds of financial systems, based on banks and market forces respectively, are presented. Of the two, the market-based model is generally understood to be the more suitable for supporting investments and economic growth in innovative, high-risk companies. Despite this, our understanding of how the evolution and structure of financial systems influence economic growth is imperfect (Levin, 1997). This chapter reviews specific features of venture capital activities and industries, leading on to a discussion of definitions and concepts which are important for assessing venture capital issues.

### Various Financial Systems

There are fundamental differences between bank credit, on the one hand, and venture capital or equity on the other hand. In a general sense, one can distinguish between bank-based and market-based systems. For a schematic overview of the two stylized systems, see Table 1. The former are typically dominated by bank financing and characterised by concentrated ownership (notably in Japan and continental Europe), whereas the latter are marked by the provision of financing through capital markets and dispersed ownership (notably in the US and UK). While banks are likely to present the most favourable options to companies that display a promising growth outlook, young, innovative and technology-intensive companies possessing complex, diverse and high-risk portfolios with no or little collateral are forced to seek alternative sources of finance (Gerschenkron, 1962; Nelson and Winter, 1982; Fazzari et al., 1988; Hellwig, 1991; Levine, 1997; Rajan and Zingales, 1999). Let us reflect on these differences in greater detail.

**Table 1:** Market- vs. Bank-Based Systems

	<b>Market based systems (USA and UK)</b>	<b>Controlling owner system (Continental Europe)</b>
<b>Ownership structure</b>	Dispersed ownership	One controlling owner
<b>Board independence</b>	Independent (possible)	Close to controlling owner
<b>Management</b>	Independent and strong	Close to controlling owner
<b>Banking relations</b>	Diversified /no ownership	Concentrated /possible ownership
<b>Managerial incentives</b>	Strong	Weak
<b>Capital structure</b>	Relatively low debt-equity ratio	Relatively high debt-equity ratio
<b>Market for corporate control</b>	Hostile bids common	Hostile bids rare
<b>Minority protection</b>	Strong	Weak

*Source:* Söderström et al. (2003)

### *The Bank-based System*

Businesses in countries such as Japan, Germany and France, which have large banking sectors, have often developed close relationships with banks as the latter have taken on a central role in providing finance and securing industrial development. In mature industries with incremental technological change and low uncertainty and in which learning is linked to a gradual accumulation of tacit knowledge, bank-based systems appear relatively effective in supporting

long-term investment through debt (Franks and Mayer, 1998; Bebcuk, 1999). This type of system is characterised by concentrated ownership, whereby banks have large stakes in industrial corporations, and can further increase monopolistic tendencies. High collateral in the form of tangible assets or secure future cash flows, are generally required as a precondition for granting loans. Intangible assets (such as brand names, patents, R&D, software, etc.), with high growth opportunities, may be poorly rewarded. Due to incurred sunk costs, banks are often reluctant to write off loans and sell equity even when they are aware that its value has dropped. This typically makes the system relatively less effective at writing off the value of declining companies and affects the reallocation of resources and economic dynamics in a negative way.

As shown by Levine and Zervos (1998), banks and stock markets provide different financial services. The differences can partially explain cross-country variation in growth at industry level (Levine, 1997). In Germany or Japan, where information acquisition technologies are well developed and most of the financing is done through banks, bankruptcy laws tend to be tailored to the concerns of creditors. Thus, it can be argued that rules are biased in favour of banks and other creditors and give comparatively little protection to the manager. Generally, banks seldom provide active management support to companies that they finance, since they can only recoup their loans and do not receive any share in additional value creation. For such reasons, bank-based financial systems are primarily oriented towards the accumulation of physical assets in large, stable companies in well-established industries, and are less good at handling the process of reallocating capital and coaching new enterprises. In bank-based systems, stock markets are smaller and financial markets play only a limited role in providing funding.

However, international pressure – the Basel agreement and Basel II in particular as detailed in Box 1 – is in the process of fostering a more market-based approach within the banking sector in many countries. Aiming at aligning the calculation of regulatory capital charges more closely with banks' economic processes and risk assessments, the capital requirement rules are designed to increase the soundness of the European banking system. Although there have also been set-backs in other European policy co-operation on opening up the service sector as a whole to enhanced competition, the recent trend has been towards increased stability and competition in European financial services markets. As such, this development should confer benefits on European industry, including the SME sector. On the other hand, as argued from early on, there are also risks that the rating culture brought on board in Basel II may increase difficulties for SMEs to obtain bank financing (European Commission, 2003b).<sup>4</sup>

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<sup>4</sup> During the negotiating process much attention was paid to the direct effects of the proposal on banks' SME lending. The July 2003 discussion document proposed parameters that would not put SMEs in a disadvantaged position against other bank clients. A study of the potential impact of the new rules carried out by the Basel Committee and the European Commission indicated that the regulatory capital requirements for lending to SMEs will be lower than under current rules. However, the proposed rules have other effects on SME finance. Three are particularly important: the emerging rating culture of SMEs, the venture capital investments of banks, and the securitisation of SME lending by banks. While banks are generally expected to have sound risk management in place and to assess customer risk properly, the new capital requirement rules will support the improvement of banks' risk management, measurement and control. The increase in banks' risk awareness may lead to an expanded use of banks' internal rating systems. This may influence banks' information requirements concerning their SME customers (European Commission, 2003b).

### Box 1: Applying International Standards for Banks – Basel II

The Basel capital accord sets international capital adequacy standards for banks. In 1988, the Basel Committee on Banking Supervision established a method of relating capital to assets, using a simple system of risk weights and a minimum of capital requirement of 8 per cent. The original Basel I has been modified and the final “Basel II” version became effective as of the end of 2006.

The new capital requirement rules support the improvement of banks’ risk management, measurement and control. The increase in banks’ risk awareness may lead to an expanded use of banks’ internal rating systems. This may influence banks’ information requirements concerning their SME clients. The internal rating system aims at making loan pricing reflect more accurately the level of firm risk. As a result, stable and profitable companies will pay less, while riskier ones will have to pay more. In the long run, the information requests are expected to pave the way for a new rating culture with the advancement of SME performance business analysis, revenue and production forecasts as paramount elements.

Although Basel II sets standards for internationally active banks, these standards have been widely applied to domestic institutions in the G10 and have been adapted in over 100 countries. Moreover, the content of Basel II will be transferred into European practice by EU directives and will be obligatory for all credit institutions within the EU.

Read more about the Basel II agreement at [www.bis.org](http://www.bis.org)

### *The Market-based System*

In market-based systems venture capital investors and financial markets are more suited to supporting innovative and high-risk companies. Liquid stock markets are also a main feature of countries with market-based systems. There is greater transparency and more active markets for corporate control, giving investors stronger incentives to exercise high-quality assessment and monitoring. The importance of intangible assets, which are now crucial in many knowledge-intensive areas, is more readily appreciated, and greater efforts are made to measure and convey their value. This creates superior growth opportunities in many areas marked by high risk. However, in order to obtain financing, companies must disclose information effectively. Funds can be reallocated more quickly between companies and industries than in bank-based systems, though there are high fixed costs in connection with the issuing of shares or bonds. In market-based systems, common law frameworks based on the English tradition protect shareholders and creditors. For instance, in the US, bankruptcy law includes both a creditor chapter and a debtor chapter, whereas France has the weakest investor protection and less developed capital markets (La Porta et al., 1997). Therefore, greater legal protection of minority owners implies less need for ownership concentration, which again increases access to external finance and reduces capital costs for companies.

The market-based system tends to promote more effective monitoring of management by owners and serves to overcome agency problems related to investments because of the unique combination of financial and non-financial (e.g. hands-on) involvement by investors. However, on the other hand, it has also been argued that the separation of ownership and control in the dispersed stock markets has created free-rider problems of corporate control and passive (in particular institutional) investors. Concentrations of ownership may overcome this problem, but may worsen incentives and create conflicts between majority and minority investors (Shleifer and Vishny, 1986; Burkhardt et al., 1996).

Franks and Mayer find marked differences internationally in ownership concentration between the two systems. Both the US and UK have large quoted sectors with share ownership dispersed

across a high number of investors. However, whereas in the UK the dominant shareholder group is institutional investors and, in the US, it is individual investors, France and Germany have in general at least one shareholder owing more than 25 per cent and frequently a majority shareholder (Franks and Mayer, 1998). Up until the 1990s, it was thought that both the German and Japanese bank-based systems could deliver superior economic performance. However, the weaker record of those economies in recent years has fuelled heavy criticism of these previously highly regarded models. Today, neither the prevalence of the bank-based system nor the market-based system can explain economic performance in a general sense. Each displays varying characteristics and specific advantages for different kinds of industrial activity (King and Levine, 1993; Tsuru, 2000; Maher and Andersson, 2002; Carlin and Mayer, 2002). In addition, there is an apparent connection between the nature of different financial systems and types of economic activity. Empirical evidence suggests that countries with strong market-based systems tend to display higher growth in industries where up-skilling is decisive and R&D intensity is high (Carlin and Mayer, 2002).

## Defining Venture Capital internationally

As has been mentioned, countries with market-based systems have higher levels of venture capital activity. It should be noted, however, that any comparison of venture capital activity internationally is bound to run into problems, since definitions and demarcation lines vary. See Box 2 for international organisations of relevance for such analysis, and Box 3 for issues that complicate interpretations.

In the US, venture capital is defined as capital provided by professionals who invest alongside management in young rapidly growing companies. It is considered an important source for start-up companies in particular. The European Venture Capital Association (EVCA) accords a somewhat broader definition to venture capital. Here, venture capital is viewed as a subset of private equity and refers to equity investments made for the launch, early development or expansion of a business.

### Box 2: List of International Venture Capital-related Organisations

**European Venture Capital Association (EVCA)**

EVCA has represented the European private equity and venture capital industry since 1983 and promotes private equity investment to investors, policymakers, entrepreneurs and industry. See [www.evca.com/html/home.asp](http://www.evca.com/html/home.asp).

**National Venture Capital Association (NVCA)**

The NVCA is a national organisation in the United States that fosters greater understanding of the importance of venture capital to the US economy and supports entrepreneurial activity and innovation. The NVCA represents the public policy interests of the venture capital community, strives to maintain high professional standards, provides reliable industry data, sponsors professional development, and facilitates interaction among its members. See [www.nvca.com](http://www.nvca.com).

**Asian Venture Capital Journal (AVCJ)**

The AVCJ is a monthly magazine covering Asia's private equity and venture capital markets. Founded in 1988, the journal is read on three continents as the publication of record on Asia's venture capital and private equity markets. The AVCJ also publishes the leading magazine on Asian merger and acquisition activity. See [www.asianfn.com](http://www.asianfn.com).

Thus the terminology varies somewhat internationally and employing a universal venture capital definition is troublesome for various reasons. In countries that have little or no early-stage financing, expansion or later stage finance is more often referred to as venture capital. For instance, whereas the definition in the US, generally, is restricted to start-up companies, European venture capital is less developed and includes both early-stage and expansion companies.

**Box 3:** Reasons for Varying Interpretations of Venture Capital

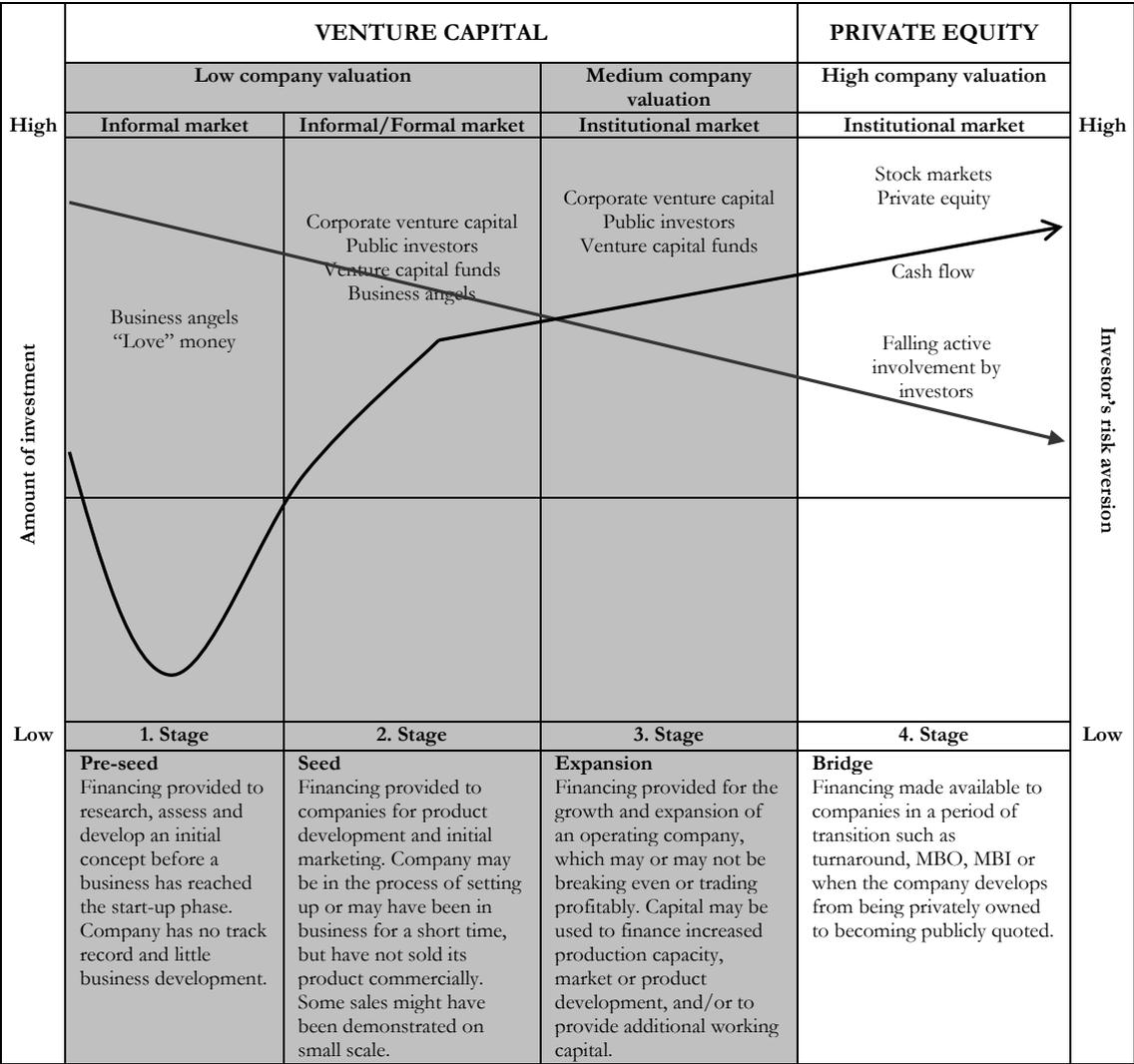
1. It is difficult to reconcile the different ways in which venture capital activity is defined and interpreted. For instance, funds and investments are broken down in different – and incompatible – ways. “Back funding” and funds raised are most commonly broken down on the basis of investor types (banks, pension funds, and so on), while investment is generally broken down on the basis of development stages (pre-seed, seed, expansion, and so on).
2. Most statistics cover only formal venture capital, that is, funds raised or invested through “intermediary” venture capital companies. Informal venture capital activity, for instance carried out through business angels and private investors, is almost never included in statistic surveys. Therefore, the figures generally paint an incomplete picture of the market.
3. An often overlooked but increasingly important problem concerns international flows of venture capital, which are difficult to include in traditional surveys. Available data generally refer to the “country of management” approach, which reflects the geographical location of the venture capital companies that raise and invest these funds. However not all funds managed by a venture capital firm that operates in a given country come from domestic investors. Likewise, not all investment by venture capital firms goes to domestic companies. When EVCA estimates funds raised using the so-called “country of origin” approach, it indicates the geographic origin of the funds that are managed by European venture capital companies. Meanwhile, with the so-called “country of destination” approach, the geographical destination of investments made by European venture capital companies is calculated excluding outflows (to other European or non-European countries) and including inflows (only from European-managed funds). However, investment in a country may matter more than investment by a country. Investments into companies in Denmark and Ireland, for instance, may be significantly greater than those managed by venture capital funds located in these countries. The use of the country of origin (for funds) and country of destination (for investment) approaches has brought improvements in the European statistics. Unfortunately, data for investments by sector or by stage are difficult to come by. In addition, inflows from foreign-managed funds are important in many countries, including the US and Canada.

*Source:* OECD (2000)

The differences have practical implications. An entrepreneur, usually after consulting an American venture capital source on how to act when selling his or her company, may be turned down by a Canadian, Argentinean or Australian venture firm. In these countries, the venture capital firm often represents an extension of a conservative brokerage or bank with no interest in any financing of ventures which rely on unfamiliar assets. The differences in back funding will be further explored in Chapter 2.

Estimates of venture capital vary not only because of differences in definitions of venture capital and private equity, but also due to coverage, methodology and statistical procedures applied in the collection of data. The implication is that there is often no direct correlation between different sets of data. International comparisons are particularly hampered by this lack of generally accepted definitions. Together with unsettled measurement issues, variable definitions make it difficult to obtain a reliable picture of venture capital activity globally. The problem is felt particularly in the case of international comparisons of performance statistics.

Figure 6: The Business Finance Chain



Source: IKED

As shown in Figure 6, efficient venture capital markets comprise a pool of complementary financial sources. Company financing can take various forms. While venture capital investors, including business angels, public or private venture capital funds and corporate venture capital ("love" money provided by friends and families is not considered as venture capital), mainly focus on high-risk companies in pre-seed, seed or expansion stages (development stages 1-3), others concentrate on companies at later stages. Here, bridge financing – whereby portfolio companies apply a higher valuation and invest a much larger amount (4. stage) – is a key mechanism. In this report, venture capital is referred to as financial (and non-financial) investment in pre-seed, seed and expansion stages. Private equity is referred to as later-stage investments, such as mergers, acquisitions, turnarounds or recapitalisations including management buy-ins/outs (MBIs/MBOs) and preparations for initial public offerings (IPOs).

### ***Private Investors***

Representing the informal venture capital market, private individuals or business angels exert a growing impact on early stages of business development. Business angels are high net-worth individuals who provide early-stage companies with financial as well as non-financial assets in the form of competencies, counselling, networks, and so on. Angel investors often have a history as successful entrepreneurs/businessmen. Typically, they have accumulated a substantial amount of capital. They also tend to possess unique insights within certain business areas and operate with a committed, hands-on approach. Business angels normally invest a small amount of funds compared to the institutionalised venture capital companies whose provisions often range from €25,000 to €250,000 (Harrison and Mason, 2002; Vækstfonden, 2002). Business angel networks constitute a fairly tight web which may engage public actors as well as private players. These may increase business angel activities and investments by facilitating the exchange of information, the screening of entrepreneurial projects and by enabling more effective matchmaking events (Gullander and Napier, 2003). At the same time, business angels are often individuals with special interests who may shun publicity and prefer exchanges and operations that rely on low-key information and tacit knowledge.

### ***Public Investors***

In most countries, certain public actors have been specially commissioned to channel funds to entrepreneurs, and especially to early stages of company development and commercialisation of new technology-based products. These actors generally include specific funds, agencies and institutes established for this purpose but public financial institutes and pension funds are also in some cases assigned important roles in this respect. Government loans may be written off in the case of bankruptcy, unlike bank loans. Governments also play other more indirect roles in support of venture capital markets, such as through regulatory measures, public procurement strategies and the launch of strategically important public-private partnerships. Through market-based investments, public sector venture capitalists may be as active and generally accepted as their private counterparts. The role of public investors varies greatly between countries, however. The extent to which their strategies are compatible with, and conducive to, functioning private markets depends on a number of factors. These matters will be further discussed in the following chapters.

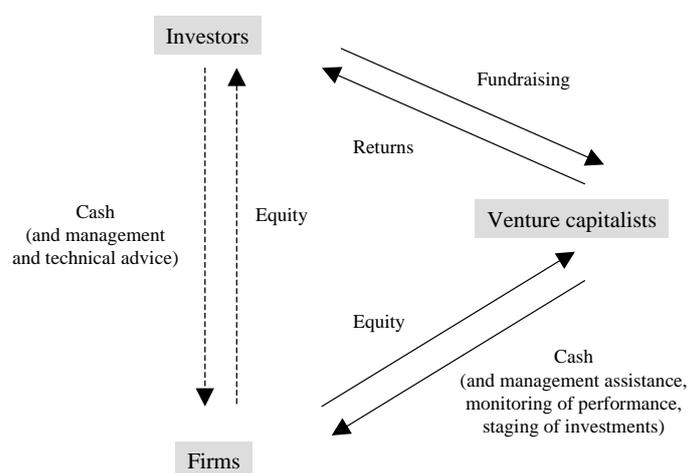
### ***Corporate Venture Capital – Corporate Venturing***

Corporate venture capital (CVC) takes the form of larger companies investing and taking stakes in unquoted entrepreneurial companies or spin-offs. CVC reflects the changing relationship between large and small companies. The LSEs' investment incentive is their desire to outsource innovative activity and reduce risk while engaging in strategic collaboration with a new company. The level of risk depends greatly on the level of involvement by the investor in the entrepreneurial company. Correctly handled, the likelihood of success may be greater in CVC activity than in the case of other venture capital funds, due to better access to information and an already established circle of customers. An increasing number of companies are likely to become engaged in this kind of venture capital activity in the future.

## Venture Capital Funds

Classic venture capital is generated by another type of investor. Venture capitalists are often key players in the division of labour between universities or other institutions breeding new technologies and commercial activities. Generally, funds are managed by investment managers and have an average investment horizon of two to five years in each portfolio company. The objective is, within this period, to assist building companies basically from conception, accumulate assets, add value and, when the company reaches maturity, realise profits from their investments. A venture capital fund invests either before there is a tangible product, before the company has developed an Organisation, or provides capital to a company in its primary or secondary stages of development. It can also provide the finance required for helping the company reach the critical mass required for entering its expansion stage. These funds generally take ownership stakes in portfolio companies and engage actively in the management and development of a company.

**Figure 7:** Venture Capital Funds as Intermediaries



Venture capital funds act as financial intermediaries between investors (the back funding investors such as individuals, pension funds, banks or insurance companies) and the entrepreneurial companies in which they invest. Entrepreneurial companies receive funding either directly from individual investors and companies, or indirectly through specialized venture capital funds, as illustrated in Figure 7. In general, however, the more banks provide back funding, the more risk-averse the venture capital fund tends to be, reflecting banks' objectives and attitude towards risk. In some cases, the fund over time gradually adopts a more private-equity-oriented approach that avoids high-risk companies. At the same time, the type of investors who provide back funding plays a key role for the development of the funds.

Business angels and some venture capital funds provide non-financial strategically important inputs and adopt an active hands-on approach towards the companies in which they invest – especially those targeting seed companies. Venture capital funds generally invest a greater amount of capital than business angels and thus tend to possess larger portfolios. At the same time, they are likely to have less time to devote to each single invested company. Typically, venture capitalists operate in teams backed by professional networks through which they have access to the kind of expertise that is required for each specific venture. These may include relevant skills

in finance or sectoral expertise and know-how with regard to scientific and technical opportunities, market developments, competitor and customer qualities, and so forth.

Generally, investors subscribe for or purchase equity in a private company in return for cash. Investors typically receive a class of preferred (or preference) shares with priority rights, for instance, in the event a company is sold, liquidated or wound up. The company and, in some cases, its key executives or founders, award the investors with board representation, warranties or indemnities in relation to the company and its business. The rights normally provide privileged access to financial and other vital information concerning the company. Defining the rights of the parties related to “exit”, for instance in the case of an initial public offering or sale of a company, represents a crucial item determining conditions for the provision of capital in other respects.

### *Exit possibilities*

For all types of venture capital investors, the anticipated options of exiting investment are crucial for determining their behaviour and willingness to invest in the first place. In fact, the presence and nature of exit opportunities is often pointed out as one of the most important conditions for an efficient venture capital market (Sahlman, 1990; Gompers and Lerner, 2000). Generally, the three commonest ways of divesting an investment are: (a) through an IPO; (b) by trade sale (selling the portfolio company directly to another company); and (c) by write-off (EVCA, 2004). The capitalization of European stock markets gives an indication of the exit possibilities across Europe. See Table 2.

