



Stockholm School
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A partnership between KI, KTH, SSE and Konstfack



ATTRACTION OF LIFE SCIENCE FINANCING

AN INTERNATIONAL BENCHMARK OF INVESTMENT INCENTIVES

swedenBIO

Authors:
Bhardwaj Anu
Dahlberg, Erik
Gustafsson, Anna
He, Liqun
Mata, Carles Xavier

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1 Introduction

1.1. Focus

This study aim to benchmark different investor incentives available in Canada, Ireland, United Kingdom, Denmark and Singapore, in order to identify ideas on how to further develop the financial environment to ultimately build successful and vibrant Life Science clusters with sustainable growth potential in Sweden.

The focus areas for this analysis include a comparative study of:

- Incentives/regulations for investments by pension funds in private equity and venture capital and how these are designed and function
- Incentives for individual and Venture Capital investors investing in private equity and how are these designed and function
- Whether PIPE's (Private Investments in Public Equity) are possible to facilitate second round financing and if so, how are these designed?

1.2 Background

After three decades of scientific innovation, development, and convergence, the life science industry has emerged as one of key sectors for attracting private investors and venture capitalists. With the emergence of the Internet and the convergence of bio-medical technology and its applications on the masses, "life science" has been deemed one of the most exciting avenues for addressing the growing needs of mankind.

As investors understand the market potential for developing new therapeutics, scientists delve into applying new modalities to achieve low cost productions. The life science industry as a result is a complex organism, which demands enhanced creativity while applying cold logic in achieving unparalleled investment returns. As a result several governments have realized this opportunity while various players in the financial sector have observed the same. There is a growing demand for attracting investment and creating an environment that not only nurtures the innovations process but also fuels its inherent growth.

In this analysis, we hope to understand what sort of incentives and regulations are offered by six competing nations (including Sweden, Denmark, Ireland, U.K., Singapore, and Canada) who have successfully managed and continue to attract investments which are critical components for financing the life science industry.

The Swedish government has recognized the Swedish Life Science Industry as one of the key drivers of the countries future economic growth and that the Central government's role is to create the preconditions for Sweden (Pharmaceuticals, biotechnology and medical technology – an Integral Part of Innovative Sweden, government report 2006). Considering the many positive underlying conditions Sweden already provides, Swedish entrepreneurial life science business indeed has potential to become one of the key engines for Swedish economic growth as well as be in the fore front of international competition.

However, it is of outmost importance that the government is adapting actively to the changing needs of this developing industry, in order to create the best possible conditions for Sweden not to be left behind. One of the most fundamental challenges that need to be addressed in order to improve the Swedish preconditions for creating long-term economic competitiveness is the lack of Swedish Private Equity to supply the heavily increased funding requirements of maturing Life Science companies.

1.3 The financial challenge

Financing is a fundamental challenge in industrial life science development and in order to continue to grow new and healthy life science companies it is instrumental that all components of the innovation system are performing efficiently on par with each other and that there are enough capital to bring companies to become self-sustainable businesses.

In the value chain of life science entrepreneurial development, Venture Capital has an important role in taking ideas to products by investment in seed, start-up or expansion phases in the business of building businesses. The Life Science Industry's long term growth can only be secured through continuous R&D activities and it is important to note that such R&D efforts in large is sponsored by venture capital, underpinning the importance of this business.

2 Method

The applied methods include compilation of quantitative and qualitative data by desk research and interviews.

3 Canada

3.1 Overview of Canada's business climate

Although merely 10 years old, the Canadian Venture Capital Industry, is growing rapidly along with its counterparts in the Nordic Region and other parts of Europe who are not as well developed in the United States or the United Kingdom. According to Rolf Fyne, a spokesman for the Government of British Columbia, Vancouver had the highest number of IPO's in all of North America in 2005. Fyne also mentioned that the average timeline from "Innovation to IPO was approximately 43 months." With respect to the highest number of investments made in the third and fourth quarter of 2005, Quebec has assumed the lead with Ontario following closely behind. (Exhibit 1)¹. Although not as aggressive as its American counter-parts, Canadian Venture Capital investments in the life sciences, IT, and telecom have remained slow and steady at a rate of 475 million in new investments each year. Canadian pension funds, however, have demonstrated an increased interest in the private equity/venture capital markets.

Dollars Invested by Region

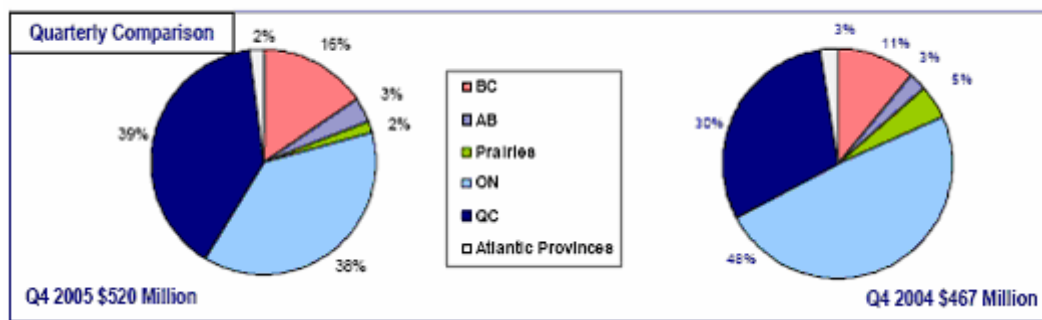


Exhibit 1. Quebec Market Share Growing. Beginning to Exceed Ontario Levels

3.1.1 Venture Capital Industry

While Canada's Venture Capital industry, like its larger and more developed U.S. counterpart, has seen its ups and downs of late, there are signs of growth as well as a maturing of the sector overall.

If current trends persist, economic historians might look back on 2005 as the start of the Canadian venture capital industry's real coming of age. While key indicators of the industry's health (notably, disbursements and capital commitments) are mixed, a review of underlying developments suggests a maturing of Canada's still-youthful Venture Capital sector.

Start-up companies hungry for capital to finance growth will be encouraged by news of a healthy jump in venture capital dollars invested in Canada in mid-2005. According to figures compiled by Thomson Macdonald and the Canadian Venture Capital and Private Equity Association (CVCA), a total of \$627 million was disbursed in the second quarter, up

¹Thompson MacDonald (2006). Canada's Venture Capital Industry in 2005. Press Conference: February 14, 2006 - http://www.cvca.ca/files/News/RNathan_Presentation_press_conference_Feb_14_2006.pdf

