UK Venture Capital and Private Equity as an Asset Class for Insurance Companies

Research Report

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Table of Contents

EXECUTIVE SUMMARY

This report was commissioned by the British Venture Capital Association (BVCA). It should be seen as a technical appendix to London Business School's research report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors" published earlier this year. The document benefited from earlier work carried out by the Association of British Insurers (ABI). The ABI also provided continuous support during the course of this research.

The main objective of this report is to look at potential barriers that UK insurance companies face when investing in venture capital and private equity vehicles. Insurance companies' activities broadly fall into two categories: long-term insurance and general insurance. Investments in venture capital and private equity investments should be of interest to long-term insurers due to the long-term investment horizon for their premium income. By committing 9% of funds raised by members of the BVCA in 1999, UK insurers contributed more funds to the private equity industry than any other group of UK investors. Yet, insurers' share of investment in venture capital partnerships appears to be highly cyclical. Furthermore, in the heavily regulated insurance industry, factors other than the investment fundamentals impact on asset allocation decisions. This report identifies two distinct areas – the regulatory and fiscal framework – that influence long-term insurers' attitudes to venture capital and private equity. While there are hardly any barriers to an investment in the asset class via quoted investment trusts, a number of complications arise when an investment is made via the main vehicle of the private equity industry, the limited partnership.

Regulatory Issues

Various insurance company regulations prescribe how premium income of life insurers can be invested. In the area of *non-linked* with-profits policies, we believe that there is sufficient scope for larger insurers to invest in venture capital and private equity. In addition, insurers are not prohibited from investing beyond the limits set out in the regulations if they have sufficient free assets that are not earmarked to meet particular liabilities. Nonetheless, the admissibility limits restrict the freedom of insurers to invest their premium income. A more detailed analysis of the exposure limits can be found in chapter 3 of the report. The following areas might be considered to encourage more widespread investments in venture capital and private equity vehicles:

- One way to encourage more widespread investment might be to increase the exposure limits – both individual and aggregate – set out in the admissibility rules. The current exposure limits effectively prevent smaller insurers from investing in some of the larger and most successful private equity limited partnerships which require limited partners to make bigger contributions. The current maximum aggregate exposure of 10% of assets towards collective

investment schemes also includes most indirect property interests and thus effectively acts as an upper ceiling for the two most widespread types of alternative investments. A higher ceiling, or separate admissibility limits for limited partnership interests in venture capital and property, might be more appropriate.

- The admissibility rules are motivated by the desire to protect policyholders' interests. Yet, they could have the perverse effect of preventing investment diversification and thus increase policyholders' risk. The London Business School report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors" argued that appropriate diversification effectively reduces the risk of investments in private equity. For smaller insurers or insurers with a low free asset ratio, a too conservative exposure limit might prevent them from allocating the assets required to reduce their portfolio risk. The likely outcome of this dilemma is, however, that insurers affected by this problem will avoid an asset class that has outperformed all other UK asset classes during the 1990s. Investment into fund of funds products would effectively eliminate most of the diversifiable risk, yet due to the fiscal treatment of these products (see below) they are very costly to administer.

- The recent years have seen a reduction of free asset ratios for most insurers. This is a direct consequence of the methods prescribed for valuing non-linked liabilities based on asset yields. Investments in low-yielding asset classes such as venture capital and private equity will result in a further short-term deterioration of an insurer's free asset ratio. A reduced free asset ratio will, in turn, reduce insurers' capacity to invest in asset classes for which exposure limits are set out in the regulations. In order to eliminate the adverse effect of investments in low yielding assets on free asset ratios, the regulator should modify the valuation methods applied to life insurers' non-linked liabilities.

As far as the *linked* business of life insurers is concerned, it is impossible under current regulations to invest in venture capital vehicles other than quoted investment trusts. There are not only regulatory barriers, but also business barriers (mainly related to appropriate valuation intervals) that make it difficult to incorporate a limited partnership element into linked policies. A working party of ABI, BVCA and the FSA could therefore investigate whether there are innovative ways to incorporate a venture capital and private equity element into linked policies.