**Table 2:** Capital markets in EU 15

	Share market in % of GDP	Private bonds in % of GDP	Total
<b>Austria</b>	14.9	33.1	48.0
<b>Belgium</b>	48.4	53.6	102.0
<b>Denmark</b>	42.3	103.2	145.5
<b>Finland</b>	52.6	31.9	84.5
<b>France</b>	37.4	36.2	73.6
<b>Great Britain</b>	145.7	18.1	121.4
<b>Greece</b>	21.8	-	21.8
<b>Ireland</b>	53.5	2.5	56.0
<b>Italy</b>	24.1	37.3	61.4
<b>Luxemburg</b>	180.6	61.0	241.6
<b>The Netherlands</b>	103.3	18.1	121.4
<b>Portugal</b>	27.8	20.2	48.0
<b>Spain</b>	36.7	6.7	43.4
<b>Sweden</b>	96.5	64.6	161.1
<b>Germany</b>	29.9	46.4	76.3
<b>EU 15</b>	54.6	35.6	96.6

*Source:* Dermine and Hillion (1999)

Options for exit do not only mean that investors who provide risk capital have a greater chance of being adequately rewarded. Exit also offers a venture capitalist the possibility of freeing up capital when needed and relocating it into new investments. It further reduces the risk that an

investor's reputation will be tarnished if a project goes wrong and thus makes it more likely that future opportunities for co-investing with other investors in the market remain open. Thus, success stories in the venture capital industry influence the flow of funds to businesses in the future.

Sometimes, an IPO is depicted as the pinnacle of successful exit because it provides a tangible market value for shares. In practice, an IPO is a less common form of exit than an acquisition or merger with another company. However, although primary and secondary markets play no initial role in funding companies, they certainly influence the total supply of capital. In other words, if investors can exit via IPO, they are more willing to put forward funds, and they are even more likely to do so if they have access to a secondary market that provides transparency and a structured framework for effective valuations. Poor performances in these markets, on the other hand, exert a negative impact on funds allocated to early-stage investments.

## States of Excess Demand

Lack of financing is often put forward as the main obstacle to successful commercialisation of new technologies, and/or as the cause of deficient entrepreneurship. However, in reality, such deficiencies are not really a matter of capital provision. Even when emerging businesses are willing to pay the market price and ready to meet other conditions set by investors, they often lack sufficient funding. Given the availability of required competencies, the lack of seed and venture capital is likely to ease for the individual company. Competition owing to private market forces cannot alone, however, ensure the effective provision of venture capital. This is in part due to the existence of market failures, such as those related to public goods functions, externalities, and asymmetric information between the demand and supply of capital. The core challenges in venture capital are typically viewed as associated with imperfect information and agency problems.

Socially inefficient outcomes may of course motivate policy intervention, provided that government can be expected to do better than markets. However, addressing individual market imperfections is bound to serve as an insufficient guide in this area, since venture capital represents an inherent component of the wider, so-called innovation system. This term, which emerged in the late 1980s (Freeman, 1987; Lundvall, 1992), reflects the fact that innovative capabilities depend on the interplay between numerous players and functions within a particular country. Improving market outcomes may then require that governments are able to synchronise measures in related but traditionally separated policy domains. This may be necessary for addressing the real source of a certain problem, for realising strategic complementarities in important reforms, or for making reforms feasible in the first place since political resistance in each individual area may otherwise be impossible to overcome (Metcalf, 1995; OECD, 1998).

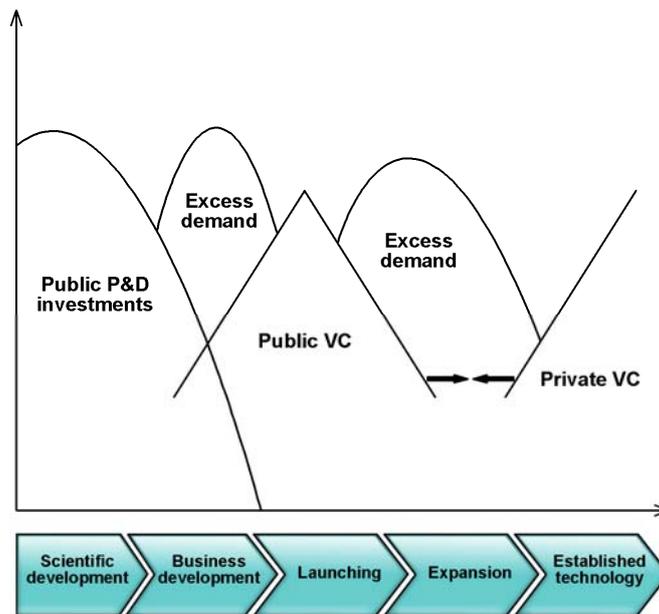
In the area of venture capital, governments cannot improve outcomes simply by providing funding. The key question is how to improve the complementarities between financial and other assets and competencies in early stages of company development. Governments may of course be able to stimulate experienced private investors to invest in critical areas, which they would otherwise ignore because of comparably poor pay-off expectations (Maula and Mäkelä, 2004). The more fundamental issue, however, concerns how to engineer an arena which is conducive to sound learning and reform processes. Various studies have shown that venture capitalists, entrepreneurs and the other market actors behave strategically and that their actions evolve based on experience (Wadhwa and Kotha, 2006; Dushnitsky and Lenox, 2006). Competent public

institutions are needed to set the stage for constructive links, e.g., with universities or other sources of public goods in the provision of information. Governments importantly influence the organisation and the objectives of universities and research institutes. There is today a widely spread understanding that policy frameworks generally need reforming in order to allow for greater specialisation, diversity and innovation in this sector (Hazelkorn, 2006; Carayannis and Formica, 2007).

Having stated the opportunities, one has to be wary and reminiscent of the traps and downsides of government action. As realised in some policy efforts to stimulate corporate funding, it is greatly important not to act so as to make public initiatives or funding crowd out private capital, or to inhibit the evolution of a self-supporting venture capital industry (European Commission, 2003c). This is further discussed below.

All in all, various factors do hamper the access to external financing for SMEs, and in particular for innovative start-ups, referred to as the “equity gap”. Governments have an important role to play in improving the situation, but should carefully consider what contribution they make, and how.

**Figure 8:** Lack of Seed Funding – Equity Gaps in Entrepreneurial Processes



*Source:* IKED

As shown in Figure 8, the first serious state of excess demand for risk capital occurs in the early stages of business development. In order to reduce this excess, some markets provide public sources of venture capital during various stages of business development and when launching new products. Generally, market failures are most common in the early stages and in high-risk technology-based companies, in which business angels are the main players who are willing to risk and invest. But business angel capital is not sufficient. Public VC takes over once public R&D investments come to an end. By acting as investors, governments can – through either direct or indirect publicly-sponsored venture capital – reduce the impact of the equity gap and the effects of market imperfections.

Once the public sector has invested in such companies, public investment vehicles often need more sustainable staying power. If not, a second state of excess demand for capital appears after public investors have invested and before private venture capitalists are prepared to invest their money. The risk of creating a second equity gap has increased since the mid 1990s, as average sizes of private venture capital investments have grown – and in some countries even doubled – resulting in fewer investments in early stages (OECD, 2003a). Of course, there are noteworthy geographical differences, e.g. with more than three times greater venture capital investment allocated to early stage activity in the US than in the EU on average (European Commission, 2007). Still, the upward trend in many venture capital industries is likely to become prevalent in more and more countries as funds establish reliable track records and funds are attracted from larger institutional investors. But although public investors play an imperative role in reducing the equity gaps, they are often prevented from developing their investments, thus only temporarily prolonging the enterprises' lives. For instance, some public investors are not allowed to invest more than €100,000 in projects (as in Denmark's public incubators) and lack the additional resources necessary to exit the investments through a trade sale to private venture capitalists. Although public intervention in venture capital markets is a far from straightforward issue, applied appropriately it can be justified for a number of reasons (see Box 4).

**Box 4: Some Reasons for Public Intervention in VC Markets**

**Risk Aversion Encourages Venture Capitalists to “Scale Up”**

The term “moving upwards” is often used to describe the process through which venture capital investors opt to move away from early-stage, high-risk business, giving preference to later-stage companies at the opposite end of the risk curve. Such behaviour is likely to strengthen when the business cycle turns down. For instance, the economic contraction at the turn of the millennium, which was particularly pronounced in the technology sector and in venture capital activity, was associated with a heavy shift towards later stages of business development. “Moving upwards” behaviour may also be strongly motivated by policy conditions in individual countries.

**Asymmetric Information**

The players that demand capital tend not to have the same kind of information as those who supply it. In other words, information is divided asymmetrically. The entrepreneur demanding finance is generally better positioned to assess his or her special skills, intentions and various relevant intangible assets whose qualities may be decisive for the business outlook. The asymmetry may well prevent potential investors from observing entrepreneurs' “true nature” and might inhibit investors from influencing the entrepreneur once the investment agreement is signed. Investors typically require compensation for this uncertainty, which leads to higher costs of capital. To the extent that the costs and risks of asymmetric information can be reduced in financial transactions, the investment and growth potential can be enhanced.

**Transaction Costs**

Investors often have market advantages because of a limited supply of venture capital. High transaction costs related to investing relatively small amounts provide investors with incentives to allocate larger investments to LSE. Entrepreneurs, on the other hand, enjoy information advantages as they tend to have more specific information about their business compared to investor, but still they need to compromise on their own interest as they lack financial and business skills.

**Cultural Reluctance to Equity**

It is often argued that most countries bar the US lack a professional equity culture that allows venture capital activities to evolve naturally. On the one hand, entrepreneurs are not open to external investors and prefer to keep managerial control internally among staff or family members. On the other hand, investors tend to avoid investments in very young businesses.

At the same time, public venture capital is frequently provided in ways that are counter-productive. Several arguments are commonly put forward to posit a number of negative effects for direct public intervention in venture capital processes. First, public investors are often civil servants with only limited or no hands-on experience of and expertise in the venture capital industry. In the worst case, such investment managers lack sufficient skills and drive to find the right companies and public capital may be misallocated. Second, the incentive structure of many public funds differs from their private counterparts. In public companies, the incentive structure is often built around a fee-based structure, whereas private venture capital funds normally have profit-based structures (referred to in the industry as a “carry”) that create different incentives for fund managers. Thirdly, and more damaging for the industry as a whole, if public funds forego some expected returns by financing projects at below-market rates, they may end up boosting the wrong projects and spur “lemons”, distorting conditions for private venture capital companies. This situation might make the entry of new, independent private equity funds more difficult. Also, again, there are risks that public intervention causes a “crowding out” effect by preventing the emergence of private active venture capital funds (Leleux and Surlemont, 2003).

## Summary

Recognising the importance of finance in the early stages of company development, countries over time have developed a range of measures to support the allocation of seed and venture capital to new and entrepreneurial companies, especially to those deemed to have growth potential. Some countries, such as Japan and Germany, are traditionally characterised by a bank-based financial system which relies on concentrated ownership, strong monitoring of managers, emphasis on traditional collateral, and so forth. Others, such as the US and the UK, have developed market-based systems characterised by widely dispersed ownership, stronger protection for minority shareholders, versatile markets for control and ownership and greater transparency and openness to measuring intangible assets. In both systems, solid relationships between entrepreneurs looking for funds to establish new companies and outside investors are fundamental to the development of economic growth.

However, risk aversion and demands for high collateral are making the regular bank-based system inappropriate for financing innovation in new, high-risk enterprises. Hence, alternative sources of finance are required. The market-based system developed partly in response to the need for supporting intangible assets with high growth potential. In this system, most corporate financing is undertaken through capital markets. Venture capitalists provide, per definition, financial and non-financial sources to high-risk start-ups and expansion companies, and through active involvement, they manage to overcome market failures such as asymmetric information.

Various types of private and institutional venture capital investors play a key role in entrepreneurial companies depending on the stage of company development. But private forces and market competition alone cannot provide socially desirable quantities of risk capital. Deficiencies remain visible in the mechanisms for channelling funding to start-up or early stage expansion of companies. Today, bank-based systems have moved in the direction of the market-based in some respects; transparency has increased as has the protection for minority shareholders and competition for ownership and control. In both kinds of system, however, governments are looking for ways to strengthen the supply of financial and associated resources to new, potential high-growth, companies.

When moving to correct market failure in the provision of venture capital, governments may stimulate private investors to invest in fragile but important market segments that they would otherwise ignore due to expectations of poor economic returns. Public intervention may be particularly important in stages when entrepreneurial companies are subjected to the first or second equity gaps, as discussed in this chapter. Above all policy makers must strive for a state of play that is conducive to healthy interactions and learning processes. The extent to which government policies actually contribute to solving the market problems is dubious in many cases, however. As noted, venture capital allocated to early stage investment remains much smaller in the EU than in the US. As will be further highlighted in the ensuing chapters, venture capital activity varies greatly between countries, although national markets are, in part, confronted with similar challenges.

## CHAPTER 2: GLOBAL TRENDS AND CHALLENGES

### Introduction

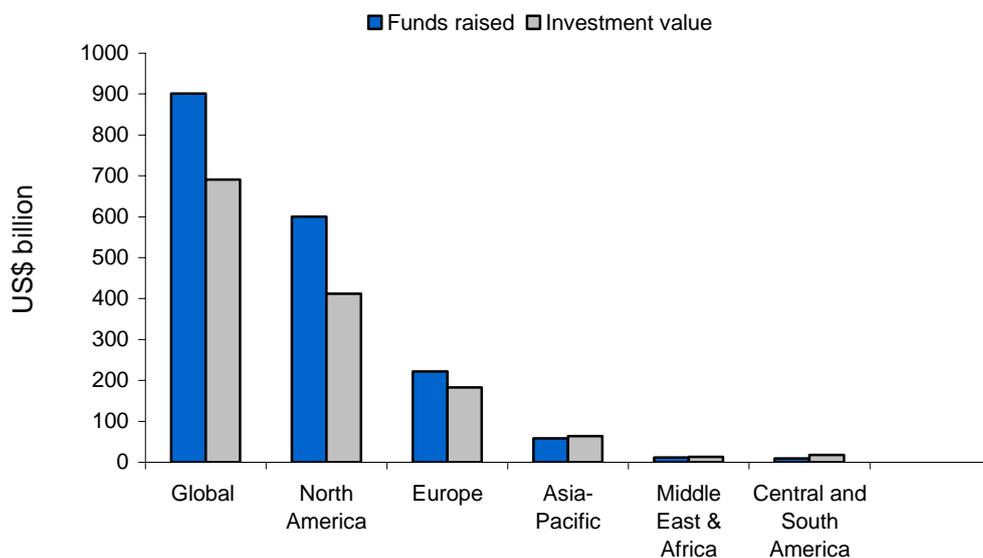
In the last decade, almost all developed economies have experienced expanding venture capital markets. Industries internationally have increasingly become more similar in investment patterns and levels. At the same time, there is no truly global venture capital market today. Despite significant convergences between national markets, major differences and segmented national structures still exist. This chapter takes stock of trends and developments from around the world, focusing on the US and Western European markets. The growing impact of public venture capital is examined in some detail.

### The Global Venture Capital Industry

Venture capital markets have evolved around the world since the mid-1980s, with a particularly rapid expansion phase being seen in the late 1990s. This development has been fuelled both by public and private efforts, with the latter gradually becoming dominant in terms of investment value. Starting with the sharp contraction in 2001, however, a heavy consolidation of funds took place in most industries, and especially in high-tech. Having obtained heavy funding, many dotcoms subsequently faltered. Some went bankrupt, whereas others were appropriated by larger ones at a fraction of their previous valuations. Meanwhile, the number of venture capital funds dropped worldwide. The US\$100 billion invested globally in 2001 represented less than half of the US\$250 billion invested the year before (PricewaterhouseCoopers, 2003).

Many of the activities and investments pursued during the peak of the high-tech boom subsequently stood out as costly mistakes. Nevertheless, the period saw the accumulation of valuable experience in venture capital activity. In the ensuing years, when conditions worsened for start-up activity and early-stage companies, experience kept accumulating and built additional knowledge capital for the future. As the world economy recovered and displayed a boom yet again, investors appeared to be more mature and cautious not to commit the same kind of mistakes another time around.

**Figure 9:** The Global Private Equity and Venture Capital Market, 1998-2003



*Sources:* PricewaterhouseCoopers (2003), PricewaterhouseCoopers (2004)

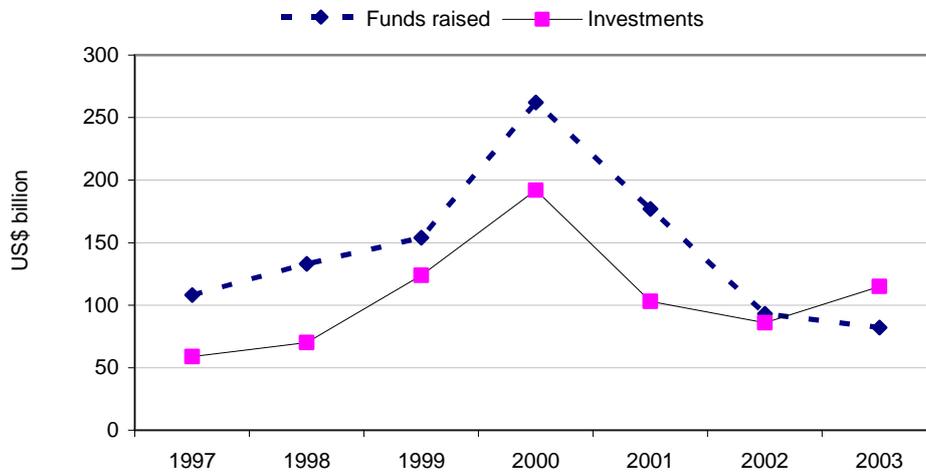
As shown in Figure 9, North America has by far the largest venture capital market. In 2001, it represented two-thirds of the world total and was five times larger than Western Europe. Over the period 1998-2004 as a whole, however, most venture capital markets witnessed a significant increase in investments. Besides North America and Europe, the Asian market saw gradual growth in funds raised and investments. This development has since accelerated further, driven by the Chinese economy, Japan's recovery, India's software industry and resurgent growth in the ASEAN countries such as Indonesia and Malaysia.

## Market Consolidation and Risk Aversion

A step ahead of other countries, the United States' venture industry began its high-growth period in 1998 (Meggison, 2004). Its development has certainly not been uncomplicated. Volatile world financial markets and the internal pressures and dynamics of venture capital activities have forced the global venture capital industry to consolidate and players to revise their strategies and competencies.

The new venture funds that were created during the dotcom mania were among the most fragile that have been created and hence were generally the first to collapse. After the overheated years of 1999 and 2000, market actors around the world found themselves forced to look in the mirror and not only figure out what happened and why, but also to come to grips with what lay ahead. After the joyride, 2001 was about little more than survival for many companies. While governments continued to encourage investment in fledgling companies, the venture capital industry also continued to grapple with a relatively hostile environment marked by continued consolidation in the former growth areas. Start-up activity and companies in early stage development have generally been confronted with demanding conditions.

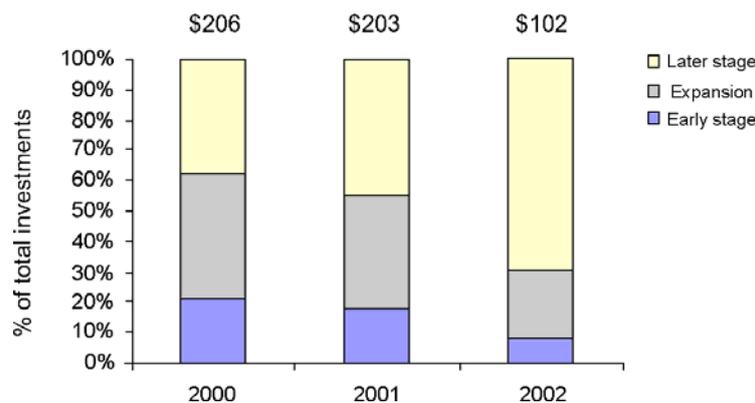
Figure 10: Sharp Declines in Global Investments, 1997-2003



Source: PricewaterhouseCoopers (2003), PricewaterhouseCoopers (2004)

Industry consolidation remains complicated by yet another seemingly perverse problem – too much money. At the aggregate level, there were several years of falling real interest rates in many countries, although the US Federal Reserve followed by others moved towards a gradual tightening from 2004 onward. As shown in Figure 10, the global venture capital market returned to its 1998 pre-bubble level in 2002, following its sharp decline in 2000-2001. Meanwhile, investors rediscovered the benefits of syndication, fund differentiation and diversification. The ex post crisis investment activity has differed from what prevailed before. Whereas the capital has been there, investment-ready projects have been scarce. The economic crisis and long-term prospects for possible comebacks have made investors more risk-averse and led them to shun high-risk companies and badly prepared business plans.

Figure 11: Increased Risk Aversion Globally, 2000-2002



Source: PricewaterhouseCoopers (2003)

The change in financial resources distributed to the early stages of business formation in 2000-2002 is illustrated in Figure 11. The radical shift towards later stage investments was of course closely associated with the overall contraction of venture capital activity during this period. However, later-stage investments increased throughout North America, Western Europe and the Asia Pacific. The average deal size grew substantially as investors turned to larger investments in

later stages of a company's development. In fact, later-stage investments and buyouts saw their share of total investments rise from 28 per cent in 2000 to 63 per cent in 2002. Approximately US\$64 billion was invested globally in buyouts in 2002, an increase of 76 per cent from 2001 (PricewaterhouseCoopers, 2003).

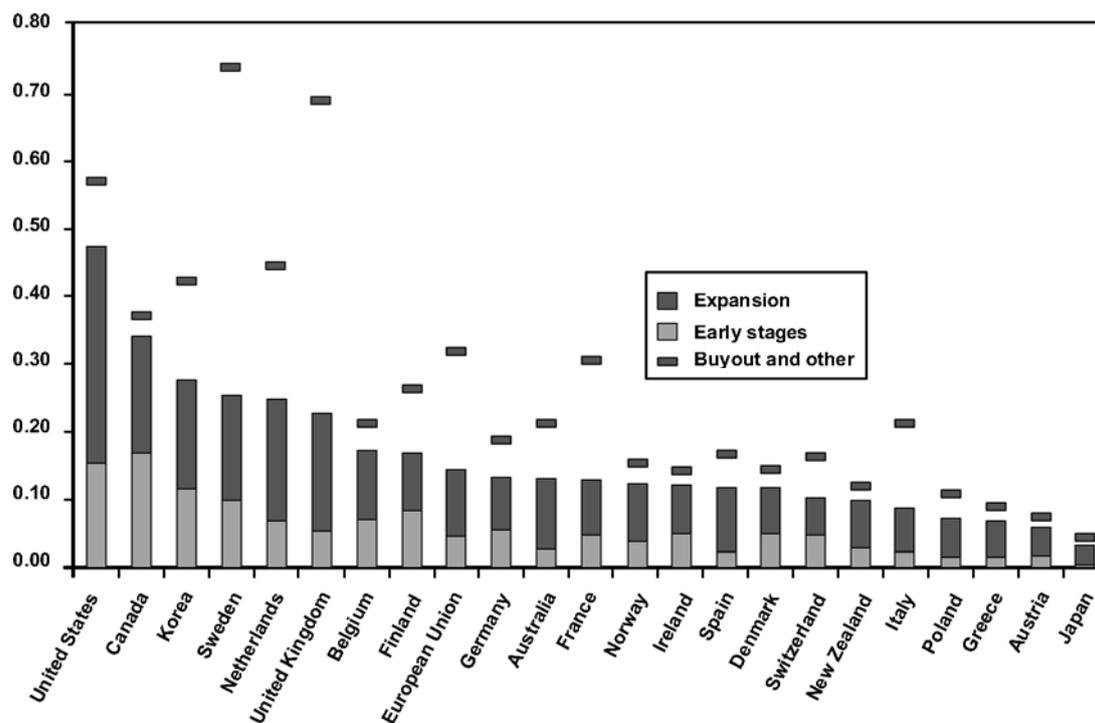
In a general sense, European venture capitalists, in particular, prefer later-stage financing, with seed and start-ups collecting a smaller percentage of investments. Buyout markets will undoubtedly continue to increase here. Large corporations are coming under pressure to restructure their businesses and the price perception gap is closing. At the same time, many investors are opting to make follow-up investments in their existing portfolio companies rather than initiating entirely new investments. For instance, whereas 54 per cent of Swedish venture capital companies made a new/initial investment in the first quarter of 2001, only 26 per cent did this in the same period in 2004 (NUTEK & SVCA, 2004). The majority of follow-up investments are made in expansion or later stages.

### ***Venture Capital Investments***

Despite the significant growth in overall investment flows, few countries have established a balance between early-stage, expansion (venture capital) and later-stage investments such as buyouts (private equity). When venture capital (and private equity) activity is compared internationally, as in Figure 12, it is interesting to note how individual countries stand out in specific respects. Of course, the US market is by far the largest in terms of the amount of capital invested, and is also relatively strong in early stage activity. While Sweden allocates more finance to the venture capital market as a percentage of GDP than the US, the bulk consists of buy-outs. The UK also displays high numbers.