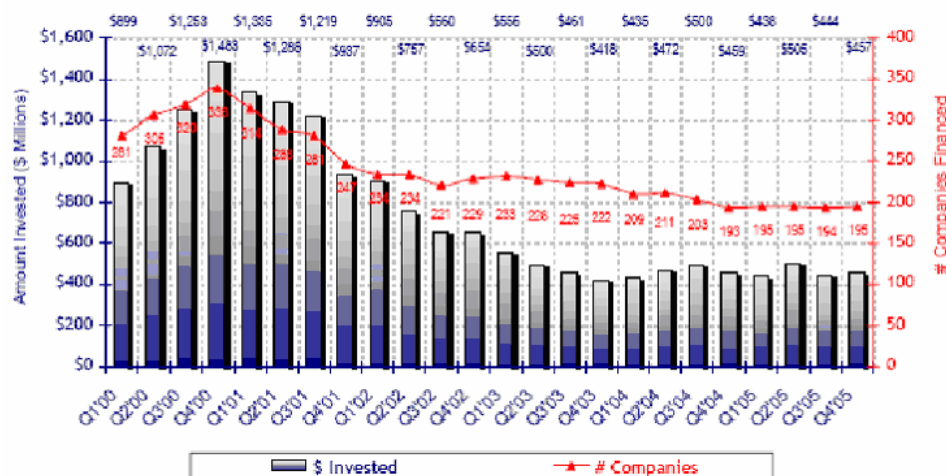
an impressive 53% from the same period last year. It's also the highest level of quarterly disbursements since Q4 2003 and another sign of a slow but steady post-bubble-burst recovery. Typically, about three-quarters of the Venture Capital funds invested in Canada go to companies in Ontario and Quebec.

The Thomson Macdonald/CVCA report reveals some not-so-good news at the other end of the Venture Capital pipeline: new capital commitments in Q2 2005 were less than half what they were during the same period in 2004 – \$155 million versus \$317 million. Although conclusions cannot be drawn from one quarter, this continues a five-year trend. In addition, the Ontario provincial government's late August announcement about its proposed elimination of the 30% tax credit for investments in labour-sponsored investment funds (LSIFs) could significantly detract from their appeal and it is widely expected that existing LSIFs will reserve their currently available liquidity for follow-on investments. Since LSIFs have accounted for slightly less than one-third of all Venture Capital dollars invested in Ontario since January 2003, and have been a catalyst with respect to early stage investments, this change, if implemented, may have an immediate negative effect on emerging businesses in Ontario until and unless that gap is met by other sources of venture capital.

Fundraising dropped across all major investor groups in Q2 2005 – LSIFs and other retail funds, which accounted for 88% of the total, saw new capital commitments drop to \$745 million in the first half of 2005, down from \$1.1 billion over the same period last year. Private/independent funds, corporate funds and institutional investors raised just \$374 million in the first half of 2005, down from \$445 million over the same period last year. Foreign investors are the bright spot for capital commitments: they contributed 35% of Q2's \$155 million – up 185% over 2004 in what may be an indication of an increasing awareness of Canadian possibilities.

However, U.S. and European investors are also eyeing promising enterprises in rapidly developing countries like China and India. While Canadian companies can offer well-regulated and familiar business and legal systems, they are sometimes handicapped by foreign investors' (often inaccurate) perceptions of tax, liquidity and other shortcomings of our investing environment.²

Dollars Invested and Companies Financed - Four Quarter Rolling Averages



² Shahir Guindi, Osler Hoskin & Harcourt LLP. (2005) The Osler Outlook. Quarterly Review Fall 2005. <http://www.osler.com/resources.aspx?id=10596>

Exhibit 2. Trend in Year Over Year Dollar Invested Shows Continued Stability

3.2 Pension Funds Investing in Private Equity

“Canada’s pension plans – the biggest potential domestic source of financing – are still wary of direct Venture Capital Investments. But several, including the Canadian Pension Plan Investment Board, the Ontario Municipal Employees Retirement System, Teachers’ Private Capital (the private equity arm of the Ontario Teachers’ Pension Plan) and the Caisse de dépôt et placement du Québec are taking stakes in various Canadian Venture Capital funds, such as Celtic House, Brightspark and Ventures West. In addition, the CVCA’s Institutional Committee is working to encourage new participants to build a globally diversified private equity portfolio by educating them on the performance of the asset class globally and the means for cost effective entry.”³

Institutional Allocations (Actual) to Private Equity

Canada and the United States, 2002

| UNITED STATES | % Of Total Assets |
|-------------------------------|-------------------|
| Endowments and Foundations | 8.0% |
| Pension Funds (Corporate) | 3.3% |
| Pension Funds (Public Sector) | 3.1% |

| CANADA | % Of Total Assets |
|-------------------------------|-------------------|
| Endowments and Foundations | 1.0% |
| Pension Funds (Corporate) | 1.3% |
| Pension Funds (Public Sector) | 2.8% |

Source: Greenwich Associates, 2003



Exhibit 3. Institutional Allocations to Private Equity (2002)

3.3 Venture Capital Market

3.3.1 Institutional Investors

The venture capital industry in Canada has had some rough years since 2001. This is probably due to the reduced sales of government backed retail funds.⁴

Many observers are confident though, pointing at U.S incentives to invest in the Canadian venture capital market. They include tax incentives on R&D, the cheaper Canadian dollar and the lower average wages in Canada⁵

Another reason for the slump in the Canadian venture market could be it’s relative lack of finance from pension funds relative to the U.S. Over 70% of the venture capital in Canada comes from individuals compared to only 30% in the U.S.⁶

3.3.2 Private Investors

³ Shahir Guindi, Osler Hoskin & Harcourt LLP. (2005) The Osler Outlook. Quarterly Review Fall 2005. <http://www.osler.com/resources.aspx?id=10596>

⁴ Matthew Sheahan.(2005) Venture Capital Journal. Wellesley Hills. Jun 1, 2005. pg. 1

⁵ Ibid

⁶ Ibid

Individuals in Canada invest in venture capital through different labour-sponsored funds. In 2004 they raised a total of 889 million us\$.

The government gives individuals a tax credit of 15%, and each respective province 15%, if the funds are invested in a specific fund through the Registered Retirement Savings Plan.⁷ Similarly, the Ontario Community Small Business Investment Fund (CSBIF), which supports venture capital funds investing in qualifying small firms, gives tax credits mostly to individual investors.

There are several drawbacks with the Canadian system when comparing it with the U.S:

- All provinces create their own rules. This will of course create confusion and unnecessary work for individuals
- The labour funds' discretionary power to choose what to invest in are regulated. This makes them slower and less effective, since they are not free to choose projects between province borders, compared to institutional venture capital investors in the U.S.
- Individuals are more unreliable than for example pension funds, which could give investors the problem with unforeseeable financial resources as a result.⁸

3.4 Private Investment in Public Equity - PIPE

PIPE's are typically undertaken by smaller public companies to provide quick access to capital at a reasonable transaction cost. In a PIPE transaction, investors typically purchase securities directly from a publicly traded company in a private placement. Depending on the structure of the transaction, this can be done at a premium to or at a discount from the market price of the company's common stock.