Venture capital expanded rapidly in the US and Europe in the late 1990s but the market remains notably less developed in other parts of the world. In Japan, according to the available statistics, venture capital represented a market with less than 0.1 per cent of GDP invested in 1999-2002. Whereas it is hard to compare the figures in this case, since the Japanese economy functions so differently with regard to funding of early stage activity, Japan and also the other Asian economies have suffered from their lack of a proper financial industry in early stage development. The awareness and understanding of venture capital is now growing in the region and local capabilities are advancing in countries such as South Korea and Japan.

Figure 12: Venture Capital and Private Equity (% of GDP, 1999-2002)



Source: OECD (2003a)

### High-growth Markets

Generally, increased risk aversion and falling early-stage investments have continued to plague conditions for new start-ups, while low-risk companies at the other end of the risk curve benefit from this situation. However, even when the overall global picture was the bleakest during the economic downturn in 2001, the market situation was not equally difficult in all countries.

Table 3: High Growth Venture Capital Markets (1998-2002)

Country	Investment growth (% of investment 1998-2002)
India	82 %
Sweden	57 %
Denmark	50 %
Australia	39 %
South Korea	39 %
Japan	31 %
France	29 %
Italy	24 %
Spain	22 %
Norway	1 %
USA	<1 %

Source: PricewaterhouseCoopers (2003)

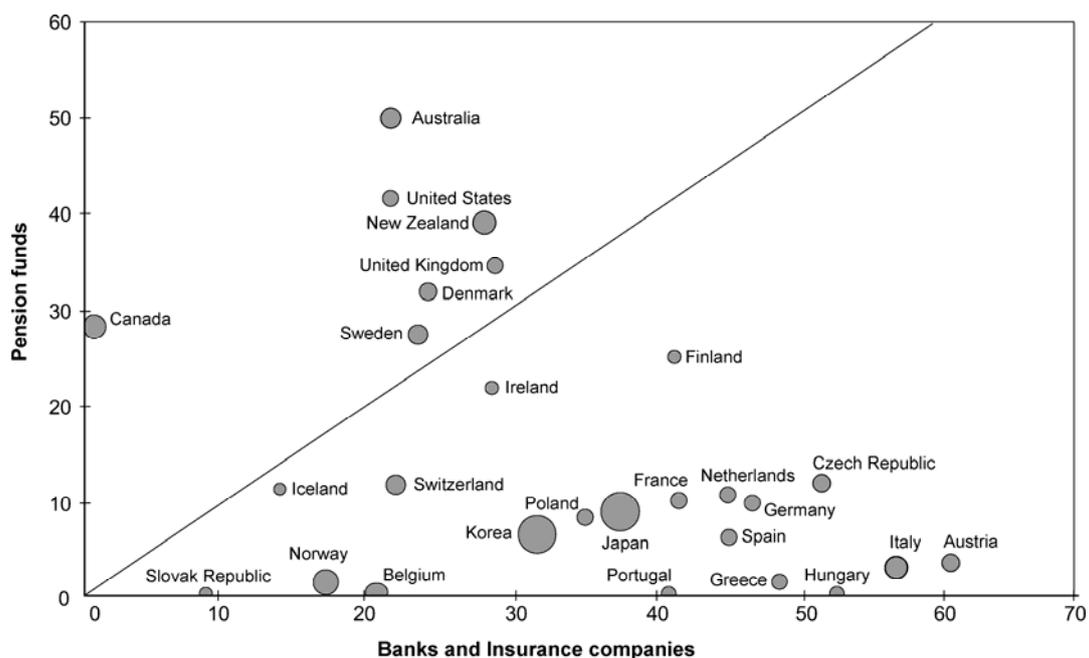
Whereas some markets experienced substantial declines in activity, investment grew vigorously in countries such as India, Australia, Sweden and Denmark between 1998 and 2002 (see Table 3). A

number of countries displayed faster growth in venture activity than the US in the same period. Generally, the more mature and active a venture capital market is (in terms of investments), the more vulnerable it becomes to economic changes and downturns.

### Sources of Back Funding

As seen in Figure 13, back funding is provided by various sources. Banks, institutional investors such as pension funds and insurance companies and private companies and investors are traditionally the main sources for venture capital and private equity investments. In the 1990s, financial markets gained importance throughout the OECD at the expense of bank credit. The decade saw a marked increase in the availability of portfolio investment – and also in companies’ reliance on venture markets for capital. Nevertheless, countries have continued to display important differences. While all have moved towards a mix of institutional and market-based financing, the trend towards dispersed ownership has been less marked in most European countries than in the US.

Figure 13: Pension Funds or Banks and Insurance Companies



Source: OECD (2003a) <sup>5</sup>

In the US, pension funds were opened to venture capital investments in high-risk projects in the first half of the 1980s. Since then venture capital investment has played a key role in funding innovative companies, including in early stages. By contrast, banks are still the dominant source of capital in most European countries. But pension funds are gaining increasing importance. It might be thought that pension funds would have little capacity to bridge the crucial liquidity gap confronting small high-risk companies in the early stages, since they generally provide funds to investments only in well-established companies. But this misses the point that venture capitalists can be appropriate intermediate agents. In addition, pension funds may provide a key exit route

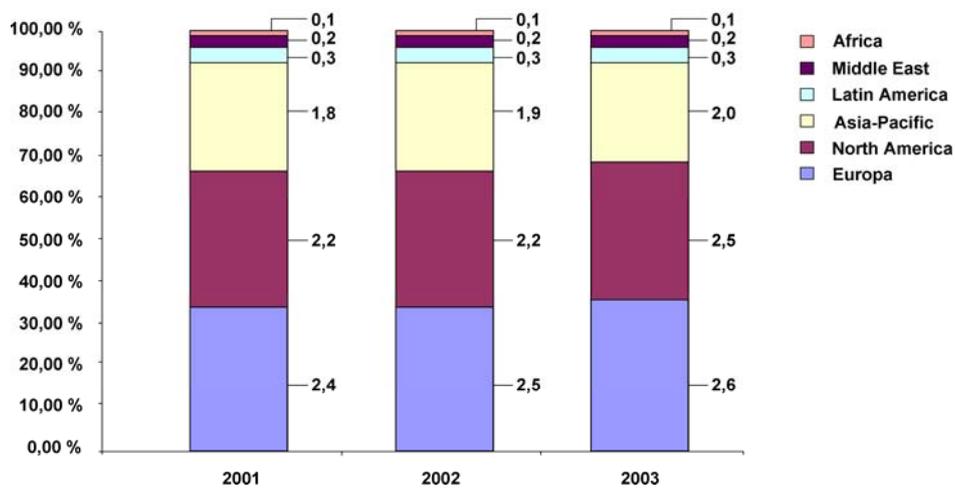
<sup>5</sup> The area of the bubbles in the figure corresponds to the share of corporations in total funds raised, which ranges from 1 % (Slovak Republic) to 47 % (Japan). 1998-2001 for Australia, Japan, Korea and New Zealand.

for venture-backed companies to the extent that they stand ready to buy shares in public offerings and/or trade sales. Some countries, including Denmark and Sweden, are drawing attention to the untapped potential among pension funds that can help young start-ups to grow.

### Business Angel Activity

As illustrated in Figure 14, as of 2003 there were 2.6 million and 2.5 million high net wealth individuals (HNWIs) in Europe and North America respectively (Capgemini and Merrill Lynch, 2004). Since then, the number has kept increasing at a high pace and aggregate wealth been spreading across geographical regions, in particular the Asia-Pacific and Latin America. Still, the majority of HNWIs are found in Europe and the US (Capgemini and Merrill Lynch, 2007).

Figure 14: High Net Wealth, Individuals (by region, 2000-2003)

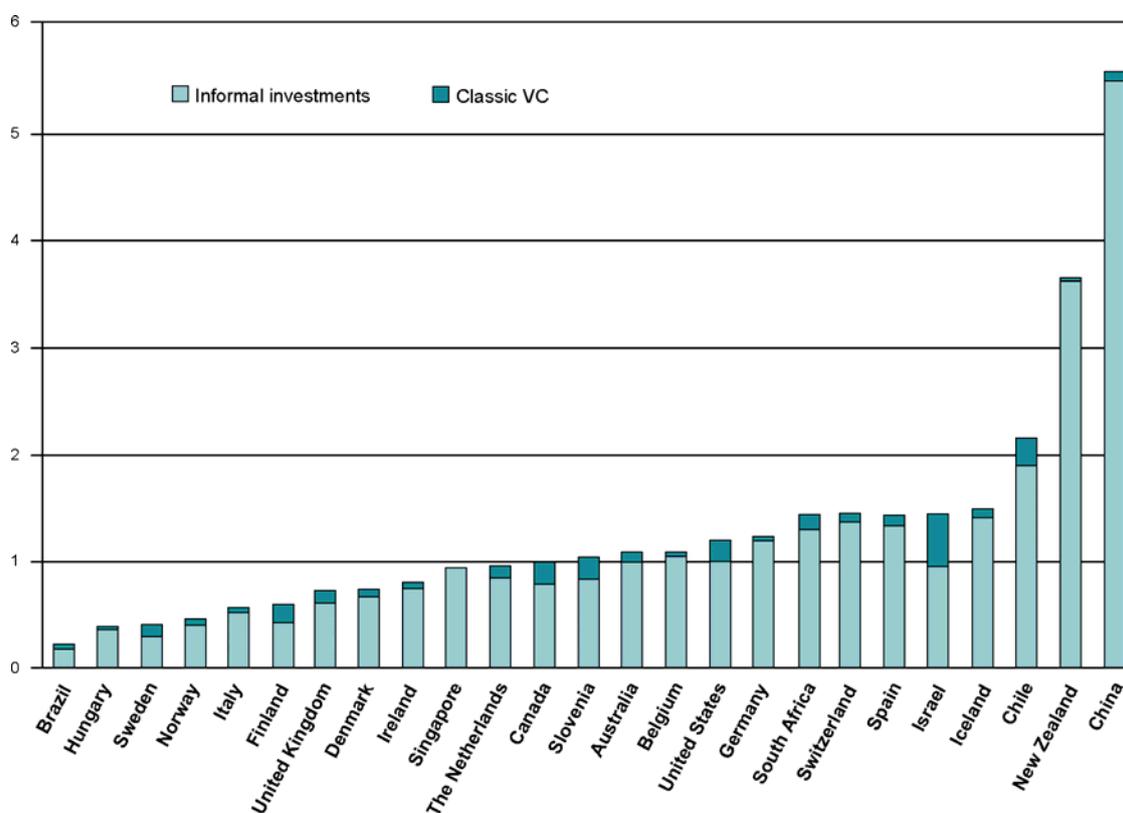


Source: Capgemini and Merrill Lynch (2004)

Of the wealthy individuals in Europe, some 125,000 have been estimated to represent potential business angels (EBAN, 2004). Although, Europe has the highest number of HNWIs, countries such as Finland and Sweden have only limited business angel activity, however, with later-stage investments dominating the markets. This can be seen from Figure 15 where the Nordic countries all are found in the lower range of informal and classic venture capital. This is troublesome because the financial needs of developed countries differ from developing and emerging economies. Emerging economies can often rely on more traditional sources of finance, whereas developed countries need early stage funding that supports risky new firms and projects. In other words, there is not one single optimal financial system independent of the level of economic development.

Generally, business angels invest comparably smaller amounts compared to the classic venture capitalists. For instance, a large majority (90 per cent) of the business angel funds invested in the US total less than US\$1 million and 82 per cent are invested in offerings of less than US\$500,000. Pools of business angel finance are estimated to be worth €3 billion in the UK, €1.5 billion in the Netherlands and €300 million in Finland (EBAN, 2003). Although business angels tend to invest smaller amounts compared with venture capitalists, their impact is nevertheless paramount.

**Figure 15:** Estimated Informal and Classic Venture Capital Investments (% of GDP, 2003)



Source: Global Entrepreneurship Monitor (2004)

As shown in Figure 15, informal investments (business angels and other private individual investors) are crucial ingredients and act as grassroots financing for entrepreneurial companies. Informal investors invest up to 10 times more capital (as a percentage of GDP) compared to the amount of capital invested by venture capitalists in almost all countries. According to GEM, less than 0.01 per cent of nascent entrepreneurs launch their businesses with classic venture capital or business angels (GEM, 2004). But in most developed countries, the archetypal venture capitalist receives a disproportionate amount of attention from policymakers, while informal investors are almost ignored.

In some countries, communities and platforms referred to as “business angel networks” (BANs) have been created. These angel organisations can help to mobilise substantial pools of informal venture capital that would otherwise remain fragmented or invisible in the market. By facilitating communication channels, and offering screening and training competencies that are tailored to specific local development opportunities, business angel networks can facilitate early-stage investments by stimulating demand for and supply of venture capital.

Business angel networks do not necessarily emerge naturally, however. Due to the informal and invisible character of the market, coupled with prevailing institutional barriers, a “top-down” approach is often required to kick-start the market. Public authorities tend to drive the initial creation of the network structures – especially in immature markets where angel networks are new, unknown types of organisations. Once the business angel network market has matured, new players enter the field demanding and creating initiatives based on their experience as outsiders (or even insiders) in the existing network structure. This “bottom-up” – and more market-based

– solution generates a strong sense of involvement and commitment by the single investor, which might not initially be fostered through the top-down model. Hence, when properly designed, public sector support plays a key role in the early stages of the transition from informal to more structured, formal business angel communities. It can also support a healthy flow of investments to innovative, high-risk SMEs (Gullander and Napier, 2003).

### Exit Markets

Access to future exit possibilities encourages investors and those providing back funding to decide whether to invest initially or not. As seen in Table 4, secondary stock markets have been established to improve exit possibilities for investors in most countries, along with the development of the national venture capital markets. The first secondary-tier stock market was NASDAQ, established in the US in 1971.

**Table 4:** Exit through Second-tier Stock Markets (1999-2002)

Country (stock market)	Year of creation	Number of initial public offers (IPOs)				Number of quoted companies				Market capitalisation (% GDP)			
		1999	2000	2001	2002	1999	2000	2001	2002	1999	2000	2001	2002
United States (NASDAQ)	1971	485	397	63	40 <sup>(1)</sup>	4 829	4 734	4 109	3 725 <sup>(1)</sup>	56.5	36.9	28.9	16.5
Sweden (O-List)	1988	..	..	24	9	150	228	240	235	28.3	24.0	23.3	18.5
Norway (SMB List)	1992	3	7	7	3	78	77	79	79	4.2	1.8	1.5	1.2
United Kingdom (AIM)	1995	67	203	109	78	347	524	629	704	1.5	1.6	1.2	1.0
Korea (KOSDAQ)	1996	160	250	181	176	453	604	721	843	22.0	5.6	9.5	5.0
France (Nouveau marché)	1996	32	52	9	2	111	158	164	154	1.1	1.7	1.0	0.5
Europe (EASDAQ)	1996	..	..	---	---	56	62	---	---	---	---	---	---
Germany (Neuer Markt)	1997	132	132	11	1	201	338	326	240	5.7	6.0	2.4	0.5
Netherlands (EURO.NM Amsterdam)	1997	1	2	---	---	13	15	---	---	0.3	0.2	---	---
Belgium (EURO.NM Belgium)	1997	6	3	---	---	13	16	---	---	0.2	0.2	---	---
Canada (Canadian Venture Exchange)	1999	2 425	403	330	122	2 358	2 598	2 688	2 504	1.7	10.2	12.7	9.7
Italy (Nuovo Mercato)	1999	6	32	5	0	6	40	45	45	0.6	2.2	1.2	0.6
Switzerland (SWX New Market)	1999	6	11	1	0	6	17	15	9	..	3.0	0.9	0.2
Finland (NM List)	1999	..	..	..	..	..	17	16	15	..	0.7	0.3	0.2
Japan (Mothers in Tokyo)	1999	2	27	7	8	2	29	..	..	0.2	0.1	..	..
Austria (Austrian Growth Market)	1999	..	..	---	---	2	2	---	---	0.01	0.01	---	---
Ireland (ITEQ)	2000	---	..	..	..	---	7	8	8	---	3.6	1.7	0.7
Denmark (Dansk AMP)	2000	3	0	1	3	3	3	4	7	0.1	0.1	0.1	0.1
Spain (Nuevo Mercado)	2000	---	..	..	..	---	12	..	14	---	3.4	..	..
Japan (Hercules in Osaka)	2000	---	..	43	..	---	..	32	..	..	..	0.3	..
NASDAQ Europe	2001	---	---	..	..	---	---	49	43	---	---	---	---

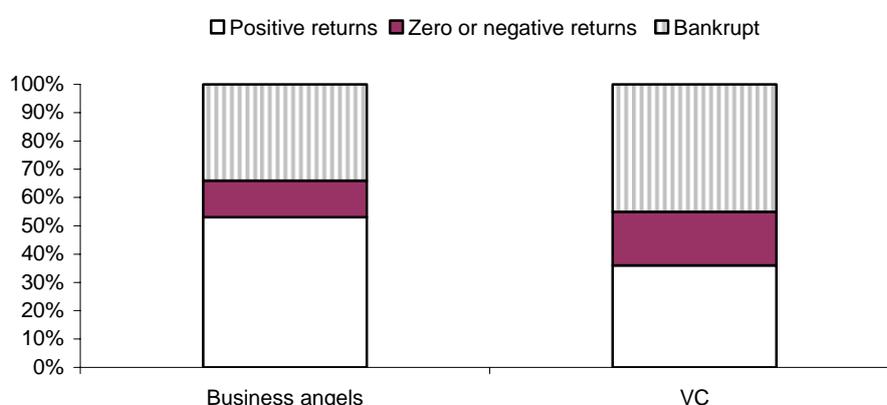
*Source:* Adapted from OECD (2003a)

Following the US, Table 2 shows that Sweden has the oldest secondary market. Compared to European markets, NASDAQ proved to be better equipped to manage the downturn in the market and continue raising substantial amounts of capital for priority projects. The serious correction in early 2001, ranging from global portfolio and FDI flows over high-tech evaluations to venture capital, was considerably steeper than that of traditional equities. In particular, IPOs virtually disappeared, falling from a high of 485 in 1999 to 40 in 2002. Meanwhile, across markets

there was a clear shift towards buyouts and trade sale strategies. In Sweden, the O-List only had 9 IPOs in 2002 out of 235 quoted companies.

Since secondary markets in Europe are less advanced and somewhat fragmented, the weakening of exit opportunities became particularly stark there. While some investors tried to hold on to their investments others began to recoil from riskier seed and start-up phase projects, contributing to the decline in fundraising for new companies. Today, many venture capitalists (business angels in particular) are operating under the assumption that the main exit route from technology start-ups will be through trade sales. Going public is now the exception rather than the rule.

**Figure 16:** Returns for Business Angels and VC



*Source:* The McKinsey Quarterly (2004)

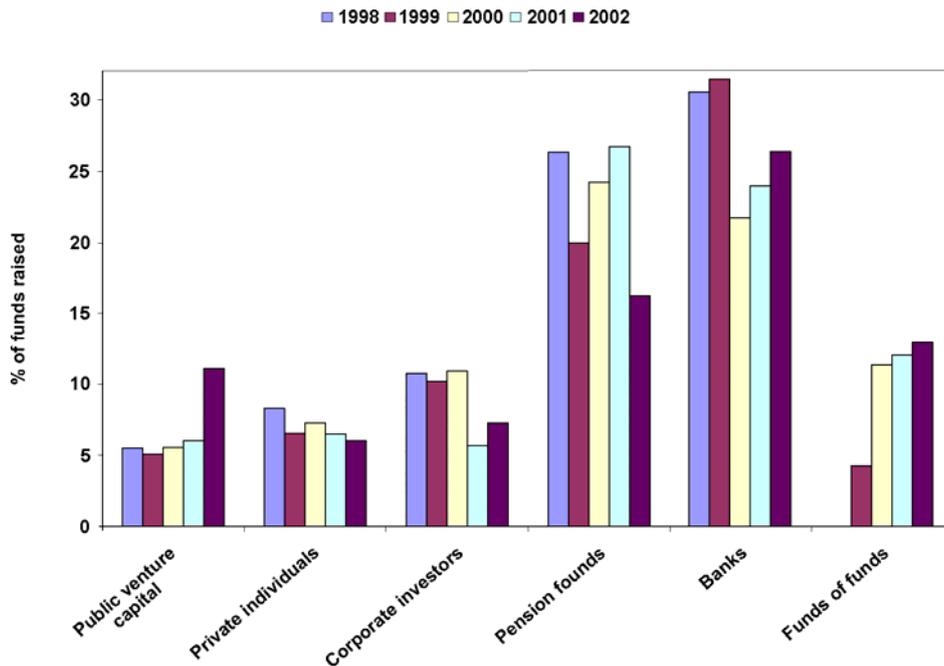
According to the McKinsey Quarterly and surveys carried out among investors in the UK among typical business angel or venture capital investments, it is hard to pick the winners and a large part of the portfolio generates zero or negative returns for investors (see Figure 16). Only about a third of the companies delivered positive returns when exiting, and this number is slightly higher for business angels.

### **Public Sources of Venture Capital**

Generally, venture capital has been perceived as a private sector activity in many countries, and governments have hitherto played only a limited role in the investment universe. Previously, it was widely thought that the public sector should abstain from getting actively involved in capital markets, and that the market forces of supply and demand should govern capital market movements. However, while recognising the importance of venture capital as fuel for entrepreneurship and economic growth, the bubble in private venture capital activity at the turn of the millennium coupled with the subsequent tilt towards late-stage investment and risk-aversion, has created concerns over the soundness of the mechanisms for provision of venture capital to young high-risk companies, and whether this area may hold some of the big causes of lacking growth and dynamism in many markets, including the EU. In recent years, increased risk aversion, lack of seed capital and malfunctioning market forces are changing the general view on the public sector's role in venture capital markets. Despite varying levels of public intervention in many countries, the public sector is examining and experimenting with ways to increase its venture activity.

In countries where a significant, but less extensive role for the state is acceptable, public funding is seen as a transitional stage and disappears once a private venture capital industry is established. In almost all OECD countries, venture capital investments started as a publicly-financed activity. Public funds were widely used to pool private venture capital sources and reduce the imbalance between investments across sectors, stages and regions.

**Figure 17:** Growing Impact of Public Venture Capital, 1998-2002



Source: EVCA (2003)

As shown in Figure 17, most other sources of European private venture capital experienced major declines in 1998-2002 but public venture capital increased its role. Countries like Sweden, Denmark, Israel and Brazil have fostered venture capital industries with direct public sector involvement. Apart from public venture capital sources, funds of funds have also become more active. This partly reflects the enhanced public efforts, as many funds of funds are public-supported and function as an indirect way of allocating private investments in certain directions.

According to Etzkowitz, governments in “high-state” operate either through fully governmental funds or in public-private partnerships activating private capital and seeding certain segments of the venture capital market. In Israel, the state engaged in the public venture capital fund Yozma and privatised it after ten years. Where there is a tradition of governments playing an active role in industrial development, public and private venture capital is organized on the same basis with investments made for an exchange of equity.

By contrast, in “low-state” societies, which tend to be characterised by scepticism of governmental intervention, public venture activity is often hidden behind other formats of government support, such as research, and may not be perceived as venture capital activity. Under these conditions, the ownership aspects of venture capital are precluded even as the seed capital funding role is carried out. Low-state societies such as the US consider federal government involvement in industrial development to be illegitimate. As a result, public venture capital is driven more “underground”. Several federal and state government programmes provide

funds for company formation without taking equity. Distribution of public funds to early stage and small companies in the US follows the format of a basic research grant, slightly modified to incorporate commercialization potential.

**Box 5: Examples of Public Venture Capital Programmes**

**Yozma Group, Israel**

The Yozma venture capital fund fuelled the Israeli venture market in 1993 through the formation of its first venture fund, Yozma I. Originating from a government programme aimed at prompting venture investments in Israel, Yozma I has transformed the domestic landscape for private equity investments. Over a three-year period, the group established ten drop-down funds, each capitalised with more than US\$20 million. Alongside this, Yozma started making direct investments in start-up companies, an initiative that marked the beginning of a professionally managed venture capital market in Israel. Today, Yozma's drop-down funds constitute the backbone of the Israeli venture capital market.

**Vækstfonden, Denmark**

In 1992, the Danish government launched Vækstfonden as a financial organisation that contributes to the promotion of Danish business and trade. The fund's mission is to strengthen development and renewal in the Danish economy by procuring financing for promising projects in small and medium-sized businesses.

**Small Business Administration (SBA), United States**

Since World War II, the federal government has supported the development of SMEs, and financed a significant fraction of the R&D performed in the US. The U.S. Small Business Administration (SBA) is an independent Agency of the Executive Branch of the Federal Government. It is charged with the responsibility of providing four primary areas of assistance to American Small Business within advocacy, management, procurement, and financial assistance. Financial assistance is delivered primarily through SBA's Investment programs, Business Loan Programs, Disaster Loan Programs, and Bonding for Contractors. In the aftermath of WWII, the federal state increased its funding of academic science.