In Canada recent changes in the regulations have created an opportunity for PIPE investment, which could be even greater than in the US. "The Canadian institutional context is unique. Specifically, the easing of listing requirements, the generalization of the Capital Pools Company program, and the promotion of backdoor listings by the stock markets themselves have created an exceptional situation."⁹

Several provinces in Canada have recently revised their security laws to facilitate the private equity process.¹⁰ Corporations do not have to follow certain regulations if they qualify as "accredited investors" which basically means institutional actors and wealthy people. In Ontario this limit goes at 1 million us\$ and is regulated in The Ontario Rule 45-501.¹¹

⁷ Ibid

⁸ Ibid

⁹ Cécile Carpentier and Jean-Marc Suret. (2005) Bypassing the Financial Growth Cycle: Evidence from Capital Pool Companies. Journal of Business Venturing, Forthcoming 2005 p.1

¹⁰ Cécile Carpentier, Jean-François L'Her and Jean-Marc Suret. (2005) PIPEs: a Canadian Perspective. Journal of Private Equity, Fall 2005 p.41

¹¹ Ibid p.43

4 Ireland

4.1 Overview of Ireland's business climate

Ireland has a number of general advantages that have made it one of the most popular locations for investments in Europe over the last two decades:

- The language - English mother tongue
- Demographics - high proportion, 36.7% of people under 25 years of age
- Educational status - high percent with higher education
- Economic growth consistently surpassing OECD / EU average
- Member of EU and the European monetary union

In addition the Irish governmental economic policies have been consistently supportive towards inward investment over the years. They have primarily had the focus to achieve economic expansion by stimulating selectively targeted areas of export-based industries. Investment incentives range from non-fiscal aspects to specific and detailed tax breaks. These incentives are provided on a case-by-case basis and are subject to negotiation with governmental representatives. There are a large number of different incentives, and legislations governing the different schemes are extensive and quite complicated.

Since 2004 the government is also working to develop Ireland as knowledge based society, as to increase productivity growth and provide a source of opportunity in new growth areas. To achieve these goals, novel governmental support funding mechanisms and initiatives at the seed and venture stage to develop the seed and venture capital markets have been initiated.¹² Specific attention and focus is given to the high tech sectors within IT and Life Sciences.

4.1.1 Life Science Industry

In total 80 healthcare companies with over 22.000 employees are located in Ireland. Thirteen of the worlds fifteen top-ranked pharmaceutical companies are located in Ireland for manufacturing reasons and over 36% of Irelands total exports comes from pharmaceuticals export ¹³The Irish biotech industry is the fifteenth largest industry in Europe encompassing 1% of the total number of European biotech companies. Public Irish Biotech companies have 4 projects in pre-clinical or clinical development.¹⁴

4.2 Pension funds investing in Private Equity

There are no legal restrictions on investments in PE by pension funds in Ireland (i.e. prudent man rule).¹⁵ However, there are also no incentives for pension funds to invest in

¹² Inter Departmental Committee on Science, Technology and Innovation. (2004) Promoting investment in R&D to 2010.

¹³ PWC (2005) Doing business and Investing in Ireland.

¹⁴ Ernst & Young (2006) Beyond Borders, Global Biotechnology Report 2006.

¹⁵ EVCA (2004) Benchmarking European Tax and Legal Environments.

private equity (personal communication Niall Olden, CEO, Bank of Ireland Kernel Capital Partners PE Fund).

Irish pension funds had no assets at all in the PE class between 2000 and 2003 (Policies for sustainable equity financing of Irish SME's, Diane Mulcahy, 2004). This is likely due to the not so superb Venture Capital fund returns so far, and one could probably expect Irish pension funds to invest in private equity as Venture Capital returns are becoming better. In 2006 the National Pension Reserve Fund has announced that it will invest directly in private equity funds, involved in ventures in Europe and North America.. The goal for 2009 is to reach a quota of 8% invested in private equity, out of an expected total of 30 billion us\$.¹⁶

4.3 Venture Capital Market

The Irish venture capital sector was inaugurated about ten years ago and has successively grown strong with world class characteristics and critical mass with over 1 billion Euro invested.

In 2004 venture capital investments as a percentage of GDP in Ireland was 0,042 as compared to the 0,2 and 0,1 averages in US and Europe respectively. About 27% of total investments that year went to high tech healthcare companies¹⁷. Most recent data quote total Venture Capital investments in Ireland in 2005 to 124.35 million Euros.¹⁸

The Irish venture capital sources of institutional capital are out of balance and limited. Between 2000 and 2003, no capital at all was raised from pension funds, governmental funding of was high relative to Europe (5%) and US (<1%) and most of the capital (25%) was raised from banks.¹⁹

The Irish Stock Exchange has developed an efficient and cost-effective facility for listing investment funds which has rendered Ireland recognised internationally as a centre of quality for establishing and administering investment funds. As proof to this a range of international fund promoters have chosen Ireland as their domicile, even though tax positions are found complex.

4.3.1 Venture Capital Investors

Ireland does not have any tax incentives specific to private equity or venture capital investments. However there are a number of general tax incentives that can be applicable.²⁰

The general tax position in Ireland for venture capital investors is above average European conditions.²¹ Since the Finance Act 2000, all Irish funds are exempt from tax on income and gains, but there is an exit tax of 23% imposed on Irish resident investors. The Irish fund structures are considered favourable. Below are some of the main characteristic advantages listed? However, please note that specific detailed restrictions apply on different types of funds and depending on the nature of the investor:

¹⁶ Matthew Sheahan. (2006) Venture Capital Journal. Wellesley Hills. Feb 1, 2006 pg.1

¹⁷ IVCA (2006) The Economic Impact of Venture Capital in Ireland.

¹⁸ Tax-news.com. Lowtax intelligence report, Ireland, the Irish Venture Capital sector.

¹⁹ Diane Mulcahy (2004) Policies for sustainable equity financing of Irish SME's.

²⁰ EVCA (2003) Private Equity and Venture Capital Incentives in Europe.

²¹ EVCA (2004) Benchmarking European Tax and legal Environments report.

- No charge to Irish stamp or capital duty (normally 1.0 and 0.5% respectively).
- Limited partnership is tax transparent for domestic investors income tax purposes.
- No need for international investors to have permanent establishment in Ireland.
- Tax efficient capital investment or incentive for fund managers can be incorporated, so carried interest schemes are feasible and subject to capital gains taxes.
- Management charges and carried interest are not necessarily liable to VAT.
- No restrictions on the types on investments undertaken.
- Irish withholding tax may apply to cross border payments of dividends, interest and royalties. However, there are numerous exemptions that may be available under domestic Irish tax law or double taxation agreements to eliminate such withholding taxes. Currently double taxation agreements are in place with 44 jurisdictions.
- Preferential financial services rules such as tax benefits.
- The ability of roll-up the value of the investment fund tax-free.
- In relation to securitisations there should be tax deduction for costs including funding costs, and there are wide-ranging exemptions from withholding taxes and stamp duty.
- Possibility to receive dividends from the invested companies without deduction of withholding tax
- Payments by the fund to non-resident investors can be made without deduction of withholding tax. (However, the fund may be required to deduct withholding tax where it makes payments to resident investors).

There is no privileged capital gains tax regime for Irish investment funds. Capital gains from sales of shares will bear capital gains tax of 20% (above European average of 16,3%). However, non-resident companies are not liable for capital gains tax, i.e. a break for international corporate investors.