**Small Business Investment Companies (SBICs), United States**

In 1958 the US Congress created the Small Business Investment Company (SBIC) programme. SBICs, licensed by the Small Business Administration, are privately owned and managed investment companies. They are participants in a vital partnership between government and the private sector economy. With their own capital and with funds borrowed at favourable rates through the federal government, SBICs provide venture capital to small independent businesses, both new and already established. All SBICs are profit-motivated businesses. A major incentive for SBICs to invest in small businesses is the chance to share in the success of the small business if it grows and prospers.

In spite of the various approaches towards public intervention in “high-state” and “low-state” countries, publicly designed venture capital programmes have been developed throughout the world (see also Box 5). In some countries, the public sector has played a dominant role for a long time and public funds have been wound up as private sources have become more active in the market (for example, in Israel in 1997). Privatisation of public funds gives state an opportunity to exit their venture capital activities over time. But while public programmes are in operation it is important that they do not converge on the same market segments as private investors.

## Summary

Flows of venture capital investments have grown throughout most developed economies since the early 1990s but a number of hurdles remain before a truly global venture industry emerges. As things stand, most venture capital activity is reserved for developed economies. Internationalisation seems a more accurate term to use when describing the ongoing process towards globalized markets.

After the turn of the millennium venture capital investments declined sharply around the world. Investors' exit opportunities almost disappeared. Initial public offerings previously appeared an attractive avenue but second-tier stock markets subsequently lost momentum. In money terms, markets have recovered and picked up steam following the downturn yet today's strategies are different compared to before the crisis. Risk aversion among investors is a source of concern, with more capital being allocated into later-stage businesses that are relatively safe bets for expansion. Consequently, the breeding ground for new companies and more radical opportunities for renewal and growth face challenges in accessing sufficient risk capital. Worsening conditions for those who do succeed in obtaining funding may at the same time be seen as a reflection of healthier venture capital markets, at least when viewed from a short-term perspective. However, a mutual strengthening between funding willing to support experimentation and risk, opportunity-based entrepreneurship, economic renewal and general long-term growth, is in the public interest.

Though some countries were severely hit by the economic downturn, some "high-growth markets" were more resilient and bounced back favourably. Whereas the level of venture capital investment in Europe remains significantly lower than in the US, some European markets have performed well since the turn of the millennium and appear set to be catching up. High growth markets in countries (such as Sweden and Denmark) have performed rather well. Despite being small markets domestically, these countries have shown high growth in early-stage financing compared to their peers.

In the following chapters, the unique developments in these markets are examined in some detail. As this chapter has shown, the combination of public and private venture capital is increasingly used as a tool to foster venture capital activity. Publicly designed venture capital programmes are growing in number and publicly distributed venture capital investments (either directly or indirectly through funds of funds) have expanded, along with private investment, in non-high-risk investments.



## CHAPTER 3: VENTURE CAPITAL IN SWEDEN

### Introduction

The report has already shown that while venture capital is fuelling economic growth through investments in small and medium-sized enterprises, in Sweden private sector investors often do not sufficiently support early-stage companies' efforts. Similarly to many other European countries. Sweden has faced, and continues to face, the challenge of raising the comparably low level of entrepreneurial performance. But what are the possibilities for doing so, taking into account Sweden's investment environment?

For decades, Sweden has topped a number of global league tables for the knowledge-based economy. In many respects, Sweden is in a good position to benefit from this position. At the same time, a number of factors and significant weaknesses prevent the country from realising its full potential. Among other things, innovation and the effective allocation of investment across the spectrum of companies - irrespective of size - matter to prospects for growth in both the short and long term. This chapter addresses Sweden's challenges for strengthening its market for early stage finance and venture capital activity and highlights policy priorities.

Together with Finland, the US and Japan, Sweden ranks as the most innovative of the 33 countries in the European Innovation Scoreboard. The country is well positioned in strategically important indicators such as scientific publications, patents and ICT penetration (World Economic Forum, 2004; European Commission, 2006a). Innovation is also induced by high levels of investments in research and development (R&D), an area in which Sweden is one of the world leaders. The European Union has established the goal that countries should invest 3 per cent of their GDP in research and development – a target that only a few states have achieved thus far. The European average is 2 per cent, compared 2.7 per cent in the US. Hovering around 4 per cent since a number of years, Sweden already well exceeds the 3 per cent goal.

However, these positive factors contrast with certain weaknesses in performance. Apart from disappointing aggregate growth over the last three decades as a whole, other frailties are the start-up rate of new companies, the level of entrepreneurial activity, and the degree to which new technologies are commercialised domestically (Andersson, 2005; GEM, 2005).

Several explanations have been put forward for Sweden's apparent under-performance in these areas. Competition is limited in some parts of the economy. The overriding macro-economic policy stance and exchange rate regime, favouring a gradual weakening of the national currency and dating back to the early 1970s, is part of the picture. Another explanation is the size of the public sector and notably its dominance in some increasingly important service areas such as health and education. There is also the continuing influence of public regulation, or other kinds of public interference such as subsidies or distorting ownership in the construction sector, the retail and wholesale industries, and others. A different kind of concern has to do with the dominant position of a handful of LSEs. These companies are mostly highly competitive and invest heavily in R&D. However, their swift expansion in foreign markets has been accompanied by a reduction in investment in new capacity in Sweden and a low tendency to repatriate profits to headquarters. Whereas the corporate tax rate is relatively favourable, high personal income taxes and the combination of high taxes on property and the exceptional wealth tax – the latter persisting in Sweden until recently - have clearly spurred capital flight at the expense of savings and investment at home. The overall tax pressure is about 51 per cent of GDP, which is very

high by international standards (OECD, 2006b). Capital gains taxes are 28 per cent for corporations and 30 per cent for individuals. The new government taking office in Sweden as of 2006 has started to revise and reduce taxes, but to what extent the heaviest distortions will be decisively reduced remains unclear at this point. Given that lasting changes are evoked there should be numerous effects, however, including an increase in entrepreneurial and business angel activities.

The fact that several of the largest Swedish-based LSEs have become foreign-controlled under the influence of increasing inward investment flows has not fundamentally changed the picture as regards R&D activity. But other relevant effects can be noted, including an acceleration of favourable knowledge spillovers in various directions. On the problematic side there may be a loss of strategic capabilities and opportunities in some now foreign-controlled ventures within Sweden. Whereas a healthy combination of inward and outward investment flows is not the issue, negative effects may have resulted from policies systematically discriminating against domestic corporate ownership (Braunerhjelm, 2003; Andersson and Friberg, 2005; Henrekson and Jacobsson, 2006).

Wealth accumulation has been counteracted primarily by social-democratic governments, which has exerted negative impact on the stock of venture capital and business angels. At the same time, as the tax law has been designed to prevent individuals from accumulating wealth, corporate law has enabled some individuals to maintain control of firms by means of possessing relatively modest capital. This has had a profound effect, not only on the governance structure, but also on social norms and entrepreneurial behaviour. In contrast to the US, where entrepreneurs often sell firms at an early stage, Swedish entrepreneurs tend to retain control over the entire lifecycle of firms. There are ample observations that the American system is more likely to stimulate start-ups in part due to a greater acceptance of entrepreneurial success as well as tolerance of failure (Henrekson and Jakobsson, 2003).

These factors apart, special issues prevail in the mechanisms surrounding private equity and venture capital. This is not because of limited volumes but because of the noted weaknesses in the way these forms of investment support early stages and in the commercialisation of high technology. In the following paragraphs we discuss the development of Sweden's venture capital market and the role of public involvement and policymaking with the aim of highlighting to what extent Swedish venture capital is preparing the terrain for new entrepreneurial companies.

## The Swedish Investment Environment

The market for private equity investments is well developed in Sweden since many years.

**Table 5:** Country Ranking (investments in US\$ billion, 2003)

Country ranking	Investment value	Funds raised
United States	59.20	43.94
United Kingdom	15.86	17.56
Japan	7.19	1.36
France	4.98	2.39
Italy	3.56	2.27
Australia	2.93	0.20
Germany	2.91	1.40
Korea	2.84	0.27
China	1.67	0.34
Spain	1.57	1.03
Netherlands	1.28	2.4
<b>Sweden</b>	<b>1.19</b>	<b>2.52</b>
Canada	1.00	1.35
India	0.86	0.26
South Africa	0.82	1.11
Israel	0.77	-
Indonesia	0.65	-
Singapore	0.54	0.10
Finland	0.52	0.18
Denmark	0.48	0.25

*Source:* EVCA (2004)

As shown in Table 5, Sweden is ranked in 11th place when comparing investment values and funds raised with other countries around the world. This high position reflects the maturity of Sweden's investment industry and investors' success in moving portfolio companies from early to later stages of development. Swedish investors are risk-averse however, and prefer cautious investments. The heavy emphasis on the buyout market in Sweden clearly is not without problems. For instance, when assessing the investment environment in Sweden, common perceptions are along the lines "many venture capitalists and private equity companies are focusing on later-stage investments. This concentration, together with less government activity in the market, has raised concern regarding the future supply of seed capital to fund new entrepreneurs" (EVCA, 2003).

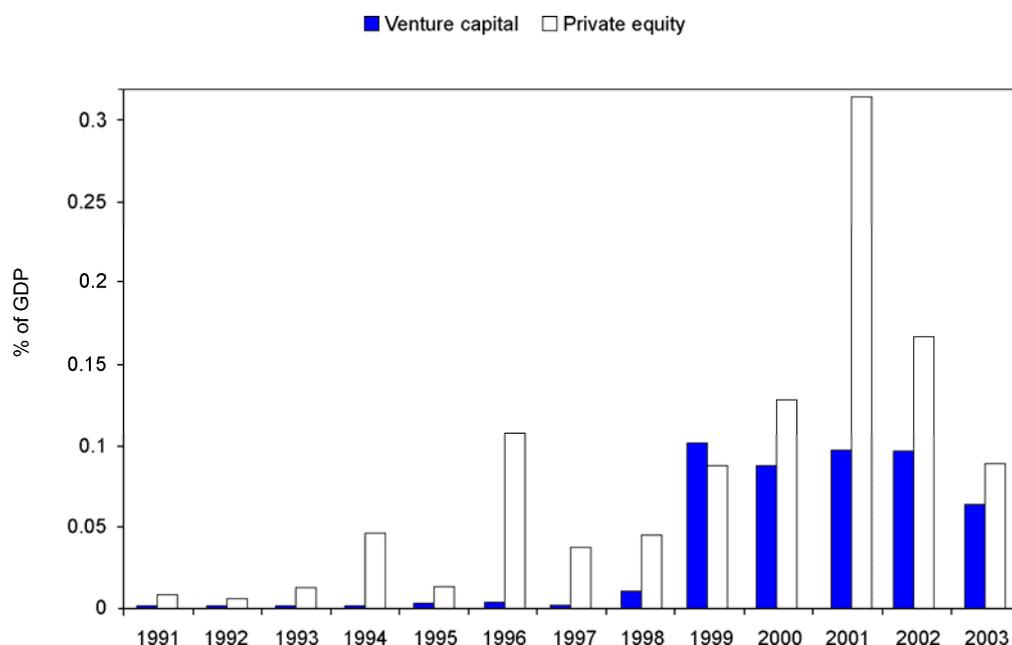
Some of the answers to the current challenges in the Swedish venture capital market are found in the historical context, the type of public involvement that has prevailed and which players are primarily active in the market.

### Background

Recovering from economic crisis, the Swedish venture capital market expanded during the 1990s as the government cut taxes and began liberalising important state-dominated industries, notably

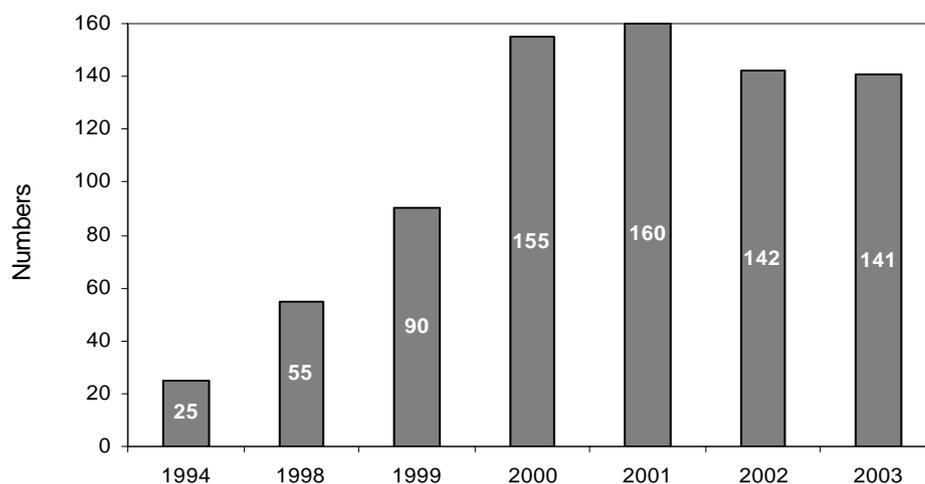
telecommunications and banking. This led to lower telephone and communications costs and eased tax burdens on entrepreneurs.

**Figure 18:** Venture Capital Industry in Sweden (% of GDP, 1991-2003)



Source: Eurostat (2004)

**Figure 19:** Number of Private Equity and Venture Capital Companies in Sweden (1994-2003)



Sources: NUTEK & SVCA (2003)

In this period, Sweden suddenly became a breeding ground for young high technology companies and an international testing ground for telecom products. Companies were drawn by its unique position of having some of the highest rates of Internet and mobile phone penetration. A new generation of entrepreneurs emerged. Business start-ups, which had averaged 29,000 annually between 1984 and 1989, increased 25 per cent to 36,000 new start-ups a year between 1994 and 1999. The growth in entrepreneurial companies was also reflected in improved exit possibilities.

Three new secondary markets opened to accommodate divestment of the many lucrative ventures, while the number of venture capital funds grew strongly due to public and private initiatives. A large proportion of the new companies clustered in the Stockholm region, which became one of the leading locations for ICT business worldwide.

Sweden's venture capital market developed rapidly and this was also seen in the increasing number of venture capital companies (see also Figure 18 and 19). Gradually, many small venture capital funds were replaced with larger funds such as Euroventures, Nordica, Four Seasons Venture Capital and Procordia Nova. In 1992, the government established two new venture funds – Atle and Bure – with total funds of SEK 6.5 billion. Pension funds opened up to these investments in 1996 with the creation of the Sixth AP Fund, otherwise called AP Fond 6 (or Sixth National Swedish Pension Fund). Lofty valuations and high returns on the stock market, coupled with the government's sizable disbursement of funds to private equity, spurred the market to reach unprecedented levels. Between 1994 and 2000, venture capital investment grew at a staggering annual rate of 188 per cent in Sweden compared to only 37 per cent in the US and 31 per cent in the UK. This period is also known as the Swedish boom.

Gradually, however, the market increasingly became more favourable to LSEs rather than to SMEs. Several factors explain this development. On the one hand, there is no doubt that the launch of Atle and Bure in the early 1990s triggered the venture capital market development and helped its expansion. On the other hand, these public funds were structured so as to encourage the investment of large funding blocs and therefore arguably encouraged investments in capital-intensive later-stage projects. Hence, it can be argued that the public funds to some extent did not fulfil their original purpose of fuelling early-stage, entrepreneurial companies.

In addition to public funding, other factors contributed to the unprecedented expansion of the venture capital market. The establishment of limited partnerships resulted in improved possibilities for attracting competent investment managers to the venture capital industry, also from abroad. Furthermore, the opening of three alternative markets for small companies resulted in better exit opportunities. The favourable economic climate and improved exit possibilities encouraged institutional investors to allocate more capital to the private equity market. While institutional investors thus faced improved conditions, the setting for private investors, business angels and entrepreneurs remained problematic.

The income and wealth taxes together with other regulatory factors, such as the so-called 3:12 rules, accounted for unfavourable risk-reward ratios for individuals considering embarking on the establishment of risky new businesses. The contrast to betting on relatively safe jobs in big business or in the public sector, backed by strong social protection, made the contrast even more deterring. All this tilted the market towards emphasising the development of large institutional funds primarily active in the buyout market (Braunerhjelm, 1999 and 2000; Karaömerlioglu and Jacobs, 2000).

**Box 6:** The Rise of the Swedish Venture Capital Market

Compared to other countries, Sweden was an early mover in venture capital. Although investments were made in Swedish companies earlier, 1973 is considered the year in which the venture capital industry started in a more organised form. Venture capital was introduced in an unsupportive environment for entrepreneurial activity, prompting the government to implement regional initiatives aimed at compensating for the lack of social acceptance and supportive conditions for entrepreneurs. Local development corporations were created in areas of high unemployment as part of government efforts to stem the exodus of entrepreneurs and combat increasing underperformance. Continued focus on R&D in big businesses and in universities resulted in only limited attention being allocated to innovation (Andersson, et al, 2002).

Before the rise of venture capital, the most common way of financing new companies was through loans based on the traditional banking system. However, the dearth of finance for new enterprises sparked a surge of interest in venture capital and private equity. The first institutional private equity and venture capitalist, Företagskapital, was established as a joint venture between the state and merchant banks in Sweden. Soon more funds followed. Between 1982 and 1984 the venture capital industry developed – almost aggressively. During this period 20 venture capital and private equity companies were founded, along with 30 regional and public investment companies. Most of the new venture capital companies were small, with a capital base of SEK 10-30 million and back funding mainly from insurance companies, large corporate enterprises, pension funds and real estate companies. This investment was partly fuelled by exuberance in the primary stock market and the deregulation of the credit market, which increased the supply of investment funding. At that time, Sweden's first secondary market, the OTC list, was established, creating a viable exit route for many investments. The 1980s also saw the formation of the Swedish Venture Capital Association (SVCA) in 1985.

From the mid-1980s, a period of heavy decline followed in the wake of an intensified internationalisation of production by large Swedish companies and the economic downturn at home. Most private venture capital companies left the market and only a few of the government funds stayed. Owners of small funds were unwilling to supply additional capital when capital was exhausted. Reluctance to invest evidently reflected the difference between the expected and actual time it took to generate profits. In prior periods, investors saw venture activity as a means of investing profitably in a relatively short time frame (Christensen, 2000).

The venture capital industry in Sweden reached remarkable heights in the 1990s, only for the global ICT bubble to burst in 2000. Although most markets experienced declines in investment activity, Sweden went through a particularly dramatic upheaval and saw a 50 per cent decline in the amount of funding raised in the domestic market. The number of active venture capitalists first stagnated and then decreased as consolidation gathered pace. Not surprisingly, this development showed that the Swedish VC industry was not as stable as it had appeared.

Syndication is currently growing as investors seek to spread their risks and some companies dismantle their portfolios. Meanwhile, others have merged or entered close partnerships with others. The venture capital companies that remain are primarily those with a strong operational background and which act as active investors and assist companies in developing the practical elements of their business rather than being solely financial investors. Meanwhile, the corporate ventures market has declined markedly and many corporations have divested their shares. The trend is towards further consolidation, with foreign private equity firms acquiring Swedish companies. Foreign ownership in Swedish listed firms has increased from about 7 per cent in 1989 to about 40 per cent in recent years (Henrekson and Jakobsson, 2006).

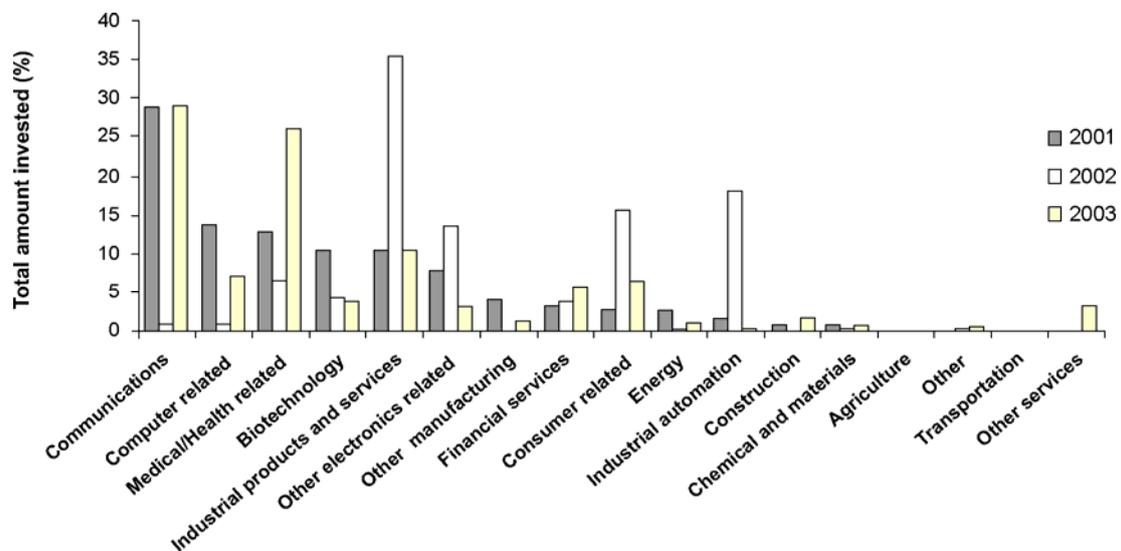
Interest in supporting early-stage companies started in the late 1990s and was encouraged by industrial changes and the rise of the high-tech economy in Sweden. Even at the peak, however, early-stage companies remained relatively less capable of attracting more capital compared to

later-stage companies. The early-stage markets faced falling investment from 1999, while the allocation of funds to buyouts grew 10 per cent between 1999 and 2000. A further marked increase in later-stages took place in 2001 as the market reacted to the economic downturn.

### Stages and Industries

The changing times compelled many large corporations to rethink the way they managed their innovation processes internally, which paved the way for new industries. Rather than relying on central R&D labs for new product ideas, new R&D units were increasingly created in connection with the establishment of joint ventures, acquisitions and university-based collaborations. Large Swedish corporations such as Ericsson got involved in small high-tech companies such as C-Technologies. In the ensuing years the Swedish market changed markedly. The venture industry, previously concentrated in traditional manufacturing sectors – which had attracted the majority of buyout investments – began to diversify.

Figure 20: Investments by Industry in Sweden (2001-2003)



Source: EVCA (2004)

As shown in Figure 20, high-tech investment fell by roughly one third in 2002 compared to the previous year. In 2003, however, high-tech and ICT-oriented companies again dominated the Swedish venture capital industry, as 57 per cent of the total number of portfolio companies (including technical R&D) are found within this sector. Medical and health-related companies were the second-largest recipients of capital after the communications sector in 2003. The increasing number of investments in technology-based industries – although smaller in value – reflects a growing interest among Swedish venture capitalists in engaging in riskier activities. The number of investments in biotechnology and medical technology has, for instance, been rising in recent years.

### Geographical location

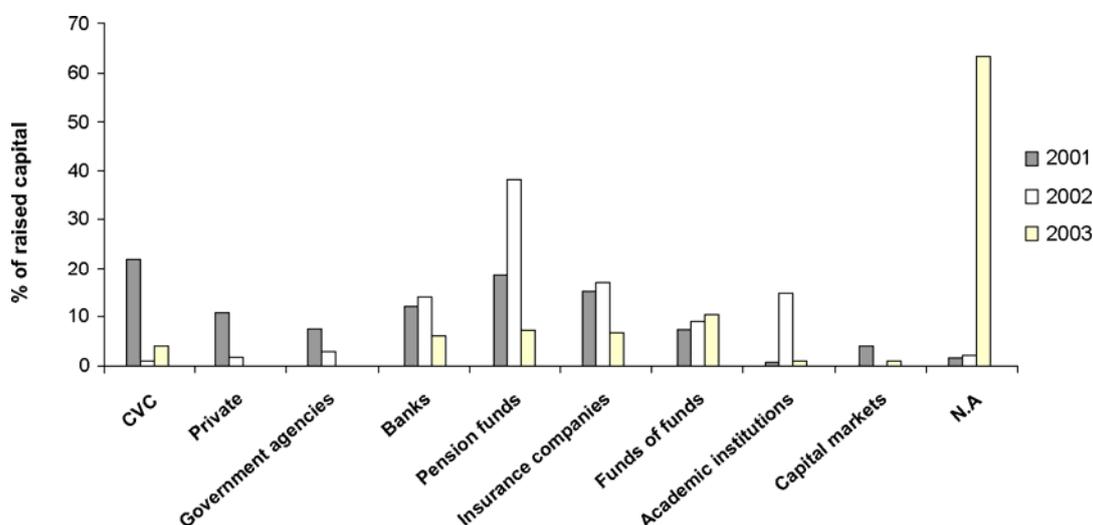
As in most countries, venture capital is far from evenly distributed in Sweden. Most activity is concentrated around the capital. Stockholm attracts the majority of the companies that obtain funding from domestic venture capitalists, a phenomenon which has been unchanged by the ICT

clustering activity of the last decade. Ericsson, in particular, has been a driving force behind the development of information technology-related companies, also acting as a corporate investor. The information cluster, with around 350 high-tech companies and a number of research institutions in Stockholm-Kista, has emerged as one of the leading global ICT hubs. Other regions are gradually attracting increasing venture funds as well, though from a much lower level. Thus, for example, only 17 per cent of the total number of investments, corresponding to about round 10 per cent of total Swedish venture capital was allocated to companies in Scania as of 2005 (in the Malmö-Lund area). Although improvements are under way, there is a long way to go. The consequences of this situation within the Öresund region are addressed in Chapter 5.