It is also worth noting that the Irish State, through Enterprise Ireland, has committed 98 million Euro in fifteen separate funds to the venture capital market for SME's under the 2000-2006 programme. Approximately 19% of the capital invested between 2000 and 2004 went to companies in the life science sector (2004 Report, Seed and venture capital Programme 2000-2006, Enterprise Ireland).

The corporate tax rate is notably low at 12,5%, but is raised to 25% for passive / non-trading income (incl. interest, royalties, dividends, rents from property).²²

²² PWC (2005) Doing business and Investing in Ireland.

4.3.2 Private Investors

Fiscal incentives are available for individuals setting up companies through a capital relief under the Business Expansion (BES) and Seed Capital Schemes (SCS). Both schemes are planned to operate until the end of 2006, under Part 16, Section 488 - 508 of the Taxes Consolidation Act 1997. Industry organizations have been noted to urge for extension as well as financial expansion (Irish software Association, pre-budget submission, 2006). There are a number of detailed conditions attached to the schemes, some of which are described below.²³

Business Expansion Scheme (BES)

The BES provides a tax incentive to private investors to invest long-term equity capital in high growth and high-risk ventures. Provided an investor holds the investment for a minimum of five years, the BES provides individual investors with a tax relief at their marginal tax rate in respect to a maximum of 31.750€ per annum. A company may raise equity capital up to a maximum of €1 million, but not more than €750.000 in any six months according to EU regulations (Private Equity and Venture Capital Incentives in Europe, EVCA, 2003).

Under the same advantageous conditions as listed above, it is also possible for an investor to investment in a number of BES companies through a designated, and revenue approved, fund (Private Equity and Venture Capital Incentives in Europe, EVCA, 2003).

Seed Capital Schemes (SCS)

The Seed Capital Scheme forms part of the BES and provides refund of tax to promoters (i.e. individuals?) as cash up front, provided that promoter leaves his or her employment to start his/her own business. The tax relief is granted on tax paid over the past six years and relate to the amount of the investment and the effective tax rate. An investment limit of 31.750€ per annum and a total limit of €191.500 applies.

Income tax rate maximum 42% (i.e. lower than average 45,3%) (EVCA)

Capital gains tax rate 20% (over average 16,3%) (EVCA).

Stamp duty of 1% on transfer of shares/stock/marketable securities.

Capital duty of 0,5% on amounts subscribed for the issue of shares in limited liability companies

Exit-tax of 23% on gains on encashment or maturity of investment funds is also applicable since year 2000.

4.4 Private Investment in Public Equity - PIPE

Most public companies in Ireland are listed on the official “Irish Stock Exchange”, ISE.

In September 2000 the Irish stock exchange launched ITEQ - the technology market of the Irish Stock Exchange. ITEQ allows for admission in conjunction with another stock market, meaning that companies have access to the European and US capital markets while still retaining their home market advantage of broker and analyst support etc. ITEQ also allows for trading in American depository receipts, which has the advantage of being exempt from Irish stamp duty (Low tax guide...).

²³ For more details see www.revenue.ie

5 United Kingdom

5.1 Overview of United Kingdom business climate

The UK private equity and venture capital industry is one of the most important lubricants of Britain's economic prosperity. It now accounts for 52% of the total European venture capital investment. The injection of funds into young and expanding companies at crucial stages of their development, together with assistance in their most efficient operation, is a key part of the wealth creation process. Several investment incentives have been created to stimulate life science sector. The following compilation contains the description and discussion of key parameters: Pension funds, Investment incentives and PIPE's

5.1.1 Life Science Industry

The UK is the European leader in life science industry and second only to the US in world rankings. The UK life science market is the most mature in Europe, leading the pace with the highest number of public companies and buoyant financing.

5.2 Pension Funds investing in Private Equity

Currently, only the largest in-house managed pension funds make venture capital investments. The low level of investment by pension funds in venture capital-backed firms is a major inhibitor of the success levels of young and expanding companies.

Pension Fund Scheme

Pension funds can invest in private equity and venture capital according to the prudent man rule and they are characterized by a wide spectrum of operativity. There are no portfolio limits except in the case of employers related with loans (limited to 5%).

One of the most barriers about Pension Funds was the 'Minimum Funding Requirement', which forced trustees to invest a minimum value in each pension fund and limited the amount of money available to be invested in other areas such as venture capital. Since 2004 MFR is replaced by the new 'Scheme Specific Funding Standard'. With this new standard, trustees have the power to determine the contribution rate and no other person has the power to reduce or suspend contributions.

| Limit Equity | Allow Private Equity and VCs | Real Estate | Bonds | Investment Funds | Loans | Bank Deposits |
|--------------|------------------------------|-------------|----------|------------------|----------------------------|---------------|
| No | Yes | No limit | No limit | No limit | No employers-related loans | No limit |

(Source: Survey of Quantitative Investment Regulation of Pension Funds (2005))

Exhibit 4. Portfolio limits on UK Pension Fund investment in selected domestic asset categories.

5.2.2 Tax incentives for private pension funds

The English government offers several incentives for private pension saving as follows²⁴:

- tax relief on the contribution at the current marginal rate of each individual.
- Investment returns become tax free.
- Pension incomes are taxed at the marginal rate when retired.

However, current tax incentives are predominantly based around the marginal rate of income tax, and the different tax rules, limits and even language makes it difficult for people to understand the value of tax relief in their own specific circumstances.

| Minimum diversification requirements | Self-investment / Conflicts of interest | Other quantitative rules | Ownership concentration limits |
|---|--|--|--------------------------------|
| General requirement for Diversification and suitability | Yes, employer-related Investment is limited to 5%. | No quantitative portfolio restrictions | None |

(Source: Survey of Quantitative Investment Regulation of Pension Funds (2005))

Exhibit 5. Other quantitative regulations of UK Pension Fund assets..

5.3 Venture Capital Market

Britain's venture capital industry is the largest and most developed in Europe. The UK private equity and venture capital industry is one of the most important lubricants of Britain's economic prosperity and in 2005 accounted for 52% of the total European venture capital investment. The injection of funds into young and expanding companies at crucial stages of their development, together with assistance in their most efficient operation, is a key part of the country's wealth creation process. Several investment incentives have been created to stimulate life science sector.

5.3.1 Private and Venture Capital investors

The English government has recognized the importance of private investors and Venture Capital Industry in order to stimulate the national economy. The cooperative public and private fund schemes are important to correct the early-stage market failure. Nevertheless, it is also important to create incentives for individuals and Venture Capital industry in order to consolidate this market. The government has developed several schemes focused on the investors interests based incentives under certain investment conditions.

Venture Capital Trust Scheme (VCTS)

The Venture Capital Trust Scheme is designed to encourage individuals to invest through Venture Capital Trusts in a range of small higher-risk unquoted trading companies, with assets of under £15 million. This was designed to attract risk capital from higher rate taxpayers by giving them tax concessions.

²⁴ For further information: "Tax relief and incentives for pension savings" by Pension Policy Institute.