### Sources of Back Funding

Sweden has a strong tradition of institutional investors such as pension funds. In the first boom period in 1982-84, a number of funds were created with a capital base of SEK 10-30 million. Back funding for these funds came mainly from pension funds, insurance companies and large companies. The presence of pension funds in Sweden partly stems from the government's granting in the early 1980s of permission to institutional investors to invest in start-ups. Until the mid-1990s, public pension funds were not allowed to invest more than 70 per cent of their capital in equity and only 5 per cent in private equity (OECD, 2003c). Today the main organisational form is limited partnerships. The average company is capitalised by the owner's own funds or by a mix of private individuals and institutional investors. As a result, financial institutions and corporate investors are the dominant sources of back funding for the Swedish industry today.

Figure 21: Sources of Back Funding in Sweden (2001-2003)



Source: EVCA (2004)

As mentioned earlier, the publicly-owned Sixth AP Fund is one of the largest funds on the Swedish venture capital market. But the government's direct role as back funder was drastically reduced in 1995 when it made a significant exit from the market by selling its holdings in Atle and Bure. The two funds became quoted and started to work as later-stage investors. Since the market revitalisation of the mid 1990s, the government's direct involvement has changed and became more indirect, though still active. It changed focus to concentrate on creating incentives for private investors to provide back funding for venture capital activity. These initiatives have been broadly successful in establishing a livelier stock market and a new culture among private

individuals reflecting a propensity to invest savings in shares rather than in bonds. The role of informal private investors still varies. Estimates of the number of active business angels range from approximately 3,000 (SwedBAN) to 5,000 (Lindström and Olofsson, 2002). The available evidence suggests that business angels in Sweden are weak in terms of investments and compared to other countries (Davidson and Henrekson, 2001; Rosenberg, 2003). In 2000, private individuals (including business angels) contributed 6.8 per cent of total Swedish venture capital.

### Exit Possibilities

In 1999, 20 of the 30 venture-backed companies that had made IPOs on the O-list were ICT enterprises. By 2001, only two companies made successful IPOs. The majority of venture capital companies in Sweden view divestment by public offering as the most desirable exit route (Isaksson 1998). Nevertheless, trade sales remain the commonest route, accounting for 24 per cent of all exits in 2003 as shown in Table 6.

**Table 6:** Markets for Exits in Sweden (2000-2003)

Divestments (numbers)	2000	2001	2002	2003
Trade sale	72	24	21	24
Initial Public Offering (IPO)	55	22	7	10
Write-off	40	67	22	22
Repayment of principal loan	10	0	2	11
Sale to another venture capitalist	3	3	7	2
Sale to financial institution	3	1	5	1
Sale to management (buy-back)	n/a.	n/a	5	4
Other	17	8	6	26
<b>Total</b>	<b>200</b>	<b>125</b>	<b>75</b>	<b>100</b>

*Source:* EVCA (2001) EVCA (2004)

The growth of secondary markets as viable exit routes is reflected in the development of the venture capital industry. The 1990s witnessed the introduction of several secondary markets, including Innovationsmarknaden (IM), the Stockholm Bourse Information (SBI), Aktie Torget and Nya Marknaden. Innovationsmarknaden and Stockholm Bourse Information merged in 1998 and were renamed Nordic Growth Market (NGM) in 2001. The O-list, established in 1988, is still the largest with over 200 listed companies and capitalisation totalling 28.4 per cent of GDP in 1999. This figure dropped to 18.5 per cent in 2002 (FORA, 2004). The second-largest market is the Nordic Growth Market, with 52 listed companies, followed by Aktie Torget and Nya Marknaden, with 24 and 18 companies respectively. However, the economic downturn had a severe effect on these markets. Divestments by public offering hit an all time low in 2002, with the O-List reporting 9 IPOs by year-end vs. 24 in 2001 (OECD, 2003c). These markets have continued to demonstrate weak activity because they fail to present investors with lucrative and viable exit routes. This situation keeps repressing the effectiveness of venture funding in the Swedish economy as a whole.

## Policy Priorities in Sweden

A number of studies have found policies in Sweden to be biased towards large corporations and a hindrance to potential entrepreneurship.<sup>6</sup> For several decades, Swedish industrial and business policies were directed towards the support of large well-established corporations. Sweden has since the early 1930s created a governance system that has supported large firms controlled by a relatively modest amount of capital. The system has not favoured the formation of new firms which has resulted in an industry structure dominated by a disproportionately large share of big and old corporations. Among the 50 largest firms in 2000, 31 were established before 1914 and none after 1970 (Högfeldt, 2004).

In recent years, however, the structure of government policymaking and public institutions evolved and reforms were undertaken in support of a stronger framework for start-up and growth of new enterprises, including access to financing. The public debate over whether large Swedish companies would continue to be an engine for economic growth reflects international trends. Throughout the world, big business has entered a stage of heavy focus on core activities, accompanied by intensive outsourcing as well as offshoring. This pattern has been further enforced with the massive upgrading of investment activities in newly-industrialised countries, such as China. Although big firms remain very important for future economic growth in Sweden, especially as regards exports and R&D, the country's economy has become more dependent than in the past on the ability of new companies and existing SMEs to improve their performance.

Various public-sector efforts have been targeted at providing support to the Swedish venture capital industry for several decades (see also Box 7). In the late 1970s, a public seed finance scheme was launched, forming the Swedish Industrial Development Fund (ALMI). This assisted the establishment of more institutions to help bring together independent inventors and resources for market exploitation. In 1991, the Swedish Business Development Agency (NUTEK) was founded to provide supplementary finance to technology-based SMEs. Stiftelsen Innovationscentrum (SIC), founded in 1994, is a public foundation that fosters innovation through grants, loans and advice. In recent years, a number of new initiatives have been taken. The establishment of Teknikbron in 2005 represents a noteworthy effort to gather more critical mass and expertise in local programmes. In addition, universities and associated science parks and incubators have started to devote more attention to these issues and have also received some enhanced public support for this purpose. See Box 7.

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<sup>6</sup> See Braunerhjelm (1999), Henrekson and Rosenberg (2001), Andersson et al. (2006) or Henrekson and Jacobsson (2006).

### Box 7: Examples of Public Initiatives Supporting Venture Capital Activity

#### **Swedish Board for Technical Development**

In 1968, the first Ministry of Industry was created along with the Swedish Board for Technical Development. A seed financing programme was launched in the same year under the forerunner of the Swedish Business Development Agency (NUTEK) and the Swedish Industrial Development Fund (ALMI).

#### **ALMI**

The Swedish Industrial Development Fund (ALMI) was created in 1979 to encourage profitable growth and innovation in the SME sector.

#### **Technopoles**

Incubators known as Technopoles were established in 1988 by STU (later part of NUTEK). Through the Technopoles, potential entrepreneurs can obtain financing and support. Some Technopoles provide seed financing to companies directly or through subsidiaries. One example is Teknoseed, a provider of seed financing owned by Teknopol AB in Lund.

#### **NUTEK**

In 1991, the Swedish Business Development Agency (NUTEK) was formed from the merger of three central agencies for development and the central agency for energy.

#### **Industrifonden**

The Swedish Industrial Fund (Industrifonden) was mandated in 1996 to invest in enterprises as an active co-financier and to provide Swedish growth companies with development capital, expertise and networks.

#### **Connect Sweden**

Under the guidance of the Royal Swedish Academy of Engineering Sciences (IVA), Connect Sweden was established in 1998 to provide support services to entrepreneurs and start-ups and improve contact with venture capital.

#### **VINNOVA**

A move to a more coordinated national innovation policy approach resulted in a reorganisation of the institutional structure for public funding of R&D and support to business development. In 2001, the Swedish Governmental Agency for Innovation Systems (VINNOVA) was created to fund research and innovation. In the same period, NUTEK and ALMI were consolidated into a “new NUTEK” focused on enterprise support and development.

#### **Teknikbron**

VINNOVA, in conjunction with other actors, has taken a number of initiatives to find new ways of strengthening the provision of public seed funding and linking it better to private funding, research activities and expert networks. The implementation of Teknikbron in 2005 put in place a new structure to foster effective links and synergies at regional level between local funds (teknikbrostiftelser), ALMI offices and science parks and incubators operating in the vicinity of major universities.

#### **Universities**

Universities dominate publicly funded R&D effort in Sweden. Public research institutes have a relatively weak presence. The government exercises strong influence over universities through legislation, public evaluation schemes and the provision of public funding. It has gradually pushed for greater competition in funding, prioritisation and specialisation. But limited autonomy on the part of most universities limits their ability to respond. A partial exception is the presence of three non-government institutions – the Stockholm School of Economics and the university foundations of Chalmers and Jönköping University – which enjoy greater room for manoeuvre. The government has granted some universities and university colleges the right to establish holding companies for the purpose of promoting collaboration between universities and the business sector, but these freedoms have again been limited in recent years. The government is currently considering whether to adjust the current regime for distributing intellectual property rights between individual researchers and universities so as to provide more congruent incentives on both sides to support commercialisation of new research opportunities.

#### **Business angel networks**

Until 2006, NUTEK collaborated with the Swedish Industrial Fund to offer seed funding in early stages. Investments were restricted to companies with financial needs of between SEK 250,000 and SEK 2 million. NUTEK has initiated several regional business angel networks.

Sweden keeps facing major challenges with regard to entrepreneurial activity. According to the Global Entrepreneurship Monitor, Swedish entrepreneurial activity dropped from 6.67 per cent in 2000 to an average of 4.1 per cent in 2002-2003, a trend which confirms concerns about SME activity in the country (GEM, 2003).<sup>7</sup> Public support schemes responding to this situation have mostly focused on encouraging unemployed individuals to start new companies, a strategy that seldom proves successful. The real source of the problem has to do with the aforementioned risk-reward ratio confronting individuals who must weigh the (suppressed) benefits of uncertain success against the (palpable) pains of failure in an entrepreneurial undertaking which meets with little societal respect and understanding. The result of that equation must be compared with the anticipated outcomes in public sector jobs or employment in big business coupled with the protection of associated unemployment and social security packages.

Public capital injections to new emerging companies remain low in Sweden, mirroring the private market inclination to invest in established business and the underdeveloped contributions of informal seed funding. Whatever the government's intention, the dominant public funds allocate the bulk of their fund to low-risk, mature companies. Moreover, Sweden's meagre record in terms of new technology-based companies, and levels of entrepreneurship more generally, casts doubt on the viability of the public support strategies applied over the years. Generally, fund structures in Sweden (and in particular the public fund structure) should be subjected to more critical discussion. Some schemes, such as the so-called "Teknikbron", do attempt to expand or adjust public investment in the direction of early stages. These efforts try to combine better pooling of different kinds of risk with relevant private and public competencies, which is a prerequisite for success.

However, it is difficult for any public support schemes to make a major difference in the Swedish setup, primarily because the most important risk-taking and networking capabilities must be developed within the market place and ultimately hinge on the initiative of private players. As has been discussed, public intervention is crucial in markets in which early-stage enterprises face under-investment. Nonetheless, private forces are fundamental to the development of healthy markets and much should be done to secure the private incentives. According to Person and Rode (2000), 53 per cent of venture capitalists experienced bad incentive structures in the Swedish industry in 2000. Various studies have also concluded that the venture capital markets display deficiencies in expertise (Isaksson, 1999) and limitations in competition. Such conditions enhance the risks of faulty strategies on the part of venture capitalists, including overshooting at times of exuberance and under-investment when expectations are suppressed. At the same time, the large pools of international investors and their impact on the Swedish market, call out for a proactive strategy to enhance their role as active investors, or at least encourage domestic investment partners.

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<sup>7</sup> The *Global Entrepreneurship Monitor - 2003 Executive Report* describes the entrepreneurial activity (or Total Entrepreneurial Activity -TEA) index as follows:

"Individual efforts to create new firms are reflected in the Total Entrepreneurial Activity (TEA) index. The creation of new firms is a process, they do not emerge instantaneously. The process can be considered to have two phases: 1) the start-up phase where resources are assembled, products or services defined, a team is organized, and the strategy for implementing the new firm is developed, and 2) the new firm phase, the initial period after trading begins when a new initiative is in the market competing for customers with existing firms.

The TEA index is a measure that identifies individuals that are active in either the start-up phase or managing a new business. It is developed as a prevalence rate, reflecting the number of individuals among all those 18-64 years old in the human population involved in either of these first two phases of the entrepreneurial process."

One way of activating more risk capital is through business angel networks. The current low levels of informal risk capital in Sweden strengthen the bargaining power of venture capitalists in regard to entrepreneurs but weaken the long-term supply of entrepreneurs and the emergence of new viable projects. In order to improve access to private active investors, a national business angel network called SwedBAN was founded in 2001. This is a for-profit association based on private and some public support. From the start, SwedBAN was considered also to be the national umbrella organisation, but that role has ceased. The national initiative has since been in the hands of NUTEK, which has stimulated the creation of some 20 regional networks through grants of SEK 150,000 each. NUTEK also runs a website for business angels and supporters. At present it is arranging conferences and workshops aimed at promoting the creation of a national organisation. This organisation is then expected to take over NUTEK's role.

In order to succeed in this work, NUTEK should increasingly join forces with local, private and experienced players and organisations. In order to improve the transparency in the business angel and informal capital market, matchmaking events should be organised and include collaboration with universities and incubators on a regional level. This would encourage the various players to collaborate and would also expand awareness about business angels and the possibilities for entering partnerships with incubators. Such events have been organised through Invest Forum CapTec as annual investment forums for young technology-based companies and venture capital firms. The programme began in 1994 and its main objective is funding young technology-based companies. NUTEK, ALMI and VINNOVA organise the forum. The Venture Capital Database (Riskkapitaldatabasen) was set up by NUTEK in 1999 to improve access to and transparency of the venture capital market. It is an Internet database via which start-ups and small companies can search for suitable venture capital firms. Connect represents an impressive initiative, in this case for improving the set-up of non-financial services supporting company creation and commercialisation of technology. Another example is ALMI, which according to some evaluations has struck a sensible balance between infusions of public support on the one hand and locally adapted demands for management and governance structures that enable small companies to help themselves on the other. In this way, ALMI has tried to apply and approach the functions played by venture capitalists. Nevertheless, doubts have been cast on the extent to which ALMI has complemented rather than substituted for market activities (Bergström et al., 2002).

While such schemes may make sense in their own right, fundamental conditions hampering risk-taking and experimentation by individuals, generated by the combination of prevalent taxes (for instance on dividends and wealth), labour market or other practices and regulations reducing mobility, prevailing social attitudes, etc., ultimately put a cap on what can be achieved. Sweden needs to:

- Lower taxes on entrepreneurship and thereby stimulate more of a private equity culture.
- Remove or ease quantitative restrictions on individual investors to help diversify investments.
- Raise investment in education.
- Free up more initiative and room for specialisation in universities.
- Introduce more attractive career paths for researchers who have an inclination to innovate and cooperate with business.

- Raise the portability of social security packages so as to increase mobility and facilitate spin-offs from existing companies in the form of new technology-based companies.

Heavier private involvement in entrepreneurship is pivotal to new business formation and commercialisation of new technologies in Sweden. General attitudes towards entrepreneurship matter. The presence of role models and mentors, perhaps close friends or relatives, have been shown to be greatly important for individuals' willingness to take on entrepreneurial challenges. Puranen (2001) found that 78 per cent of Swedish women and men aged 19 to 25 might consider starting a business of their own. Lundström and Stevenson (2001) reported positive attitudes towards entrepreneurship. Forty per cent of interviewed 18-year olds expressed a wish to become entrepreneurs if allowed to choose freely. But follow-up a few years later revealed that only 2-3 per cent were running their own businesses.

Traditional entrepreneurial centres in some counties, such as Stockholm and municipalities/regions with universities, do demonstrate intensive start-up activity. But, as we have seen, entrepreneurial efforts are less than impressive in Sweden on the whole. Positive attitudes are not a sufficient condition: there is also a need for suitable prerequisites and rules of the game.<sup>8</sup>

## Summary

Sweden is generally acknowledged to be one of the world's best placed countries when it comes to the potential for knowledge-generation and innovation. R&D relative to GDP is the highest in the OECD and the incidence of scientific publications and patents in major markets is among the highest found anywhere in the world. Further, compared to many other European countries, the Swedish venture capital market is mature and competitive in many respects. It features high investments both in high-tech industries, including ICT, and in more traditional industries.

Despite such strengths, however, Sweden faces challenges given its low level of entrepreneurial activity coupled with largely risk-averse domestic investors. The overriding impression is that the combined conditions for entrepreneurship and investment activity result in a drive to allocate capital and competencies in already established, secure, low-risk businesses.

In order to create an environment that is more conducive to entrepreneurial activities, public venture capital programmes have sought to promote start-ups. But regardless of the intention, the implemented policies have had limited success. On the investment side, the creation of the large Atle and Bure funds boosted the already strong buyout market. Other micro-oriented initiatives are now working to improving the pooling of complementary resources and capabilities at regional level. More should be done, however, to foster a development that is conducive to risk-taking and entrepreneurship by individuals, to diversify sources of venture and seed funding, and to develop a much more widespread private equity culture.

Despite the apparent strength of the Swedish economy, a number of concrete policy measures related to venture capital could improve the conditions for firm creation and growth. First, a removal of quantitative restrictions on institutional and private pension funds would increase the

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<sup>8</sup> Carta Booz Allen & Hamilton (2002), in cooperation with NUTEK and ITPS, carried out an inquiry of the main barriers experienced by different categories of existing companies. The most important barriers to growth include regulations for health insurance/sickness benefits (sjukförsäkringssystemet), difficulties in recruiting suitable staff, a lack of time on behalf of the entrepreneur and high taxes in Sweden.

supply of venture capital. Secondly, reduction of taxes on capital gains and wealth can stimulate more entrepreneurial and business angel investments. Finally, movement towards a single Nordic Bourse may help improve exit possibilities and strengthen cross-border cooperation in a range of respects, from financing to innovative and entrepreneurial activities.



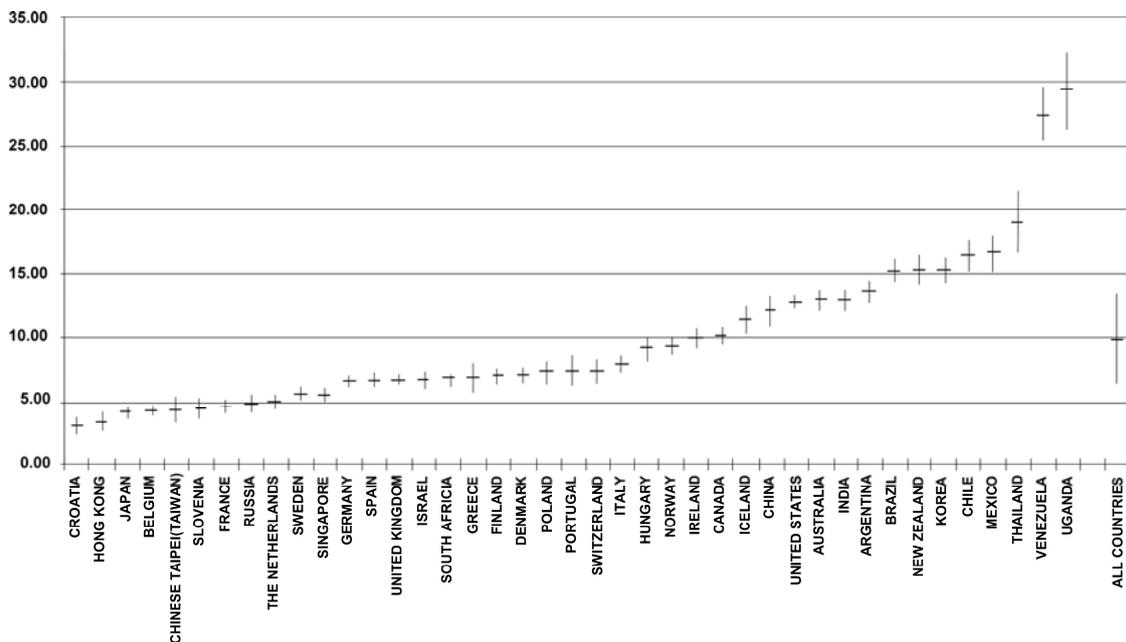
## CHAPTER 4: VENTURE CAPITAL IN DENMARK

### Introduction

Denmark is one of Europe’s best performing economies. According to the European Innovation Scoreboard, Denmark has been the best performer among the global innovation leaders in recent years, although the country is still lagging Sweden somewhat in this area as a whole (European Commission, 2007). Denmark has also grown strongly due to a combination of private consumption, business investments and large market share gains for the export sector. At the same time, the Danish economy remains somewhat tilted towards traditional sectors.

In a general sense, a strong, national research base with modern, dynamic institutions for research and education is viewed as crucial for a knowledge-based economy. Whereas the research base remains somewhat weak in Denmark compared to the other Nordic countries, key political initiatives have led the country to resume other critical positions of strength. Denmark has a large share of the population with tertiary education and ranks highly in the application of information and communication technology as well as, relatively speaking, patents and various output measures of innovation. Another important factor is the ability of the Danish economy to produce new companies.

Figure 22: Entrepreneurial Ranking (2000-2003)



Source: Global Entrepreneurship Monitor (2004)

The overall policy framework in Denmark has combined strong emphasis on market-led growth with serious attention to innovation. A research and policy unit within the Ministry of Business, FORA<sup>9</sup>, has contributed to the formation of a broad consortium of players (government, private and civil society), behind the project “innovation Denmark”. So far the Danish economy

<sup>9</sup> FORANET.dk

nevertheless remains more strongly positioned in entrepreneurship compared to science and research. Private sector value added is strong in services, often based on (non-R&D) user-driven innovation inputs rather than R&D. FORA in fact publishes “Innovation Monitors” which broadens the focus to encompass user-driven and price-driven innovations, in addition to traditional technology-driven innovation.

As in the case of venture capital, individual countries tend to measure start-up rates and entrepreneurial activity differently, and comparable international data are difficult to find. Denmark has a middle ranking in the entrepreneurship index, as shown in Figure 22, with a little more than 5 per cent start-up activity annually (GEM, 2003).<sup>10</sup> The National Agency for Enterprise and Construction states the Danish start-up rate at the somewhat higher level of 10 per cent new companies a year. Thus, entrepreneurship is on par with the US and ranks among the highest in Europe (EBST, 2004). Despite differences in data, there is no doubt that Denmark is doing well in terms of new start-ups compared to its Nordic neighbours. The question is to what extent the country encourages sustainable and growth-oriented entrepreneurship and what is the role of venture capital in this respect?

As discussed in the previous chapter, Sweden has well developed venture capital and private equity markets but faces the acute challenge of strengthening the development of new, vibrant entrepreneurial companies and improving the conditions for early-stage investments in these companies. In Denmark, the situation is different. The market for company investment developed far later than in Sweden. However, despite a smaller market for venture capital compared to the leading European countries, Denmark has a predominance of venture capital rather than capital for buyout investments. Measured by investment volume, venture capital has historically comprised three-quarters of total investment volume, of which only one-quarter was buyout finance. Markets such as the UK, Sweden and Finland are at the opposite end of the spectrum, with 25-30 per cent venture capital and 70-75 per cent buyout capital.

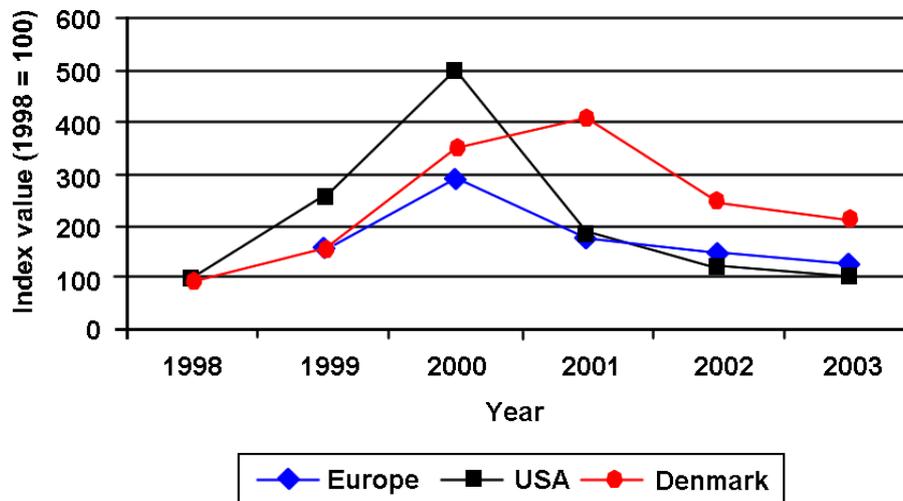
This chapter discusses Danish venture capital development and the role of the public sector, and also highlights the key challenges facing the country today.

## The Danish Investment Environment

In Denmark, venture capital is a fairly new source of finance for small and medium-sized enterprises. Using political instruments to provide guarantees to selected venture capital companies and by introducing heavy public investments, the Danish government has increased investment incentives for private sector investors through arm’s length inducement.

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<sup>10</sup> According to the Global Entrepreneurship Monitor index which identifies all individuals in the population between the ages 18-64 who are active in either the start-up phase or managing a new business.

**Figure 23:** Domestic VC in Denmark, Europe and the United States (% of GDP, 2000-2002)

*Source:* Vækstfonden (2004)

As shown in Figure 23, whereas other markets in Europe and the US underwent major declines in investments from 2000-2001, the Danish market increased in the same period. Compared to the 1998 activity level, investments have grown by 150 per cent in Denmark. In comparison, European investments dropped 50 per cent after 2001 and investments in the US have returned to the pre-bubble level of 1998. This is partly explained by the active but private investor-friendly role played by public sector in Denmark. Today the venture capital market in Denmark represents a unique development of early-stage finance, which in particular has been fuelled by public sector involvement. But challenges still remain, and more should be done to encourage private initiatives, both in early and later stages of business development and in growth companies in particular.

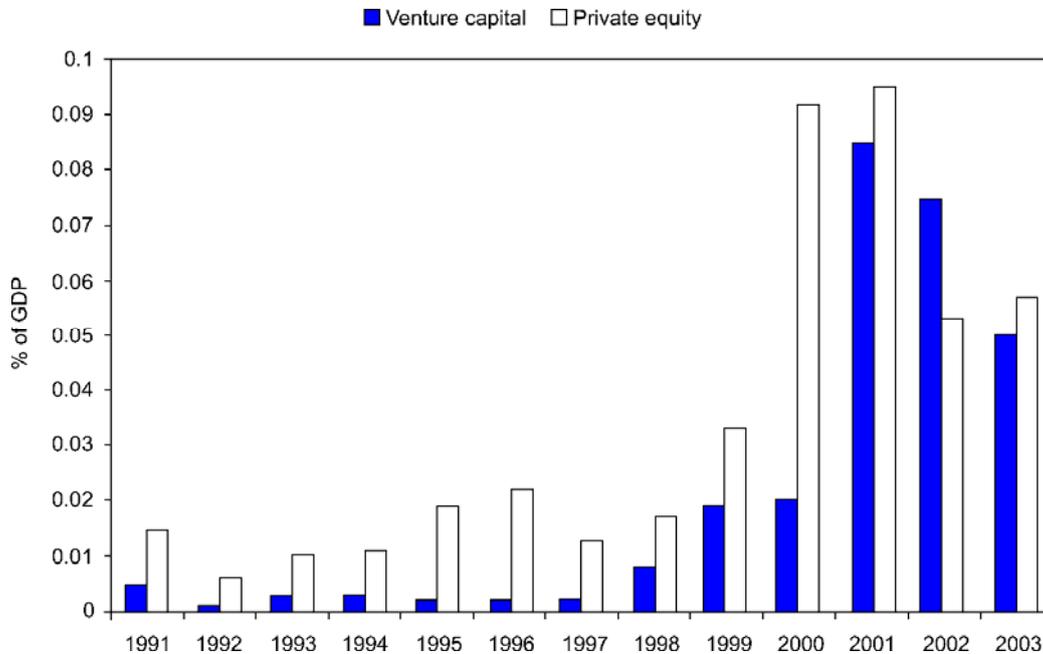
## Background

The venture capital industry was viewed as a potential sustainable partner and an important capital supply for young and fast-growing companies prior to the 1980s. But it was not until the early 1980s that it developed and the first venture capital investors became active. The period that followed saw the initial growth in Denmark's venture capital sector. However, venture capital markets are sensitive to economic fluctuations, and worsened economic conditions heavily reduced the industry in the late 1980s. In 1990 a new deficit record was set by investors and the number of venture capitalists declined from 26 in the late 1980s to only 11-12 in early 1990s – of which only 4 or 5 were actually active (see also Figure 24 and 25).

With no increase in capital, stagnation in the market was a reality. In 1993, only 11 investments were made and only two-thirds of the investors engaged in new investments in 1990 and 1991. Although total investment value was stable during the stagnation period, the reduction in the number of investments was particularly hard for early-stage companies. Reluctant and more risk-averse investors resulted in fewer investments in seed segments. Larger investments in more mature companies were preferred, mirroring the same pattern of risk-adverse investment observed in other countries. Christensen points to the accumulated loss of DKK 362 million that Danish investors had accrued since the beginning of the venture capital industry (Christensen, 2000). The growing interest in later-stage investments prompted the establishment of the first

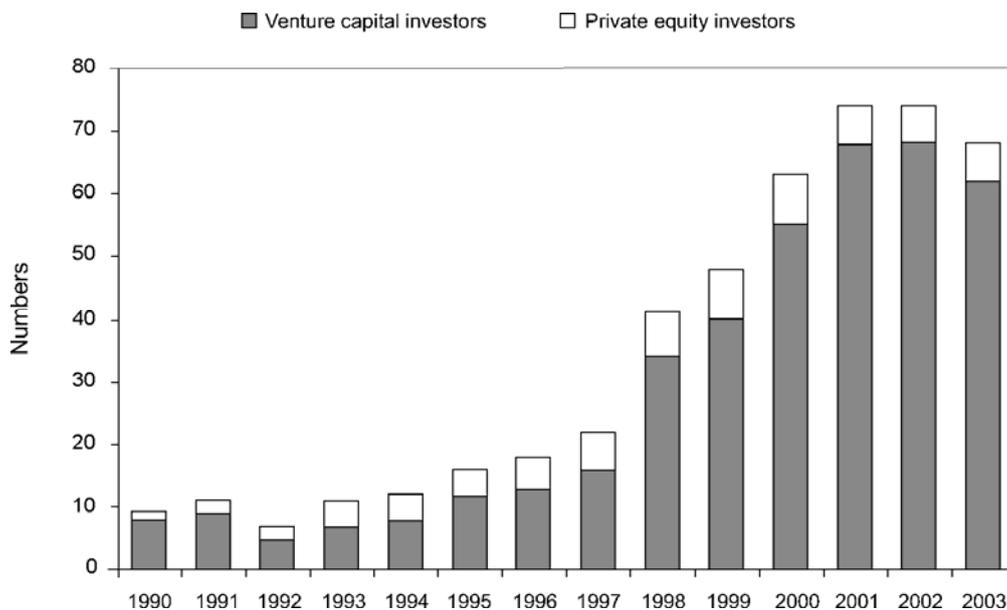
private equity companies in the late 1980s. The remaining 12 active institutional investors were organised in mainly two groupings.

**Figure 24:** Venture Capital Industry in Denmark (% of GDP, 1991-2003)



Source: Eurostat (2004)

**Figure 25:** Number of Venture Capitalists in Denmark (1990-2003)



Source: Vækstfonden (2003)

While the first group made relatively large investments in well-known, established companies, the second and more risk-willing group invested very limited capital in large companies or restricted its supply to a few small enterprises. As in some other countries, public intervention was applied to improve the survival of the market and a public fund was launched as a political response to

the declining investment in early-stage segments. The semi-public Danish Development Finance Corporation (DUF) was an exception in the market, as it continuously invested large sums in small and high-risk companies and thereby kept the early-stage market alive. In 1992, another important state initiative supportive of early-stage companies was introduced. A new fund, Vækstfonden, was set up to improve conditions for emerging enterprises (read more under “Policy Priorities in Denmark”).

**Box 8:** Developing the Danish Venture Capital Industry

Largely inspired by venture capital developments in the US, a number of Danish venture capitalist companies invested in young start-ups in the early 1980s, thus beginning Denmark’s venture capital tradition. Most venture capital companies were established around 1983 and the industry expanded heavily in the 1980s, reaching 20 venture capital companies in 1989 and investing between €30 and €40 million annually. In 1986, 68 new start-ups attracted venture capital.

Various factors explain the strong growth of venture capital investors in this infant period. First, the rapid development of the venture capital industry internationally had its impact on Denmark. Second, falling interest rates and booming stock markets and business investment fuelled optimism regarding stock market flotations. This led to high expectations among investors. Venture capitalists saw IPOs as the most likely exit route and this attitude fuelled further activity. Meanwhile, bonds became less attractive for pension funds and other institutional investors and equities became more sought-after, partly as a result of legislation to change the way capital gains were taxed. Thus, the supply of and demand for capital increased and institutional investors sought ways to channel some of their investments through affiliated companies with venture profiles. However, legislation prevented them from allocating sufficient capital to the corporate sector (Christensen, 2000).

Meanwhile, the swings of the business cycle exerted recurrent impacts on the development of the venture industry. In the late 1980s it triggered the decline of the stock markets and the down-turn was reflected in decreased venture capital activity. In addition, speculative patterns of behaviour became widespread and deeply rooted. Impatient investors were inspired by the previous growth period and suddenly saw a quick divestment as the only possibility for making an exit. Furthermore, lack of sufficient competencies and skills among investors (most investors had a banking background with limited or no experience from the industries) caused inertia in the venture capital market (Erhvervsministeriet, 1996).

After the collapse, the Danish venture capital market followed the general economic upswing and regained momentum. Not only did raised funds increase, but the actual pace of investments level rose along with the growing numbers of active venture capital investors. Investment activity became remarkably higher in the latter part of the decade.

Whereas the number of new investments was 10 in 1992, 50 new investments were undertaken in 1995 and 42 in 1998. Dansk Kapital Anlæg was one of the largest players in the field. Together with NOVI and the publicly supported developing companies, it was very active. New funds with huge capital bases were set up with public funding in the wake of new legislation. The number of active venture capital and private equity funds increased strongly at the end of the 1990s, reaching a total of 62 institutional venture capital and private equity investors in 2003.

Denmark’s venture capital industry boomed in the early part of the new millennium, but has fallen back since. In 2000 and 2001, when other markets saw dramatic declines, venture capital investment in Denmark grew by 86 per cent. This development was aided by intensive domestic and public interest in creating strong incentives for institutional investors.

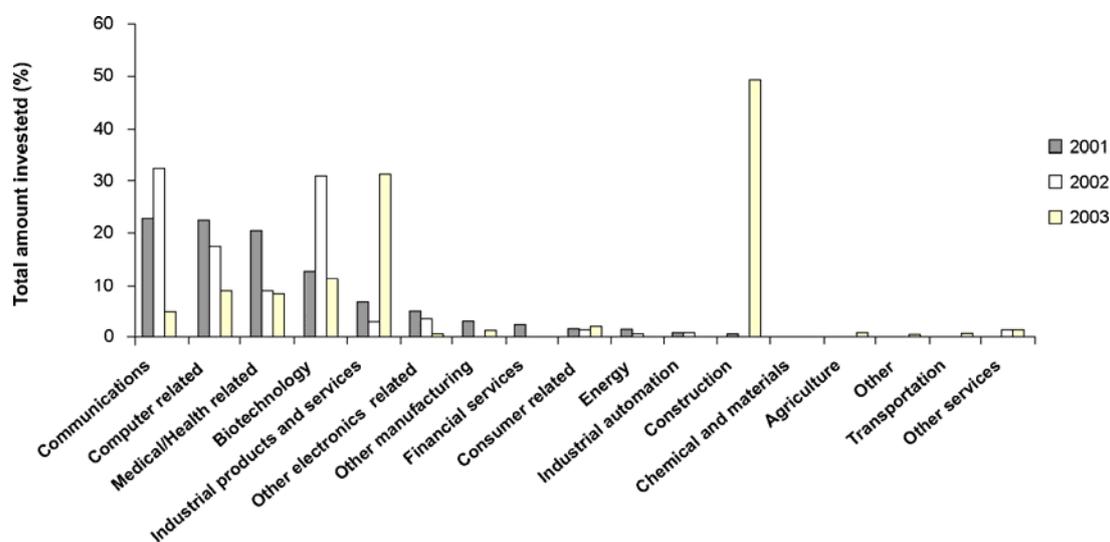
The unique growth is partly explained by the relatively young nature of the industry. The fact that it developed later than in other countries meant venture capital companies were less advanced and less active compared to other markets. As a result, the industry was less vulnerable to the downturn in 2001. The structure of the market was also important, with new funds emerging and entering the market by making their first investment in or after 2001.

### Stages and Industries

The allocation of venture capital investments across the different development stages is a sign of how mature the industry is. As shown in Figure 21, there has been an increased focus on early-stage companies since 1997. In fact, in 2001 close to 0.1 per cent of GDP was allocated to seed investments, while seed funding relative to GDP exceeded later-stage investments. Although the total investment dropped by 40 per cent in 2002 compared to the previous year, it remained well above the 1998 level – a unique outcome in absolute and relative terms.

The reason for the particular early-stage development is mainly explained by the active role of the public sector in reducing risk. But while investments in young companies are doing comparatively well, later-stage investors are worse off. According to EVCA, buyouts represented only 3 per cent of the total amount invested in 2002. The Danish market has not yet seen a similar trend in buyout markets as in other parts of Europe and the US (EVCA, 2003).

**Figure 26:** Investments by Industries in Denmark (2001-2003)



Source: EVCA (2004)

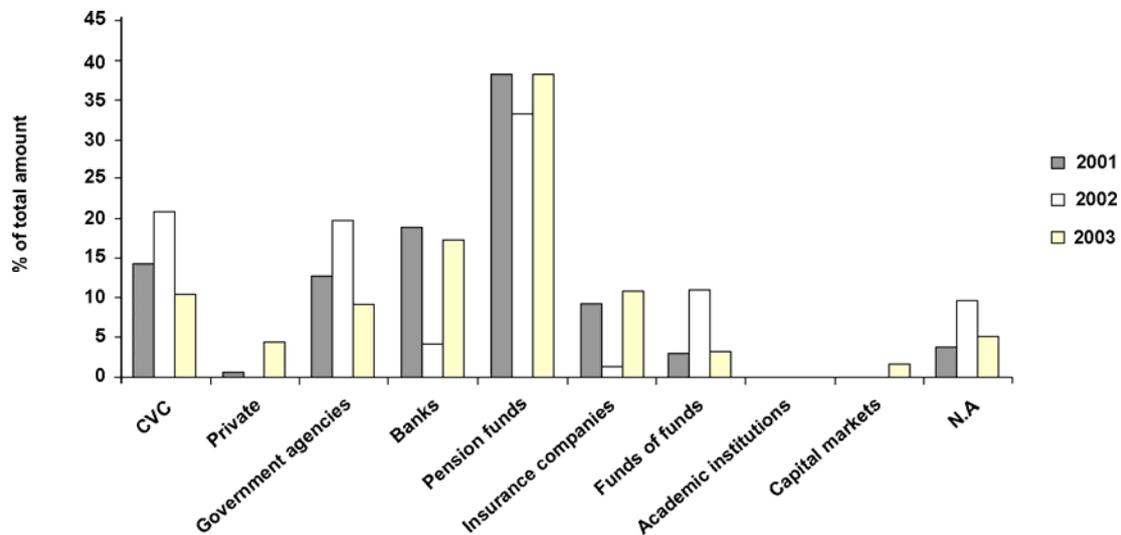
Figure 26 shows that while communications, computer-related companies, healthcare and biotechnology were the most preferred vehicles for Danish investors in 2001 and 2002, industrial production and construction dominated in 2003. In 2002, investors allocated 34 per cent of the total investments to biotechnology companies, putting the biotechnology industry in the lead along with the communications sector. However, larger amounts of capital are needed to make biotechnology companies operative and might to some extent explain these figures. As noted, most of the rapid development has taken place in the last three to four years, implying fundamental changes on various levels. In fact, the development is not only quantitative, but also reflects structural and behavioural changes among investors.

## Geographical Location

As in Sweden, Denmark's venture capital industry is heavily concentrated around the capital Copenhagen. In the third quarter of 2003, 72 per cent of total investments were made in the Copenhagen area (Vækstfonden, 2003). Besides Copenhagen, the largest recipients of investments are regions with clusters of universities, incubators and high-tech companies (as in Århus and Ålborg). However, domestic investors also assign large amounts of capital outside Denmark, reflecting the small size of the domestic market. Here, the main recipients are the UK, Sweden, Norway and the US. From the end of the 1990s, domestic investors made 15-20 per cent of their investments outside Denmark. By 2002, 26 per cent of venture capital funds were invested abroad (EVCA, 2003). Prime recipients were life science companies.

## Sources of Back Funding

Figure 27: Back Funding Sources in Denmark (2001-2003)



Source: EVCA (2003)

Banks and institutional investors (including pension funds) are the largest sources of private equity, accounting for more than two-thirds of all capital raised (see Figure 27). However, between 1998 and 2001, corporate investors also became very active in the industry and Corporate Venture Capital (CVC) contributions stood at 19 per cent of total domestic investment in 2002. Although CVC is a fairly new phenomenon in Denmark, a number of larger corporations have already created internal venture capital units and business incubators, building a culture of strategic partnerships between themselves and small unquoted companies or developing internal projects. Another important source is the government. A distinctive feature of the Danish venture capital market is the concentration of public involvement in recent years. Indeed, the government provided 12 per cent of all raised capital in 2002. In practice, Vækstfonden plays a crucial role as public investor, both by directly investing in start-ups or through funds of funds, which enable syndication with other investors. In 2002, Vækstfonden had directly or indirectly accounted for two thirds of all the investments in all the early-stage companies that received funding that year (Vækstfonden, 2004).

## Exit Possibilities

One possible reason why venture capital companies may be reluctant to invest in early-stage companies is a lack of attractive exit routes. It has often been claimed that the way out of the investment is important both to the size of return and to the very decision of whether or not to invest.

**Table 7:** Divestments (% of total divestments, 2001-2003)

DIVESTMENTS	2001	2002	2003
Trade sale	1	1	1
Public offering	0	2	2
Write-off	25	69	2
Repayment of principal loan	4	0	0
Sale to another venture capitalist	1	1	0
Sale to financial institution	0	0	0
Sale to management (buy-back)	n/a	2	5
Other	2	0	1
Total	33	75	11

*Source:* EVCA (2004)

In Denmark, exit possibilities are poor, as shown in Table 7. In 2001, there were no IPOs and both in 2002 and 2003 only two companies were floated out of 75 and 11 exits respectively. On the Copenhagen stock market, Københavns Fondsbørs, low turnover and high spreads are explained by an industrial structure that sees only a few large companies organised as funds. Studies show that stock market investors prefer larger companies and that the stiff regulatory challenges facing smaller companies prevent them from leaving the stock market when once listed.

On one hand, the role of the IPO as an exit should not be neglected. For a venture capital market to flourish, the lure of a successful IPO should act as an important spur to investors to increase funding, rather than encourage them to view the IPOs as a frequently-used divestment tool. On the other hand, if stock exchange levels develop negatively, the development of funds targeting the small and medium sized enterprise segments will not increase. Without possibilities for harvesting the yield of their investments, it is likely that investors will not invest at all. However, an IPO is not the only exit route, and when an efficient stock market exists, it is often found together with well developed and highly liquid secondary markets, as in Sweden.

## Policy Priorities in Denmark

Whereas the objectives and priorities of the Danish innovation policy have remained on track during the past years, they have been given higher priority, and stronger efforts have been made, to implement key reforms (Siune and Aagaard, 2006). As part of the picture, Danish policy on innovation finance has developed from general public support measures based on “technology push strategies” to more specific funding through specialised funds based on “demand driven strategies” (EU-Commission, 2002; Vækstfonden, 2004).

One of the most significant public initiatives towards supporting innovation came in 1992 with the creation of a government-owned venture capital firm to equity, loans and bank loan

guarantees. Vækstfonden has since played a crucial role in facilitating seed capital and in promoting the development of Denmark's innovation finance market. Along with managing enterprise development, Vækstfonden also provides seed and follow-on capital to emerging companies. Especially after 2000, the fund has added to investment in the market chiefly through a funds-of-funds strategy whereby capital is allocated directly to specific market segments that have limited capital access.

Vækstfonden has played a very important role in developing the Danish venture capital sector but severe challenges still remain before it becomes a genuinely competitive, international market.

**Box 9:** The Public Investment Fund Vækstfonden

Vækstfonden in Denmark provides a good example of constructive and successful public sector intervention to support and develop venture capital markets, providing better access to funds for newer, smaller companies.

Vækstfonden was established in 1992 as a state-backed investment company, providing finance to fast-growing Danish companies and acting as a fund-of-fund investor in the Nordic private equity sector. Its mission is to strengthen development and renewal in the Danish economy by procuring financing for promising projects in small and medium-sized businesses. Investments are focused on early-stage ventures mainly in the life science, medical and high-tech sectors. The fund also provides mezzanine financing to a broad range of companies. It has a capital base of €296 million, making it one of the largest players on the Danish VC market, and is the largest early-stage investor in Denmark.

A recent strategy shift in 2001 means the fund's orientation is to support three main actions: the activation of passive capital base to ensure that capital reaches segments in which the financial markets hesitate to invest; establishment of a fund of funds to build a stronger Danish venture market; and increased use of equity in direct investments to ensure that Vækstfonden gets its fair share of future upside returns. Vækstfonden's three business areas include direct investments, fund of funds and Vækstkaution (a loan guarantee scheme for SMEs). More information about Vækstfonden can be found on the fund's website at [www.vf.dk](http://www.vf.dk).

A slightly older policy measure was the launch of so-called "development companies". These provide state guarantee schemes for venture capital companies. Selected venture capital companies were entitled to receive a 50 per cent guarantee on investments in emerging growth companies, both at the early and later stages. The idea was to develop the venture capital market by reducing risk aversion among investors and encouraging more activity in the market. Under the scheme, selected suppliers of venture capital were entitled to refunds for capital losses, provided that the company in which the loss was incurred was part of the portfolio for at least three years.

Evaluations of this guarantee scheme found that investors had become more risk-inclined and invested in companies that they would not have supported without public funding. The scheme also attracted international institutional investor interest in large Danish funds. In 2001, Vertex, a Singaporean fund, bought Dansk Udviklingsfinansiering (DUF) and obtained €12 million in public guarantee money for capital losses within the company.

A lack of exit opportunities constitutes a big challenge for the Danish market. Only a few initiatives have been introduced to foster improvements in this area. In the mid 1980s, Stock Exchange III was created as an offshoot of the main stock exchange, København Fondsbørs.

However, the entry regulations for high-risk companies were stricter than on the main stock exchange and only a few companies sought listings. In 2002, the Copenhagen Stock Exchange established a new marketplace called XtraMarked for non-listed investment funds. At the end of 2002, it had a list of 54 funds controlled by nine investment funds. However, a lack of turnover in the growth index resulted in its closure. Instead, alternative solutions were set up for smallcap and midcap companies within with the Nordic-Baltic NOREX bourse alliance (which today includes exchanges in Denmark, Estonia, Finland, Iceland Latvia, Norway and Sweden).

Denmark's relatively limited buyout market has led to a lack of divestment opportunities for seed investors. The dearth of domestic exit routes means successful ventures are likely to exit abroad to foreign investors. Thus, more should be done to fertilise domestic funds and improve exit possibilities. It is worth noting, however, that domestic funds have poor operating conditions compared to equivalent funds in other countries (EVCA, 2004<sup>11</sup>).