Venture Capital Trusts are companies listed on the London Stock Exchange, and are similar to investment trusts. They are run by fund managers who are usually members of larger investment groups. Investors can subscribe shares in a Venture Capital Trust, which invests in trading companies, providing them with funds to help them develop and grow. Venture Capital Trusts must have 70% by value of its investments represented by shares or securities in qualifying holdings to gain and retain approval. It must also have no more than 15% of its total investments in a single holding in any company.

- Dividend relief. Exemption from income tax on dividends from ordinary shares in Venture Capital Trusts.
- Income Tax Relief at the rate of 30%.
- Capital Gains Tax exemption on gains arises if the investor disposes of ordinary shares in Venture Capital Trusts.
- Capital Gain deferral on other investments only for shares for a period of no less than 3 years.

Enterprise Investment Scheme (EIS)

The Enterprise Investment Scheme is a UK tax incentive scheme designed to encourage investors to invest in unquoted companies. It offers income tax and capital gains tax relieves to investors in certain companies under certain rules. The most important restriction is the 30% rule for connected parties. EIS relief is denied if an investor has more than 30% of the issued share capital at any time of a relevant company. The benefits are:

- Income Tax Relief at the rate of 20%.
- Capital Gains Tax relief. If the investor holds the investment for three years, any gains subsequently made are free of capital gains tax.
- Tax relief on losses. If the EIS investment goes wrong, the investor can set the losses off against gains made in the tax year.
- Rollover relief. If the investor uses the proceeds from selling shares in Company A to invest in Company B, and Company B is an EIS-qualifying company, he will not have to pay tax on the gains made from Company A until he subsequently dispose of Company B's shares. i.e. your gain is rolled over.

Small Firms Loan Guarantee Scheme (SFLG)

The Small Firms Loan Guarantee (SFLG) helps to overcome the problem that many Small and Medium Enterprises (SMEs) have to obtain a conventional loan because they do not have assets to offer as security, providing lenders with a government guarantee against default in certain circumstances.

The SFLG is a joint venture between the Department of Trade and Industry (DTI) and a number of participating lenders. These administer the eligibility criteria and make all commercial decisions regarding borrowing.

The cost of the guarantee is two % per year on the outstanding amount of the loan, payable to the DTI.

The main features and criteria of the scheme are:

- A guarantee to the lender covering 75 % of the loan amount, for which the borrower pays a two % premium on the outstanding balance of the loan.
- The ability to guarantee loans of up to £250,000 and with terms of up to ten years.
- Availability to qualifying UK businesses with an annual turnover of up to £5.6 million and which are up to five years old.
- Availability to businesses in most sectors and for most business purposes, although there are some sectoral restrictions.

| | VCTS | EIS |
|-----------------------------------|-------------|------------|
| Annual investment limit | £400,000 | £400,000 |
| Income tax relief for subscribers | 30% | 20% |
| Qualified Holding Period | 5 years | 3 years |
| Reinvestment relief period | | |
| - before gain made | n/a | 1 year |
| - after gain made | n/a | 3 years |
| Tax free dividends? | Yes | No |
| Tax free capital gains? | Yes | Yes |
| Tax relief for losses? | No | Yes |

Source: HM Revenue (April 2006)

Exhibit 6. VCTS and EIS compared.

5.4 Private Investing in Public Equity - PIPE

PIPES are allowed in UK however there are several restrictions, created in order to protect companies against irregular equity acquisitions. These hinder the natural PIPE process about pace and ease. Thus it makes this option unattractive to the investors and the Venture Capital industry due to all the mandatory equity restrictions and bureaucracy.

The current regulation about PIPEs in U.K. establishes the following restrictions:

- Share Holders Approval – Issues of Shares. The issue of shares or securities convertible into shares pursuant to a PIPE will require shareholder approval. In accordance with institutional guidelines, London listed companies typically obtain shareholder approval at their annual general meeting to make further issues in respect of up to one-third of their existing issued share capital.
- Share Holders Approval – Pre-emption Rights. New issues of shares, or securities convertible into shares, for cash, should be first offered, in proportion, to existing holders, unless shareholders' prior approval by way of a special resolution has been obtained. Typically this agreement is acquired for issued capital up to 5% without having to offer them. However, in case of

issues more than 5% will require a special resolution getting 75% of shareholders to agree.

- Publication of Information. If shares are to be issued in respect of 10 % or more of the existing issued capital of a company on the Official List in London, listing particulars must be published before the shares can be issued. This take about six weeks, so it could be a conflict to the holder interests
- Any person (including persons acting in concert) acquiring shares which, when aggregated with the shares already held, carry 30 % or more of the voting rights in a listed company, must make an offer for the remaining shares.
- Any person acquiring a stake of more than 3 % in a listed company (or 10 % in the case of holdings of certain investment managers) must announce this shareholding to the UKLA.
- A person (or persons acting together) may not in any seven-day period acquire shares or rights over shares carrying 10 % or more of the voting rights in a listed company, if the total of that person's shares, as enlarged by the acquisition, would carry between 15 and 30 % of the total voting rights.

All this measures created in order to protect in some how companies about irregular equity acquisitions hinder the natural PIPE process. At the same time makes this option unattractive to the investors and VC industry due to all the equity restrictions and bureaucracy required in this process that contradicts with the investors' interests.

6 Denmark

6.1 Overview of Denmark's business climate

Denmark has one of the highest GDP per capita-ratios in the world. It has also faced stable macro economic growth over the last decade. Denmark share many attributes with Sweden: The public sector is large compared to GDP, the distribution of income is very narrow and the mean age of the population is growing steadily. According to the official OECD report for 2005 two of Denmark's main challenges in the future is to raise both productivity and labor supply to be able to sustain long term growth.²⁵

6.1.1 The Life Science Industry

Denmark lies in the forefront of different sectors in the life science industry. A region called "Medicon Valley" located within the area containing Sweden's third largest city Malmö and the major part around Copenhagen, Denmark's capital, is a very active cluster of life science companies of different sizes and activities.

6.2 Pension funds investing in Private Equity

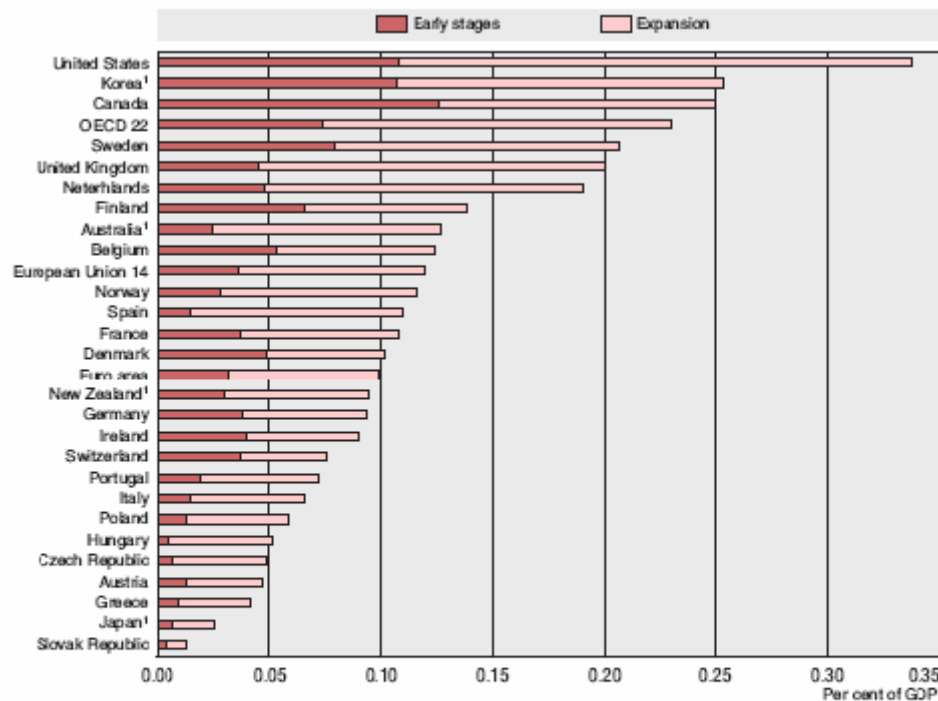
There are quantitative ceilings for pension funds investing both in public and private equity. These rules were liberalized in 1998 but are still conservative when comparing with some of the other countries in the study. Pension funds are able to invest up to 70% of their funds in shares, of which 20% can be unlisted. All in all that constitute 14% of the pension funds. Although this is the theoretical ceiling when looking at reality one finds the real numbers to be even less. In 2001 as little as 1% of the pension funds' available capital was invested in private equity. The OECD survey of 2005 tries to explain this:

*"Restrictive taxation rules may also be a factor; the government is currently looking at whether tax rules need to be simplified in order to encourage pension funds to enter the industry"*²⁶

²⁵ OECD (2005) Economic Survey 2005 p. 7.

²⁶ OECD (2005) Economic Survey 2005

6.3 Venture Capital Market



1. Averages 1998-2001.

Note: European Union 14 comprises data from Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Denmark, Sweden, and the United Kingdom. OECD 22 comprises data from European Union 14 countries as well as from Norway, Switzerland, the Czech Republic, Hungary, Poland, the Slovak Republic, Canada and the United States.

Source: OECD, based on data from EVCA; NVCA; CVCA, Asian Venture Capital Journal.

Exhibit 7. Venture Capital Investments by stages – In % of GDP, averages 1998- 2004

The venture capital market in Denmark is tiny and heavily dominated by banks, if compared with other countries of the same standard. In figure 1 one can see an international comparison showing the total domestic venture capital and private equity divided by the domestic GDP, in fourteen countries. The top performing countries in this measure have a figure that is 3-4 times larger than Denmark's.²⁷ Albeit Denmark's aggregated level of venture capital is lower than many other countries, a study from Nordic Investment Solutions looking at how the market actors in the respective country perceived the tax effects on international venture capital in the Nordic countries concludes that Denmark does not have a problem attracting international venture capital. This was not the case when looking at the other countries.²⁸

6.3.1 Venture Capital Investors

According to EVCA, there are no tax incentive schemes directed at investors in private equity and venture capital. The focus of incentives is more on the supply side of SME's.

Vækstfonden

²⁷ FORA (2004) Freely translated from "Et benchmark studie af Venturemarkedet "hvad kan Danmark lære?".

²⁸ Nordic Investment Solutions (2005) Avrapportering till arbetsgruppen. Beskattning av riskkapital i Norden.

Vækstfonden is a state backed investment company which provides seed money to fast growing SME's in Denmark. They also act as a fund-of-funds investor in the private equity sector in the Nordic region. So far, they have gathered over €300 million as a capital base.

Since 2000 Vækstfonden are also the administrators of "Vækstkaution", which is a national loan guarantee system, which has a main objective to encourage innovation and growth in almost any industry, as long as the company can be categorized as an independent SME.²⁹ The range of credit given varies between 10000-700000 euro, and the maturity of the loans run from three to eight years.

It could be argued that a national subsidized loan system could be seen as something that attracts investment although this all depends on the conditions for the loan. If they are very favourable, this could attract investors.

Denmark has a special holding company tax regime. It basically function so that dividends of companies located in Denmark, from which the holding company located elsewhere owns at least 20%³⁰, does not need to be taxed. The logic works the other way around as well.³¹ In theory this should be attractive to international investors.

VC's are always interested in the possibility for exit strategies, ideally when maximizing profits. This issue also includes the liability risk concerning bankruptcy claims. Denmark has very stringent rules regarding this issue:

"Where it falls short compared with other countries is in the framework for informal corporate workouts and restructurings, in which the firm and its creditors may together work out a rescue plan. In addition, bankruptcy rules are more stringent than elsewhere. Debts are usually not discharged for seven years (Figure 5.7) and in some cases not until after 20 years. Moreover, debt release requires the approval of all creditors; Italy is the only other EU-15 country that has a similar requirement. Finding the optimum in this area is difficult, but Denmark's rules have probably reached the point where they are hurting rather than helping entrepreneurship."³²

6.3.2 Private Investors

People investing in private non-listed companies face two different taxes on the eventual capital gains coming from these shares, depending on the length of the investments. Depending on the investment horizon an individual investor has faced capital gains taxes ranging from 28-59%. This is something of a record within the EU borders, where the average capital gains tax for private investor in 2004 was 16.3 %³³

²⁹ For further information: <http://www.vaekstfonden.dk/1488/>

³⁰ This figure will be lowered to 15% in 2007 and 10% in 2009.

³¹ Copenhagen Capacity Fact sheet. "Taxation" p.6

³² OECD (2005) Economic Survey 2005.

³³ EVCA (2004) Benchmarking European Tax and Legal Environments.

6.4 Private Investment in Public Equity - PIPE

Public companies listed on Denmark's ordinary stock exchange "Copenhagen's Fondbors" can not issue new stock to target to shareholders without voting ex ante to give away their pre-emption rights. The amount of new issued stock is however not regulated, as it is in many other European countries. Also, the minimum price for the new stock should be the market value. Therefore PIPE's as an alternative for second round financing is fairly cumbersome if compared to Canada or the U.S.³⁴

³⁴ Ward, Mike (2006). Europe's Iceberg 2006. BioCentury volume 14, number 21.

7 Singapore

7.1 Overview of Singapore business climate

The Singapore government has done much to provide an environment for entrepreneurship to thrive. Singapore is a leader in new life sciences, petroleum refining, and the manufacture of computer components.

The M&A activities in Singapore have been strengthened by government linked corporations. In the financial sector, Singaporean banks are being driven towards consolidation and regionalization. Cross-border deals continue to dominate transactions overall. Increased in Stock markets and a recovery in regional property markets also appear to be driving M&A activities in the IT and property sectors. The low interest rate environment and strong credit ratings of Singaporean companies have helped them access the capital markets. The statistics reveal that Singapore is the fifth most active country in the Asia-Pacific region³⁵.