**Table 8:** Favourable Tax and Legal Environment

Country ranking	Total Score
1. UK	1.2
2. Ireland	1.58
3. Luxembourg	1.67
4. Netherlands	1.79
5. Italy	1.96
6. Greece	1.96
<b>Average</b>	<b>2.04</b>
7. France	2.09
8. Sweden	2.09
9. Belgium	2.14
10. Spain	2.17
11. Finland	2.25
12. Portugal	2.32
13. Germany	2.41
<b>14. Denmark</b>	<b>2.48</b>
15. Austria	2.53

(1 = most favourable, 3 = least favourable)

*Source:* EVCA (2004)

Denmark scores poorly in comparisons of tax issues and legal environments for institutional investors (see Table 8). It is vital that immature markets offer good conditions to attract and develop adequate managerial competencies among entrepreneurs and investors alike. Many international venture capital funds have become active in the Danish market, and Denmark should undertake further efforts to attract foreign investors and enter foreign syndications, which are useful in bringing in more management expertise, professional investment skills, international networks and larger syndication deal sizes to the Danish market. In this light, education efforts needed to be targeted at the demand and supply side of the market. Reflecting the value of

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<sup>11</sup> The EVCA survey incorporates a comparison of tax and legal issues including fund structure, merge regulation and its impact on private equity and venture capital, pensions funds as potential investors, company tax rates, company tax rates for SMEs, capital gains tax rates for individuals, tax incentives for individuals investors investing in private equity, taxation of stock options, entrepreneurial environment, fiscal incentives to enhance research and development (R&D) (EVCA, 2004).

mobility in venture capital activity (European Commission, 2006b), more reasonable avenues and attractive opportunities for experienced foreign venture capitalists should also be put in place.

Denmark in 2002 adopted technology and innovation legislation aimed at promoting collaboration and knowledge diffusion between companies and public knowledge-generating institutions and at fostering the generation of technology-based companies (for instance by providing public seed financing).

Meanwhile, business angel networks have served to strengthen links between start-ups and private informal investors. Starting in 2000, the government developed the first infrastructure for a national business angel network. In the three subsequent years several regional and sector-based networks were established in close cooperation with business incubators and research institutions. Early-stage business angel networks have gradually focused on project and business ideas from universities and research institutions by forming monthly investment clubs in collaboration with the public sector.

Most of the regional and sector-based networks are connected to regional incubators, universities and research institutions at hospitals. These serve as managing bodies and at the same time give access to early-stage investment opportunities. Besides matchmaking through regional or sector-based platforms, the national business angel network (DBAN) has established an electronic portal to match investors with entrepreneurs at national level (Gullander and Napier, 2003). However, in spite of intermediation in the networks, studies of the informal capital market show that Danish business angels are reluctant to invest due to a scarcity of good investment proposals. Forty-five per cent of the angels have activated less than 10 per cent of the capital earmarked for investment in unquoted companies, which confirms that resources are going untapped (Vækstfonden, 2002). Badly prepared business plans and underdeveloped projects are the main reasons for this under-utilisation of capital. Improved intermediation between entrepreneurs and business angel networks is therefore necessary to activate a greater portion of business angel resources.

Incubators are working to expand early-stage companies' access to venture capital. In 1998, public co-financing was allocated to the establishment of six public incubators (innovationsmiljøer) in 1998 to foster the creation of innovative companies and provide support to pre-venture capital entrepreneurs. Aiming at reaching 100 per cent self-financing in 2004, the incubator scheme was given additional funding for 2003 and 2004. The incubators house new emerging technology companies and coach the companies in their development. They also have the opportunity to invest in the new start-ups. However, a recent report identified difficulties in linking the companies fostered in the incubators with formal venture capitalists. The number of active companies in venture capital portfolios increased from 167 in 2001 to 233 in 2002, with 45 new investments in 2003 and no exits.

Hence, more attention should be given to how incubators can more professionally link their portfolio companies to venture capital. One way would be to group them according to certain sector specifics rather than the regional approach applied in most of them today. Such a grouping would enhance their ability to focus on certain sectors.

## Summary

The overall policy framework has combined a strong emphasis on market-led growth and serious considerations to innovation. Innovation is interpreted broadly in Denmark. So far, science and research have remained less of a source of economic strength for Denmark compared to entrepreneurship. A broad consortium of societal stakeholders is active in policy reflection and implementation.

Denmark's venture capital industry has seen an increase in investor numbers and investment volume since 1998. In this chapter it has been argued that Denmark's venture capital market has evolved in a unique manner. While other markets were beset by an aversion to risk and experienced heavy falls in investment in 2001, Denmark saw increased investment in new entrepreneurial companies at that time. This performance is partly attributable to active public sector intervention. Through direct and indirect investments, the government has boosted the market for seed capital. When global economic turbulence hit in 2001, the Danish venture capital market was young and therefore relatively less fragile than many of its international counterparts. Today, the country has many opportunities to maintain this status.

But successful long-term growth strategies require a strengthening of the investment chain. The government agencies and funds have a role in stimulating a greater and more diversified contribution by institutional investors, increase syndications and improve exit opportunities through better markets for public offerings or trade sales. If exit possibilities remain poor, investors will refrain from investing or increasingly see exit opportunities heading abroad. This would lead to lost business growth for the Danish markets.

In spite of the nurturing of the early-stage investment market in recent years, the risk is that investors will gradually turn to later-stage investments (as has happened in Sweden). This is reinforced by the fact that pension funds tend to invest much of their capital in relatively less risky corporate ventures. In order to improve its middle-ranked entrepreneurial performance and early-stage investment environment, Denmark should induce investors to assume greater risk. This requires more decisive steps towards fostering a robust private equity culture, measures to facilitate alternative vehicles for pooling alternative investments, and initiatives to make the tax treatment of different investment incomes less complex. There is also a need to provide greater stimulus to business angel networks and to link them more effectively to critical parts of the system, such as technology incubators and complementary support services. Finally, other measures are warranted to expand exit opportunities. The movement towards a common Nordic bourse could make a valuable contribution. Other forms of cross-border integration conducive to innovation and firm growth could also help.

## CHAPTER 5: ENHANCING CROSS-BORDER ACTIVITIES

### Introduction

One of globalisation's consequences is that it continuously reduces the ability of national governments to form policies independent of those in other countries. National markets alone are not prepared to meet international competition and the development of a dynamic entrepreneurial environment often depends on a number of interrelated factors, many of which are determined outside national boundaries. These developments mean that any attempts to shape policies supporting entrepreneurial activities and venture capital availability need to recognise the role of such issues and also to take into account the growing importance of international investors. Based on the previous discussions of Sweden and Denmark, this chapter highlights cross-border venture capital transactions and examines the investment environment in the transnational Öresund region.

### Economic Growth and Regional Integration

The globalisation of trade and economic activity tests the ability of regional economies to adapt or sustain their competitive edge. Rapid technological change and the use and transfer of knowledge between regions offers hitherto unknown opportunities for local development (see also Box 10). However, the ability to seize these opportunities depends on the preparedness of regional players to invest and re-organise labour and production. Some countries – and regions in particular – are confronted with certain handicaps. Due to their size and peripheral location, they risk suffering from isolation as a result of globalisation. Also, performance gaps between regions are widening and the costs of maintaining cohesion between regions within a country are rising as a result of increased globalisation.

#### Box 10: Economic Growth through Cross-border Activity

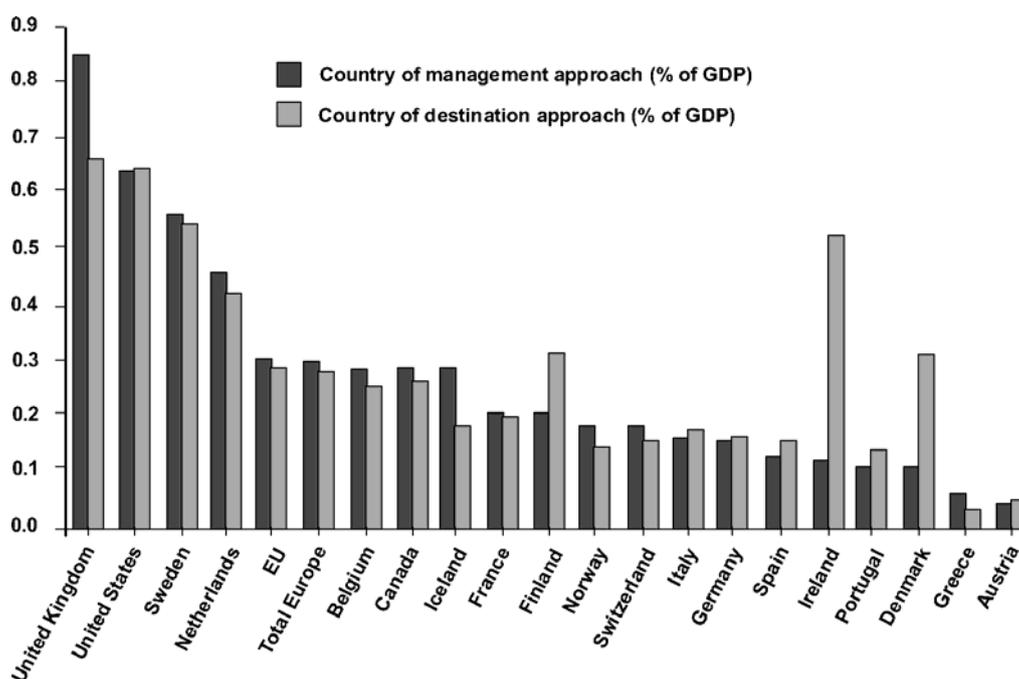
Cross-border activity takes many forms, from loose cooperation to strong integration between countries and regions. If more risks and difficulties are created by integration (the creation of a new functional region with a single internal market), there are also more rewards. Economic theory shows how the establishment of new cross-border regions results in a larger labour market and a more diversified supply of skills. This gives the area superior comparative advantages and often helps it to attract more FDI per capita than previously. Additional synergies are also possible. Their intensity, however, will depend on the capacities of the various players and constituencies to cooperate and valorise their socioeconomic complementarities. Cross-border regions that manage to unleash this innovation potential may enjoy very robust entrepreneurial growth. Source: OECD (2003c).

### Cross-border Venture Capital Transactions

Following the general globalisation trend, venture capital markets are gradually becoming more international and increasingly influenced by cross-border investment flows (Baygan and Freudenberg, 2000; Maula and Mäkelärkkü and Markus, 2004). While we are still far from a fully integrated venture capital market, foreign funds play a much larger role in national markets than they did in the past. Venture capitalists invest in global business models and help portfolio companies become international by building on networks, strategic alliances and syndications. Direct investments, such as mergers and acquisitions, through which companies gain control of existing companies abroad, are also growing.

Cross-border venture capital investment is generally defined as a venture capital investment that is managed by the venture capitalist from a country different from that of the portfolio firm's headquarters (Maula and Mäkelä, 2004). Most cross-border transactions are enabled through syndications, in which two investors (typically from different countries or regions) invest together. For instance, Sofinnova, a French venture capital fund has invested in several start-ups in the US through a syndicate-led investment with a US venture capital company. The possibilities for investing across national borders offer venture capitalists greater opportunities to diversify their portfolios.

**Figure 28:** Investment Flows in Denmark (% of GDP, 1999)



Sources: Maula and Mäkelä (2004)

But as Figure 28 shows, the levels and types of cross-border investments vary significantly between countries. Whereas the UK, the US, Sweden and the Netherlands attract high levels of foreign capital while also managing funds abroad, Denmark, Finland and Iceland only have high levels of invested capital contributed by foreign investors. In other words, whereas the first group both invests and receives foreign capital, the second is primarily on the receiving end. The second group of countries is predominately a target for rather than a source of investments for two main reasons: the presence there of high-tech and internationally oriented companies, and limited resources among domestic venture capital investors.

A country's ability to attract or act as an international investor is closely related to the development of its national venture capital market. For instance, the more mature a market is in terms of deal flow and available capital, the easier it is to attract international investors. International collaboration provides new economic opportunities, especially for companies in a country with poor domestic capital supply such as Denmark. It at least creates an opportunity for a happy few to escape domestic financial constraints. Since syndication is primarily motivated by interest in minimising financial risks, periods of economic recovery are generally perceived as the appropriate time for investors to engage in more co-investment activity, also across borders.

In practice, however, there are still plenty of factors holding up the potential of international integration of venture capital markets. Some of these emanate from institutional conditions or regulations which are only indirectly related to venture capital. Despite years of multilateral and regional liberalisation, a host of regulations continues to create a heavy segmentation of many product markets, especially in services. Public funding schemes for universities and R&D, for instance, account for national lock-ins of many programmes in which universities play an important role. Credentials for the recognition of experience in working life as well as education are likewise limited by national peculiarities, although there is much greater openness and reach in some professions and regions than in others. Tax and social security schemes are often asymmetric and incompatible, which may make it very expensive for individuals to move or transfer their wealth to certain countries. All these factors have a bearing on venture capital markets and add to the national idiosyncrasies within these markets themselves in creating additional hurdles.

## Increased Cooperation between the Nordic Countries

The Nordic countries are widely regarded as world leaders in innovation and technology policies. They are highly ranked in terms of innovation capacity, high-tech development and investments, highly skilled labour and competent and efficient public institutions. The World Economic Forum has placed Finland, Sweden and Denmark in the top four in its Global Competitiveness Index (WEF, 2006). The European Innovation Scoreboard lists the Nordic countries as those member states which are moving ahead, whereas other EU countries are merely catching up, losing momentum or even falling further behind (European Commission, 2003a; European Commission, 2006).

Regardless of the obvious strengths, the Nordic area is currently facing a number of structural challenges, including an ageing population, a high incidence of sick leave among the working population, fragmented labour markets, high reliance on increasing mobile tax bases for sustaining large public sectors, and problems with integrating the significant number of foreign-born inhabitants into the workforce, which poses serious potential threats to the stability and viability of the social welfare systems and economic development in the coming decades. Other factors, such as small domestic markets coupled with hitherto limited export orientation, require an open attitude towards the outer world and underline the need to intensify Nordic (and Nordic-Baltic) collaboration.

While the Nordic countries are doing well on most accounts, they could further improve their national growth strategies and prospects by thoroughly rethinking their national economic boundaries. One example of potentially more dynamic cross-border collaboration between two Nordic countries is the Öresund region, which spans Denmark and Sweden.

## Local Integration and Development in the Öresund Region

The Öresund region is a modern economic area that was formally constituted just before the new economy reached its peak. The short geographical distance between Sweden and Denmark and a comprehensive common historical background have always provided a common ground for the two countries. But the opening in 2000 of the Öresund Bridge, which spans the strait separating the two countries, has pushed the local integration process forward. Today the Öresund region is gradually developing its own unique character. The area is strongly represented in new emerging sectors such as biotechnology, medico and information technology and ranks as the eighth

richest region in Europe in terms of “gross city product”. Other regional characteristics include the highest ICT spending per capita in Europe, a top ranking in terms of quality of life compared to other regions in the world, the third largest biomedical R&D centre in Europe, and a commercial fabric of approximately 170,000 companies. There is no doubt that the Öresund region holds a strong position and certainly has the potential to become a true European growth leader over the next decade. The ability to realise this potential, however, will largely depend on a number of underlying conditions driving growth in the region.

**Table 9:** Regional GDP and Employment in the Öresund Region

Index 1995 = 100

	GDP		Employment				
	1998	1999	Quarterly data (Q4) except for 2002 (Q3)				
	1998	1999	1998	1999	2000	2001	2002
<b>Scania</b>	113.6	121.0	107.9	109.0	113.2	115.3	119.3
<b>Zealand</b>	114.9	122.0	103.0	105.9	103.1	108.5	106.4
<b>Öresund</b>	114.6	121.7	104.4	106.8	105.9	110.4	110.0
<b>Denmark</b>	116.6	124.1	102.0	102.0	104.4	108.0	106.6
<b>Sweden</b>	114.0	119.4	102.7	105.0	108.9	109.5	112.6

*Source:* OECD (2003b)

For a long time, economic integration in the region was weak as the diverse trends in the Danish and Swedish economies drew the two parts of the Öresund region in different directions. For instance, before the opening of the bridge most scientific inventions were made in companies on the Danish side (IT Øresund, 2002). However, in recent years Sweden has been catching up. Indeed growth has been faster in southern Sweden and Scania than in any other part of Sweden. Along with regional integration, the numbers of published inventions have increased in Swedish companies, providing the region with great growth prospects. Also, more Danish companies are now opting to move across the strait and establish themselves in Scania. As a result, the number of Danish companies in southern Sweden has tripled over a five-year period and the region is gradually developing into a cluster of sector-specific skills and competencies.

### Clustering and Networking

Significant efforts and resources are being mobilised on both sides of the Öresund strait to promote cross-border linkages and interaction, and there are high expectations as to the economic effects of an integrated region. As Box 11 shows, numerous cross-border institutions and organisations have been established recently and bilateral cooperation structures were set up long before the bridge’s opening. Many of the network organisations now support the development of sector-specific companies between the two countries.

**Table 10:** Patents in the Öresund Region (number, 2000-2001)

Industry	Öresund	Global	Öresund in % of Global
Medico electronics	480	96,000	0.5
Electronics for ICT and telecoms	244	200,000	0.122
Measuring instruments	107	65,000	0.165
Maritime and defence	5	6,400	0.078
Industrial electronics	11	23,000	0.048
Components and print	60	135,000	0.044
Effect electronics	7	17,600	0.039
Consumer electronics	21	60,000	0.035

*Source:* IT Öresund (2002)

The Öresund region clearly displays a relative strength in new and emerging industries, as shown in Table 10. The numbers of patents in the medico and ICT electronic sectors are especially high compared to the global level, and the Öresund region seems to have found some of its core industries here. As integration intensified at the peak of the ICT boom, networking across the region was relatively strongly concentrated amongst companies from emerging sectors rather than traditional industries.

Whereas Denmark and Sweden have markedly different industrial structures and traditions, both also have a strong base of new growth industries. It appears that the opportunities to capture benefits from cross-border integration have gained acceptance more readily in areas where traditions are rather new (such as biotechnology and ICT) and where networks and attitudes have had less time to solidify within long-existing structures. It is well known that industrial clusters tend to go through certain growth stages and that relationships may become inward-looking and stagnant over time unless countered by external pressures for renewal (Andersson et al., 2004).

The food industry provides one example of a traditional industry which possesses great strengths on both sides of the Öresund strait but in which potentially promising innovations encounter obstacles on both sides. In this industry, there is little evidence of movement towards fruitful cross-border structuring or venture capital activity in the Öresund region.

Pooling expertise in investment-seeking companies and between venture capital investors is undoubtedly critical for the region. Investors are often a valuable source of advice and input for entrepreneurs. Venture capitalists need to screen and help businesses to manage capital and to attract other investors. Thus, when a venture capital market matures the development and attraction of sufficient resources is fundamental. For the Öresund region, there appear to be insufficient forces underpinning synergies in niche-based competencies appropriately tailored to the existing and emerging regional skills and industries on the two sides. While interest has grown among foreign funds in investing in the Nordic countries, especially in telecommunications and biotechnology, there has been little appetite for cross-border investment in the Öresund region – in spite of the clear potential for growth-oriented clusters. Along with structural impediments and barriers, this suggests that there is a case for more active promotion of cross-border networks among venture capitalists.

### Box 11: Overview of Selected Networking Organisations in the Öresund Region

#### **Øresund Science Region**

Øresund Science Region is a transnational initiative between Denmark and Sweden that serves to strengthen one of the most important assets of the Øresund Region – the unparalleled presence of highly skilled human resources and cutting-edge technologies. Øresund Science Region is the result of a specialised research community and a growing number of knowledge-based, market leading companies. It combines the forces of four regional research and innovation platforms with Øresund University and a number of regional coordination bodies in an attempt to strengthen regional cooperation and integration between universities, industry and the public sector.

#### **Medicon Valley**

In 1996, Position Skåne and Copenhagen Capacity launched a joint programme to promote Medicon Valley internationally to attract foreign companies to the region. Medicon Valley is a major international centre for biotechnological and pharmaceutical activities and also among the strongest in Europe in featuring cross-border partnerships between industry, universities, hospitals and investors. In recent years the number of new biotechnological companies has increased significantly. These enterprises are either local or subsidiaries of foreign biotech companies.

#### **Øresund IT Academy**

Øresund IT Academy is a network of Danish and Swedish ICT players in the Øresund region. The primary goal is to make the Øresund region more appealing to students, researchers, companies and venture capitalists in the ICT sector. Knowledge is created through the cross-fertilisation of Swedish and Danish cultures with world-class business practices and higher education, thereby generating growth in new and established ICT organisations. This will place the Øresund region at the top of Europe's ICT growth regions.

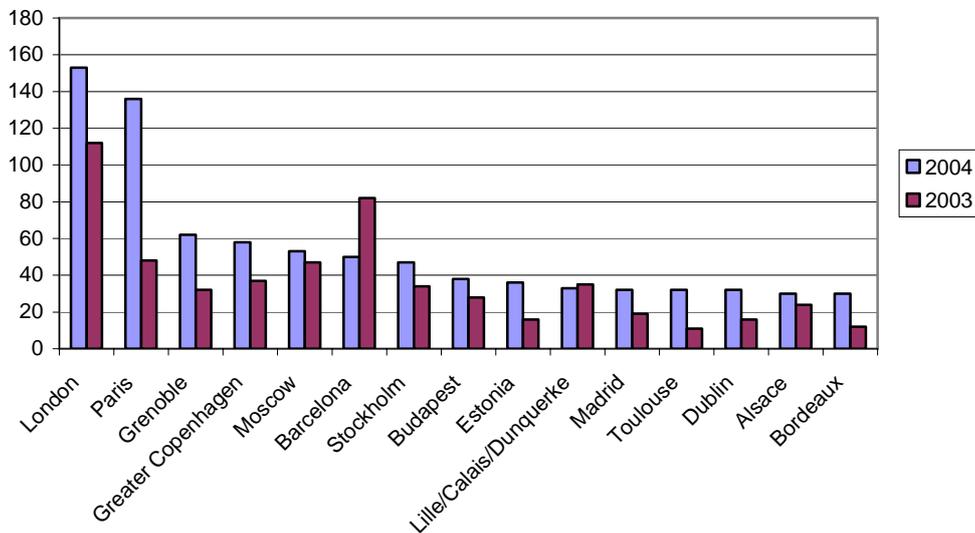
#### **Øresund University**

Øresund University is a partnership between 14 universities in the Øresund Region. It aims to increase cooperation between universities in education and research as well as cooperation with business and industry in the region, local and regional authorities and other organisations. By 2005, Øresund University aims to be Europe's foremost transnational university partnership, characterised by high quality, an international profile, a solid regional base and a high level of student influence.

### Investment Environment and Key players

The general investment climate and economic activity level in the Öresund region depend on a number of factors. Given the presence of relatively unconnected but still related industrial strongholds on the two sides and the potential complementarities of existing and future competencies, it appears that the future integration process will be of crucial importance to growth and industrial renewal. This applies not the least to the ability of the greater Copenhagen area and Scania to join forces in attracting investment and in putting in place strong mechanisms for innovation and industrial renewal.

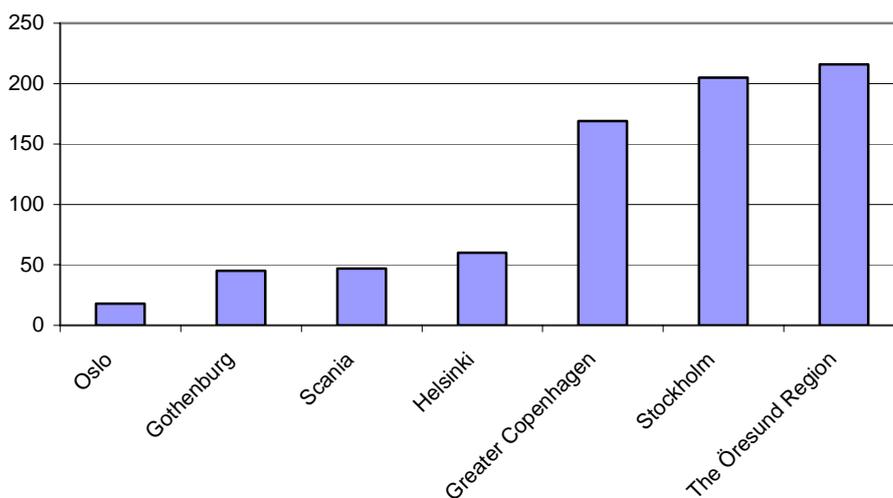
**Figure 29:** Investment projects in the top 15 European city regions (2003-2004)



*Source:* Copenhagen Capacity (2005)

When it comes to greenfield investments, co-location or expansion projects by foreign companies as shown in Figure 29, Nordic cities such as Copenhagen and Stockholm perform well. They are also able to attract investment projects on a scale equal to or higher than many European city-regions such as Moscow, Barcelona, Budapest and Madrid. In the Öresund region, this type of investment has increased since 2000, coinciding with a general upswing in the region’s development.

**Figure 30:** Investments in selected Scandinavian city regions by activity (2000-2004)



*Source:* Copenhagen Capacity (2005)

Investment in the Öresund region is currently on par with Stockholm and actually surpasses it when measured over a five year period (Figure 30). When comparing investment activity between

the major cities in the Öresund region (see Table 11), certain significant differences between Copenhagen and Scania should be noted.