7.1.1 Life Science Industry

In Singapore, Economic Development Board Biomedical Science group (EDB's) and Bio*One Capital, as well as Agency for Science Technology and Research (A*STAR) work in close partnership. The goal is to develop Singapore Biomedical Science (BMS) cluster - comprising pharmaceuticals, medical technology and healthcare services - into a key pillar of the Singapore economy. The three groups adopt an integrated approach to develop Singapore's industrial, intellectual and human capital to support the BMS initiative. This integrated approach involves various initiatives such as supporting the industry, establishing the right infrastructure, providing venture capital support and strengthening manpower capabilities.

EDB³⁶ is the lead agency that plans and executes strategies to sustain Singapore as a compelling global hub for business and investment. Within EDB, the BMS group provides support to BMS companies setting up manufacturing, R&D, headquarter, and other high-value operations here.³⁷

Agency for Science Technology and Research (A*STAR) BMRC is the national body that is responsible for developing the human capital to support, sustain and stimulate public sector biomedical research and development activities in Singapore³⁸. It does this through the administration of five national research institutes, each of which has core capabilities in strategic areas of relevance to BMS. BMRC also provides research funding to university and hospital-based researchers in the form of competitive grants. In addition, it promotes societal awareness of biomedical research.

Bio*One Capital is a leading, dedicated biomedical sciences investment management company in Asia with a worldwide presence. With funds of over US\$600 million,

³⁵ Asia-Pacific.(2005) Asia-Pacific M&A Bulletin.

³⁶ Singapore Economic Development Board (EDB) <http://www.edb.gov.sg/>

³⁷ Singapore Biomedical Sciences Group <http://www.biomed-singapore.com>

³⁸ Agency for Science Technology and Research (A*STAR) <http://www.a-star.edu.sg>

investments are focused on promising global biomedical companies where Bio*One Capital can play a value adding role in bridging and supporting companies' growth strategies in Asia through their operations in Singapore. Bio*One Capital offers a strong combination of financial, business, scientific and investment know-how to enhance the value of companies from intellectual property generating research, to clinical and product development, manufacturing and commercial activities. Through its extensive networks with global pharmaceutical, life sciences, medical technology companies and venture capital corporations, Bio*One Capital proactively facilitates partnering and collaborative opportunities to help its portfolio companies grow into sustainable and successful ventures.³⁹

7.2 Pension funds investing in Private Equity

7.2.1 Central Provident Fund (CPF)

The Central Provident Fund (CPF) is Singapore's pension scheme set up in 1955 to provide financial security for workers in their retirement or when they are no longer able to work. Each month, Singaporeans and their employers make monthly contributions to the CPF. These contributions go into three accounts for each employee:

- Ordinary Account where savings can be used for housing, investments and CPF insurance.
- Special Account where savings are meant for old age and investment in retirement-related financial products.
- The Medisave Account, where savings can be used for hospitalization expenses and approved medical insurance.

CPF was created in order to decentralize investment through pension funds in Singapore. Any company or bank can join into as a member of the CPF under certain conditions. Members can invest their CPF savings under the prudence man rule. However, there are some restrictions about their investments under the CPF Investment Scheme (CPFIS).

The CPFIS's restrictions about shares are the following ones⁴⁰:

- The shares are offered by a company that is incorporated in Singapore.
- The shares are listed on the SGX (MainBoard or SESDAQ).
- The shares are traded in Singapore Dollars.
- The company allows CPF investors to attend the company's shareholders' meetings as observers.

7.3 Venture Capital Market

The Venture Capital Industry appears in Singapore from 1980's. One of the first venture capital funds to be established in Singapore was South East Asia Venture Investment in 1983, with participation from the U.S venture capital firm Advent International. In 1985,

³⁹ BIO*ONE Capital. <http://www.bio1capital.com/>

⁴⁰ Central Provident Fund Board. www.cpf.gov.sg

Apply for your Financial Products to be in CPF Investment Scheme (CPFIS).

the Economic Development Board (EDB) established the EDB Venture Capital Program and introduced tax incentives to promote the growth of the industry in Singapore. Since then, a number of international venture capital firms had established presence in Singapore, attracted by the availability of generous tax incentives and funding from the government and government-linked venture funds.

In 2000, about 19% of the US\$ 7.4 billion of venture capital present in Singapore had its origins in government funding. The excellent physical infrastructure also attracted many foreign venture capital firms to enter Singapore.⁴¹

7.3.1 Venture Capital Investors

The Singapore government is helping to develop the private equity industry. A well-developed private equity industry was regarded as an integral component of Singapore's plan to become a regional financial centre. The government assistance was performed through the Economic Development Board (EDB).

One of the main priorities of the Singapore government is to promote foreign investment in leading-edge and higher-value-added technology development. In order to follow these guidelines they have developed several schemes as the Approved foreign loan scheme, Overseas Investment Incentive and the Venture Capital Incentive.

Tax Subside

The government of Singapore has chosen to subsidize institutional VC. They do this by offering a 100% deductibility of capital losses induced by the equity investment, given certain criteria's put on these investments.

Enterprise Investment Incentive (Technopreneur) Scheme – EII (Technopreneur)

This scheme essentially gives qualifying technopreneur start-ups loss insurance for their investments mitigating the risk of private equity investments.

Companies enjoy the approved start-up status for a maximum of five years. With this EII status, a start-up can issue certificates to its investors for investments of up to \$3 million. Investors with these certificates can deduct any investment loss from their taxable income.

7.3.2 Private Investors

The taxes in Singapore are fairly low. This creates an incentive at the margin to invest more since individual's get more disposable income. The top marginal personal income tax rate has recently been cut from 25% to 22%.

7.4 Private Investment in Public Equity - PIPE

No information about PIPES in Singapore was available.

⁴¹ Francis C C Koh, Winston T H Koh.(????) Venture Capital and Economic Growth: An Industry Overview and Singapore's Experience.

8 Sweden

8.1 Overview of Sweden's business climate

8.1.1 Life Science Industry

Sweden has a long history and tradition of internationally renowned excellence in Life Sciences. In academia this is reflected by the highest number of clinical citations in Europe.⁴² Industrially, Sweden has a fantastic track record of successful development and commercialization of both pharmaceutical blockbusters (e.g. Xylocain, Losec) as well as Medical Devices (e.g. the pace maker, artificial kidney).

Today Sweden encompasses the 4th largest biotech industry in Europe⁴³ and the highest number of biotech companies relative to GDP in Europe.⁴⁴ In total the medical technology, pharmaceutical and biotech industries include over 800 companies with more than 40.000 employees.⁴⁵ The Swedish biotech pipeline has 128 projects in late preclinical and clinical trials.⁴⁶ Sweden is also one of the leaders of the European Innovation index (European year in review: Public policy) and in international comparison Sweden have the highest number of European science and Technology patents per capita (Stockholm Business Region). Sweden also has a large pool of highly educated labour resources with high-tech skills and the second highest number of researchers in relation to work force in international comparison.⁴⁷

8.2 Pension funds investing in Private Equity

Pension funds have no incentives other than the prudent man rule to invest in private equity or venture capital. Since 1996 when the sixth AP-fond was created, they have been a big contributor to the Swedish venture capital stock. They have an unrestricted goal to actually focus their investment to private equity, although their share of the total pension market in Sweden is not very big. In 1999 the regulation concerning investment in private equity was liberalized for all pension funds.⁴⁸

However, the Swedish Pension funds allocate significantly less in unnoted assets, about 1,5% of , as compared to US and European averages on 7,0 and 4,5 respectively.⁴⁹

8.3 Venture Capital Market

The Swedish biotech sector has recently started to reach the level of maturity where private companies require much more substantial sums to be invested in order to be able to support the product development. In addition, even many of the public companies are in need of additional funding to expand and grow to be sustainable businesses. Sweden's

⁴² OECD (2003) Science and technology score board.

⁴³ Ernst & Young (2004) Global Biotechnology Report – The European Perspective.

⁴⁴ Ernst & Young (2006) Beyond Borders, Global Biotechnology Report 2006.

⁴⁵ VINNOVA. Nationella och regionala kluster profiler. www.vinnova.se

⁴⁶ SWEDENBIO (????) Swedish Pipeline report, ISA.

⁴⁷ Invest in Sweden Agency.

⁴⁸ OECD (2003) Venture Capital Policies in Sweden.

Science, Technology and Industry Working Papers 2003/11 p.14

⁴⁹ Frank Russell. Goldman Sachs. (2005) Weighted Measure from Swedish pension funds. årsredovisningar-04/-05

venture capital and private equity market does not sustain these needs today. The reasons for this are many; a large number of the life science dedicated Swedish Funds have already invested all their money and a lack of exit track records have made it more difficult to raise new funds for larger follow-ons. Moreover, the Swedish stock market is not liquid enough. Companies get low valuations in IPO's and the secondary offerings required have been hard to obtain.

There is a threat that the current status of the Swedish capital industry may force potentially viable businesses into bankruptcy due to lack of relevant catalytic capital. Importantly, even a slowing effect on development progression due to lack of adequate financing will have detrimental effects on the sector in the fierce international competition that exists today.

8.3.1 Venture Capital Investors

There are no special incentives for Swedish Capital Investors. Taxes on profits created from capital gains from a firm's holding are the same as any other corporate taxes, 28%. There are no special implications from investing in private equity.

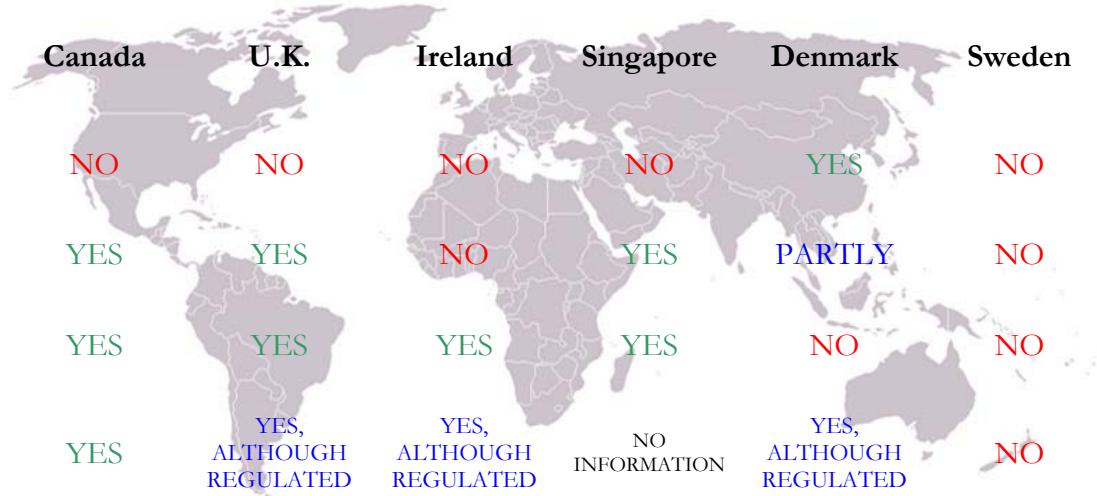
8.3.2 Private Investors

Private investors in equity face a flat tax of 30 % on capital gains from equity, irrespectively if it comes from private or public equity. However, recently the regulations have been changed so that holdings in private equity should be taken into account when measuring if a person is liable for wealth taxes. Before this change, only public equity was taken into account for this tax. However, if the capital gains from the private equity come from a company which is defined as a "privat aktiebolag" instead of a "publikt aktiebolag", this has the effect of raising the marginal tax up to a maximum of 58% after a certain limit.

8.4 Private Investment in Public Equity - PIPE

In the US, and selected European countries, private investments in public equity (PIPE's) have been a popular vehicle for follow on investments in public companies since they are faster, less complicated and less costly than ordinary secondary public issues. Almost Albeit PIPE's can take a number of forms, the concept have some characteristics; i.e. an investor agrees to subscribe for shares or securities convertible to shares upon terms more favourable and with protection than those obtained by purchasing shares either on market or in a traditional share issue. In Sweden the pre-emption rights of the shareholders, the regulation that severely limits the possibility for discount on the new shares, and the requirement to inform the shareholders ex ante a targeted issue, have rendered this type of investment highly inefficient and add to the post-IPO financing difficulties. The relevant regulation is found in 13 kap, 4 § ABL (2005).

9 Matrix comparison



| | Canada | U.K. | Ireland | Singapore | Denmark | Sweden |
|---------------------------------|--------|-------------------------|-------------------------|----------------|-------------------------|--------|
| Incentives for Pension Funds | NO | NO | NO | NO | YES | NO |
| Incentives for VC | YES | YES | NO | YES | PARTLY | NO |
| Incentive for Private Investors | YES | YES | YES | YES | NO | NO |
| PIPE financing opportunities | YES | YES, ALTHOUGH REGULATED | YES, ALTHOUGH REGULATED | NO INFORMATION | YES, ALTHOUGH REGULATED | NO |

10 Concluding discussion

The EU established Lisbon strategy in 2000 recognized that entrepreneurial activity and innovation are the key drivers to make EU the “most competitive and dynamic knowledge based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. Many European countries have put strong focus towards the development of their Life Science industries (e.g. Ireland, Denmark, France, Germany and UK etc.). However, there are not only fierce competition from other European countries - in Asia both Singapore, China and India all have strategies for becoming world leaders in Biotech/Life Science.

10.1 Lesson for Sweden

So how will Sweden meet the changing needs of the maturing Life Science Industry in order to leverage capital already invested , instead of losing momentum and potential returns, as well as meet the goals of the Swedish government that envision the Life Science industry as one of the future key drivers of Swedish economic growth?

Sweden needs to:

- Harmonize the tax base for capital gains, to attract international VC.
- Provide solution for holding companies to avoid “double taxation” as in Denmark.
- Encourage pension funds to invest more in private equity. Swedish Pension funds allocate significantly less in private equity, about 1,5%, as compared to US and European averages on 7,0 and 4,5 respectively.
- Improve possibility of PIPE’s through change in legislation, mainly 13 kap 4§ ABL(2005). It should improve the possibility of shareholders’ voting right to give up their pre-emption right ex ante a proposition is laid forth.
- Decrease the regulation regarding subsidization of issuing of new stock.