**Table 11:** Regional Ranking of Venture Capital Investments

Ranking	Region	Investments (DKK million)
1	Berlin	2,142
2	Öresund region	2,064
3	Oslo	1,764
4	Eastern Denmark	1,614
5	Helsinki	1,258
6	Hamburg	1,124
7	Scania	471

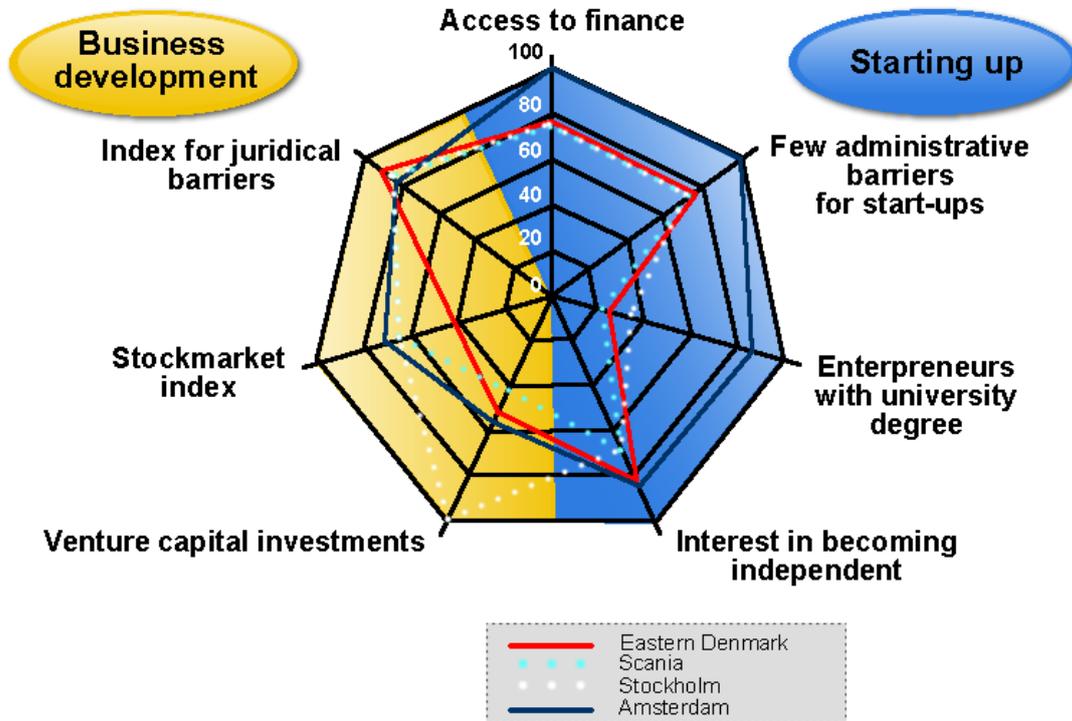
*Source:* The Danish Ministry of Economic and Business Affairs (2003)

According to the Danish Ministry of Economic and Business Affairs, venture capital activity in the Öresund region is developing in a positive direction, as shown in Table 11. The region ranks second behind Berlin when compared to six regional peers. However, whereas Copenhagen ranks fourth – with venture capital investments of DKK 1,614 million – Scania has only DKK 471 million in venture capital investments and is ranked last. Hence, the integration process in the Öresund region still faces major hurdles. One worrying factor concerns the lack of interface and synergies in regard to venture capital. This means lost opportunities with respect to improved allocation and management of funds, especially in support of a revitalisation of innovative capabilities, the establishment and cultivation of new high-tech companies, and long-term growth.

Another regional indicator is the entrepreneurial climate, reflected in access to financial support and legal and administrative barriers to start-ups. The climate is fairly favourable in the Öresund region, Figure 31 shows. However, the strong regional position in these areas is largely attributable to favourable entrepreneurial conditions in the greater Copenhagen area. For instance, there are fewer administrative barriers to start-ups and better access to financial support in Copenhagen compared to Scania.

When it comes to venture capital investments, the picture is troubling. The assessment scoreboard points out the region's weak position in respect to venture capital availability. Not surprisingly, Stockholm is the leader in terms of venture capital investments compared to Amsterdam, Copenhagen and Scania. The Swedish venture capital market is strongly concentrated in the national capital (situated 600 kilometres north of the Öresund region). In Denmark, too, most of the activity is concentrated in the Copenhagen area.

Figure 31: Assessment of the Entrepreneurial Environment in the Öresund Region (2003)



Source: The Danish Ministry of Economic and Business Affairs (2003)

Copenhagen’s significantly larger venture capital market compared to Scania might be considered to offer substantial spillover effects and opportunities to investment-seeking companies on both the Swedish and Danish side. But only limited syndication is taking place among southern Swedish and Danish investors, with only few Danish investors engaging directly in Swedish companies. This is explained by the key investors and public capital providers prevalent in the region (see below).

As pointed out earlier in this report, venture capital investments in entrepreneurial companies can be divided into subcategories such as pre-seed, start-up, seed and expansion. For the purpose of assessing the investment environment in the Öresund region, in the following section the various capital providers are examined according to investment stages.

Table 12: Key Investors in Scania and Copenhagen Areas

Development stage	SCANIA	COPENHAGEN
Pre-seed	<b>INDIVIDUAL INVESTORS</b> <i>Stiftelsen Innovationscentrum: &lt; €4,000</i> <i>TEKNOPOL</i>	<b>INDIVIDUAL INVESTORS</b> <i>INCUBATORS: &gt; €100,000</i>
Seed	<i>Stiftelsen Innovationscentrum</i> <b>MAX. €44,000</b> <i>TEKNOSEED</i>	<i>INCUBATORS, VÆKSTFONDEN</i>
Expansion	<i>INDUSTRIFONDEN</i> <b>VENTURE CAPITAL</b>	<i>VÆKSTFONDEN</i> <b>VENTURE CAPITAL</b>

NB: Potential cross-border investors are in **bold**. Non-cross-border, public sector investors are in *italics*.

Sources: The Danish Ministry of Economic and Business Affairs (2003); IKED

As shown in Table 12, venture capital investors active in the early stages of business development and responsible for supporting new ideas and bringing them into action are either private investors such as business angels or public actors such as Stiftelsen Innovationscentrum (SIC),<sup>12</sup> TeknoSeed, the Danish incubators (innovationsmiljøerne) and Vækstfonden.

Private investors in the form of friends, family and business angels easily can choose to invest across borders through syndications with investors in the other country. However, public investors face limitations when making their investment decisions. Public investors in Denmark and Sweden are generally given national investment mandates and cannot easily operate outside national borders since the rules governing commercialisation and investments are national in scope. For instance, the Swedish public venture capital investor situated in Lund in Sweden receives a number of project proposals from Danish entrepreneurial companies but is forced to reject them due to investment regulations. Thus, the current model – consisting of national investment mandates – unfortunately risks preventing a fully-fledged cross-border venture capital market from developing in the Öresund region.

#### **Box 12:** Some Examples of Öresund Collaboration

##### **Lumitec**

In 2002, a new venture capital fund was formed to improve the investment environment in the Oresund region. Initiated by Lund University, the Swedish Industrifonden and Malmöhus Invest AB, the new fund seeks to invest seed capital in spin-offs from universities and research institutes throughout the region.

##### **Malmöhus Invest AB**

The Swedish venture capital fund Malmöhus Invest AB, located in Malmö, seeks to engage in collaboration and syndications with investors and entrepreneurs in Sweden and Denmark. In 2003, for instance, Malmöhus Invest syndicated an investment in the Danish company Visible Diagnostics among Danish Innfond, Oresund Healthcare Capital and Radiometers Venture Fond.

##### **TeknoSeed**

The venture capital fund TeknoSeed, located in Lund, receives contacts on a regular basis from Danish companies looking for investors. But due to national investment mandates it is forced to reject these investment proposals. TeknoSeed has syndicated one investment to a Danish investor.

##### **Öresund Business Angel Network**

The Danish business angel network (DBAN) has arranged business angel meetings with Danish and Swedish business angels and presentations of business plans from both countries. The cross-border events have attracted a number of private investors and have advanced into more sector-oriented groupings. One of these business angel groupings focuses primarily on new biotech companies. See [www.dban.dk](http://www.dban.dk).

Despite the obstacles, some venture capital activities are up and running and attempting to combine opportunities and interests on the two sides – and they have been getting stronger in recent years. Some specific examples are noted in Box 12. This report notes the existence of some successful developments in terms of growing start-up activities on both sides of the strait, and an increasing trend of Danish companies moving to Sweden.

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<sup>12</sup> Swedish Innovation Centre (Stiftelsen Innovationscentrum, or SIC) is the funding arm of the Swedish government agency ALMI Företagspartner AB (see [www.almi.se](http://www.almi.se)) The basis of ALMI's mission is the need for financing and business development that is complementary to the market, where ALMI is the channel for investment based on an industrial policy that promotes economic growth.

Yet important barriers continue to hamper integration. A common tax agreement has been accepted and put an end to the most gruelling incompatibilities between the national regimes, but the behaviour of companies, employees and individual investors and entrepreneurs is still strongly influenced by the markedly different legislative and regulatory conditions which prevail in the two countries. Public authorities and universities are poised to cooperate but are, in effect, funded largely through hierarchies that are part of – and dominated by – entirely separate national frameworks.

Not surprisingly, cultural differences between Swedes and Danes play an important role. Both in business as well as personal relations, the interaction between people and shared cultural values are key determinants for successful collaboration and investment. In the Öresund region, cultural differences are among the factors that impede the establishment of well-integrated markets. The nature of such differences tends to be delicate and they may not easily be correctly depicted. However, it is well-known that the Danes have stronger commercial traditions which tend to make them adopt a relatively shorter term and more demanding approach in negotiations. The Swedes, with their heritage of industrialism and craftsmanship, tend to take a longer term approach in business relations. Such differences can easily give rise to misunderstanding and disappointments.

## Summary

Following the general internationalisation trend, regional competitiveness is increasingly determined by local communities' ability to promote transactions and activities across borders. Similarly, flows of international venture capital investments are expanding and have become important tools for supporting international and growth-oriented entrepreneurial companies in recent years. International and well-connected venture capitalists can provide portfolio companies with networking opportunities and access to foreign markets. This chapter has argued, however, that the cross-border process continues to underperform and to face stern challenges. Venture capital activity is highly concentrated in certain regions and centres on existing economic activity. Also, regional disparities in levels of venture capital activity tend to persist over time. Even in the most mature markets, such as Sweden, the availability of venture capital has only started to diversify geographically as maturing risk capital markets attain a critical mass.

At the same time, countries and regions continue to display strong segmentation in their venture capital markets, reflecting a host of national barriers. The entire range of public funding mechanisms for science and research activities is heavily restricted to within national borders. Countries with substantial public venture capital involvement tend especially to find themselves confronting severe limitations in their investment strategies. Public investors in venture capital likewise continue to be marked by traditional obligations to ensure that invested capital resides in companies within their national borders. As a result, such investment strategies tend in practice to be at odds with the internationalisation trend. Among other things, this situation prevents public investors from interacting efficiently with the more internationalised investors in the private market.

There are reasons to believe that the urban areas of Copenhagen and Malmö together can shape new opportunities and tap into complementary strengths. The regional industrial dynamics, the presence of common specialisation areas, the ability to create new enterprises, the availability of skilled human resources and the capacity to exploit the potential for creating innovation and productivity enhancement are all factors that can provide a strong basis for the region's future

international competitiveness and its ability to attract international capital. At the same time, contrasting strengths and weaknesses could turn out complementary. Among them, the dissimilarities in financing profiles across the stages of firm development, described in the previous chapter, could evolve into a source of dynamism if the forces of entrepreneurship, innovation and financing were to fuse in this region. The Öresund region faces yet unrealised opportunities in this respect. A far-reaching removal of barriers to cross-border venture capital activities could fuel progress on several fronts. Opening up the national investment mandates exercised by public investors in Denmark and Sweden should form part of a package to alter the present situation.

## CHAPTER 6: CHALLENGES AND RECOMMENDATIONS

Following the collapse of the buoyant investment behaviour that marked the last few years of the old millennium, many countries focussed attention on moving gainfully from a stage of initial recovery onto a path of sustained economic growth. As confidence and trust in the general outlook returned, investments and restructuring activities have been reinforced and spurred economic growth. In many developing regions, there is a distinct sense that they too can now share the fruits of economic recovery and technological breakthrough.

Many of the old established industrialised countries, notably in Europe, have behind them years of stagnation in the face of sharpened international competition. It is becoming increasingly obvious that new stars are on the rise, and that the world economic centre of gravity is in the process of shifting. This is particularly evident from the brimming activity in China, India and other countries in East Asia and from the rapid expansion of most of the transition economies in Central and Eastern Europe. Individual developing economies in Latin America and Africa are also performing well. At the same time, not all European countries are stagnant. The Nordic countries belong to those that have performed relatively well for a number of years.

The mechanisms and driving forces that allow for technological and skills upgrading, adjustment and restructuring are attracting attention across the globe. As discussed in this report, the provision of seed and venture capital is widely considered a milestone in the development towards enhanced conditions for enterprise development. In this area, there are also widespread changes relating to regulatory conditions and investment behaviour. Most attention has been focused on trends in the United States. From a general international perspective, the record is patchy. In many cases, venture capital investments do not really support early-stage enterprises or lead to the establishment of productive businesses. The connection between venture capital activity and entrepreneurship is often not as favourable as might be hoped.

For all the recognition that these factors muster, scant attention is still paid to the way in which a range of relevant policy areas affect the functioning of venture capital markets. This report looks at global trends and challenges in venture capital markets and examines in particular detail the experiences of two Nordic countries – Sweden and Denmark. From the analysis, recommendations are made in four key areas.

### 1) Towards a Global Venture Capital Market

The evolving venture capital activity in various markets around the world has generated an industry that in many respects is perceived as global. Flows of early-stage and later-stage investments rose rapidly until the bubble burst and the economic downturn curbed the market's expansion. But although some global patterns and trends are emerging, the overall development in venture capital markets cannot really be depicted as global. As for product markets, the picture is mixed. Some companies and product brands have of course turned truly global. In many cases, however, global brands are being combined with complementary services or qualities that are adjusted to local preferences. Value added is increasingly associated with the ability of companies to organise themselves so as to master such adjustment to specific needs. As consumer sentiments as well as productive assets remain local in many respects, global companies are induced to combine the evolution of global networks with localisation strategies that match and harmonise with special local features. Trade barriers and regulatory conditions continue to account for market segmentation, however, in service industries as well as in manufactured

products and other areas. Most funding of education, science and technological activities, for instance, contributes to national lock-in of various activities.

Meanwhile, the level and nature of venture capital activities is far from even and varies across regions. Those countries that have already developed modern knowledge and technology-intensive economies, can ill afford unhelpful conditions for venture capital funding. It is not the strengthening of venture capitalists in a narrow sense that matters crucially. The key is to pave the way for conditions that are conducive to pluralism, diversified sources and channels for funding and multiple institutions and players to develop demand for their services. Countries should embrace a range of reforms if they are to facilitate the establishment these components, and of markets that support broad and effective distribution of investments (including outside traditional markets) and that support high-growth and innovative ventures in their early stages of development.

Most venture capital activity is limited to countries in developed regions, such as North America, Europe and, to a lesser extent, the Asia-Pacific region. Other parts of the world, such as the Middle East, Africa and Central and South America, have attracted very little of the total amounts invested, as highlighted in Chapter 2. In those countries where little venture capital is available, plenty of reforms are generally required to achieve any significant change. On the other hand, it may be that the provision of venture capital is of limited significance for such countries at their present stage. Mechanisms allowing for the provision of micro-credit or informal capital are much more important, along with schemes that help diffuse mature technologies rather than those that cultivate academic basic research and its linkages with corporate R&D in the traditional sense. However, all governments need to recognise the fundamental importance of individual initiative, innovation and risk-taking as a basis for growth-oriented entrepreneurship, and thus for microeconomic dynamism as well as aggregate macroeconomic growth.

## 2) Enhancing Cross-border Activity

In recent years, cross-border venture capital has become a significant enabler of new high-growth businesses. However, while globalisation of venture capital activity gradually becomes a reality, a number of cross-border impediments still exist and are hindering the convergence of markets and the development of a full-fledged global industry. This is true not only between developed and developing regions, but also between venture markets throughout the most collaborative regions such as North American and Europe.

The ability of venture capital markets to get involved in flows of investments across national borders in part depends on the maturity of the industry. Moreover, the lack of sufficient infrastructure prevents cross-border investments from taking place. Countries should act to remove legal structures that create arbitrary lock-in effects, limiting the functionality and reach of innovation systems within national borders. Efforts should particularly be made to identify and remove conditions that complicate and hamper the collaboration between players located in different countries with regard to support for high-risk ventures.

As highlighted in Chapter 5, countries and regions that display heavy public venture capital involvement tend to find themselves with sharp limitations in their investment strategies. The spectrum of public governance mechanisms and mechanisms for providing support to science, technology and innovation-related activities contributes to the segmentation of dynamic entrepreneurship within national markets. Hence, governments should take steps to ensure that

investment policies are adapted to the ongoing globalisation process, by putting in place programmes and playing rules that embrace rather than counter-act cross-border investment and activities. Cross-border collaboration in governing regional integration processes should also be granted higher priority.

### **3) Putting in Place National Mechanisms through Public-Private Partnerships**

In many countries, governments have played a significant role in boosting private investments. By responding to the demand for risk capital, actions by specialised public investors have helped catalyse and pool private resources particularly in high-risk and early-stage market segments. At the same time, major challenges remain for public sector players. Public actors need to refrain from acting in isolation or from being governed solely by short-term political objectives.

The responsibility for an efficient venture capital market should not be viewed as public or private. In the development of venture capital industries, countries should strive for complementarities between public and private provision. Public initiatives and funding are typically needed to spur new ventures, and notably to bridge between academic research and commercialisation, but intervention must be based on principles of risk-sharing with the private sector. Public strategies must also be based on the notion that private firms are to take the lead in developing and realising the potential of new ventures. A crucial challenge is that of enabling sufficiently strong mechanisms for the support of high-risk early stage investment activity, as discussed in Chapter 3 and 4.

It is imperative that the public sector strives to operate so as to compensate for the lack of private capital provision in areas where there is a strong social motivation for investment, but also so as to catalyse better functioning private markets. In addition, the public sector needs to give high priority to ensuring appropriate conditions for the individual entrepreneur and risk-taker – in other words, an operational risk-reward ratio for the human being who ultimately stands behind any potential high-growth venture.

### **4) Enabling Early-stage Risk Capital**

Access to seed financing is crucial to the growth platform of new young companies and the venture capital market as a whole. Seed financing is highly profitable to the overall economy. But markets are prone to rapid shifts following changes in investment or market sentiments, which makes the supply of finance to potential high-growth companies in the early stages of development distinctly erratic. As for venture capitalists, one of the greatest benefits deriving from their activity is the ability among investors to alter the balance between risk and growth prospects. As discussed, they have a high capacity to shift risk away from the single entrepreneur onto a diversified investment portfolio. On the other hand, venture capitalists are not willing to back ventures subjected to genuine uncertainty; they do not let innovators and entrepreneurs have it their way in trying out blue sky projects. In addition, the recent years' development in markets has turned investors more risk-adverse and venture capitalists have been shunning early-stage investments.

If countries, including those in the Nordic region, do not succeed in strengthening conditions for early-stage enterprises, innovative and potentially high-growth companies will no doubt perform below their potential. This means that there will be fewer such companies in the first place. It also means that the enterprises that do exist will devote more resources to survival and day-to-

day operations and less to strategic issues, trying out bold ideas, assuming risk and developing potentially expansive businesses. In order to succeed with commercialisation of new technology, and obtain the economic and social benefits stemming from a flourishing entrepreneurial society, access to early-stage risk capital needs to be diffused more effectively, while enabling more favourable linkages between local communities and international markets.

Such issues are not tackled through the mere provision of public capital. Nor can they be effectively addressed purely as a supply-side issue. The private sector cannot be expected to simply adjust and learn how to handle the risks associated with early-stage investments. Venture capitalists naturally make their entry at somewhat later stages. As shown in the case of the Nordic countries, a number of measures can be taken to stimulate various activities that target early-stage companies, including business angel networks and public funds of funds. There is also a need to ensure sufficient business skills and competencies on the demand side. Part of the solution must be to improve the conditions for entrepreneurship. Entrepreneurs should also be encouraged to develop greater investment readiness, notably among young entrepreneurial start-ups.

The informal venture capital market and the employment of business angels are much needed but tend to be faced with a range of policy-induced barriers. The public sector should thus aim to adjust conditions so as to allow for, and encourage, multiple private sector players to share risk earlier on, and to improve the combined output of informal, public and private sector involvement. Governments have the responsibility to improve framework conditions and to develop public sector programmes that can strengthen the private sector's ability to commit financial resources to early-stage initiatives. This includes breeding competent governmental co-investors.

In conclusion, there is room for improvement in public policy for the purpose of strengthening public-private partnerships and boosting initiatives in the early stages of commercialisation and the innovativeness of small businesses more generally. Current approaches are generally inadequate. Nevertheless, for any country, there are good reasons to examine approaches practiced by others, to lay an informed basis for new ways to experiment with initiatives to strengthen seed funding. The US Small Business Innovation Research (SBIR) programme, which specialises in this area, merits careful scrutiny. The varying approaches of the Nordic countries lay the basis for other observations and lessons.

In Sweden, impediments to risk-taking and funding of risk in the early stages of innovation-driven business formation represents a key area for strengthening motivational factors. The fabric surrounding grants, loans and conditions for repayment in some public programmes could be re-engineered so as to improve the prospects for genuinely innovative ventures to gain support from the outset. At the same time, the upgrading of public funding schemes should be matched by measures that improve the basic conditions for opportunity-based entrepreneurship. In Denmark, public programmes have lately been successful in catalysing enhanced private sector activity, but the presence of coherent avenues for growth and exit is rather weak. Cross-border processes for funding as well as entrepreneurial activities could add substantial value.

## CONCLUDING REMARKS

Sweden's private equity market has been amongst the most expansive in the world for a number of years, but challenges and shortcomings remain. Denmark's private equity market is in a weaker position overall but has improved its position with regard to early-stage investments. In both countries, there are signs of strengthened public schemes for seed funding provision, organised so as to stimulate links to complementary sources of funding and competencies.

Moderating the widespread perception of a lack of capital in business development, this report argues that the key factor is not one related to inadequate funding. Rather, the prime challenge is to activate the reservoirs of passive capital, strengthen risk management capabilities among investors and raise the level of investment readiness among entrepreneurs. The main challenge confronting policymakers is to address the combined impact of the prevailing conditions on the willingness and ability of market players and increase their propensity to collaborate in generating new, high-risk business activities. This effort requires continuously improved programmes involving public funding and complementary expertise. Furthermore, universities must expand their capacity to prioritise and specialise, while also opening up more diversified career paths that are in tune with innovation and business sector relations.

There is also a need to push reforms so as to alleviate the distortions that deter risk-taking. The risk-reward ratio confronting the individual needs to be scrutinised and improved in many cases, for example by tax reforms and initiatives to improve societal attitudes towards entrepreneurship. Necessary tax reforms that may be considered include the reduction of capital gains taxes, which could stimulate more risk-taking and entrepreneurship. This must be combined with consistent reforms that raise the ability of institutional investors to diversify sources of venture funding. There is also a need to strengthen business angel networks and their links to technology incubators and complementary support services.

Venture capital activity entails opportunities to restructure regional markets and respond to growing transnational demands. Mechanisms and means for such adaptation are often lacking. Despite the tendency towards a measure of global convergence in today's markets, developments towards integrated industries are hindered by discrepancies in national legal systems, public support systems and investment cultures. Relatively small domestic markets may make countries more prone to welcome collaboration across borders and may serve as an advantage in triggering initiatives and reforms that improve openness and learning. Private businesses from Denmark, Finland and Sweden currently collaborate intensively with local players and companies in neighbouring countries. At the same time, the presence of remaining multiple barriers – even within the realm of a single megalopolis such as the Öresund region – accounts for a slow integration process in an area at the very heart of competency generation for new growth industries and restructuring processes marked by high value-added. Major results appear realistic only in the long term.

Improved mechanisms for the provision of seed and venture capital should allow venture capitalists to play a more constructive role in many local development processes. Concurrently, the conditions restraining entrepreneurship also need to be addressed. Countries around the world have good reason to reflect on how to embark on reforms in order to do away with costly rigidities and barriers in this area, and on how to support better driving forces for collaboration between multiple players around experimentation in early stages of enterprise formation and the purposeful commercialisation of new technologies.



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