Fiscal Issues

From a fiscal point of view, investments in the shares of quoted venture capital investment trusts are straightforward, since any capital gain is taxed upon disposal. Yet, the costs of administering investments in venture capital and private equity limited partnerships are substantially higher than those of investing in other alternative asset classes. The tax transparency of limited partnerships

means that good investment practice sometimes becomes awkward to administer. Chapter 4 of the report describes several investment practices that may trigger a tax liability for insurance firms due to the fiscal transparency of limited partnerships.

These problems are amplified when insurers invest via a fund of funds which makes this vehicle very costly to administer. This situation is unfortunate, since these vehicles have in the past achieved strong returns and are arguably the least risky due to their in-built element of diversification. As such, they should meet the regulator's concern with regard to the protection of policy holders' interests. The above problems feed back on an insurers' pensions business since insurance companies usually run a common investment activity for both their life insurance and pensions activities. In addition, since smaller pension schemes increasingly outsource their investment management to insurers, the complications that arise during tax computations are leveraged into areas that are not liable to taxation on capital gains. This is likely to result in a further bias against the asset class. Finally, the administrative burden becomes an issue in the context of stakeholder pensions that have a built-in fee cap. In the absence of a modification of current practice, any fee cap will probably bias the providers of these products against venture capital and private equity.

A modification of the current tax regime or Inland Revenue practice would remove what is seen by UK insurers as one of the most important barriers to a more widespread investment in venture capital and private equity. If the UK government wants to increase institutional investments in smaller unlisted companies, a simplification of the fiscal regime would be an obvious area of reform. We would like to point out that this report is not trying to advocate specific tax breaks for these investments or propose any arrangement that would lead to tax avoidance. Instead, we would welcome a modification of current practice in order to simplify the treatment of tax computations, thus reducing the administrative burden and cost for insurers. Several possible alternatives could simplify the current regime. We would therefore strongly recommend that the BVCA, ABI and the Inland Revenue set up a working party to look at ways of simplifying the fiscal treatment of limited partnerships. This would remove one of the most important barriers to a more widespread investment in this asset class. In the meantime, the BVCA could explore the idea of minimum standards not only for reporting but also for providing information for tax computations purposes.

1. Introduction

This paper was commissioned by the British Venture Capital Association (BVCA) after the completion of London Business School's research report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors." While the former research report was written primarily to address issues faced by pension funds – traditionally the most important source of funds for the UK private equity industry – most of its findings are relevant to any institutional investor. The original report provides a detailed analysis of returns, risk and cash-flow implications of investments in limited partnerships. The executive summary of the report which was published in January 2000 can be found in the appendix of this document. In addition to these key decision parameters, there are several issues specific to insurance companies. This report should therefore be seen as a technical appendix examining potential barriers that UK insurance companies face when investing in venture capital and private equity vehicles. It benefited from earlier work carried out by the Association of British Insurers (ABI). The ABI also provided continuous support during the course of this research.

The report identifies two distinct factors of relevance to insurers' investment activities. First, insurance firms are subject to regulations which place some constraints on how premium income can be invested in order to meet future liabilities. These regulations are motivated by the need to protect policyholders and to safeguard against the inherent uncertainties caused by an insurance business long-term perspective. Second, with the exception of the pension business, life insurance companies are subject to taxation on their investment return, including capital gains. The fiscal treatment of venture capital and private equity investments will therefore be examined in more detail. Before addressing both regulatory and fiscal issues, we will provide some background information about the investment activities of insurance companies.

2. Background: Investment Activity and Premium Income of Insurance Companies

2.1. Investment Activity of Insurance Companies

Activities of insurance companies fall within two categories: general insurance and life or long-term insurance. General insurers provide coverage against risk of damage and loss of property, damages related to motoring, legal liabilities to third parties, accident and illness and the risk of pecuniary or financial losses. General insurance contracts are usually renewed on an annual basis. Long-term insurance activity, on the other hand, includes the provision of life insurance, pensions and income protection insurance. In 1998, total world-wide long-term insurance premium income amounted to £87.3bn and general insurance premium income to £35.8bn. In 1998, the members of the ABI managed assets worth £940 billion. The bulk of these assets is managed by long-term

insurers whose investment holdings amounted to £827bn. General insurers managed assets worth £113bn. Both types of insurers invest their premium income in order to meet future liabilities. Due to the much shorter time horizons of general insurers' policies, premium income is usually invested in easily realisable assets or assets that provide a fixed income. Life insurers, however, have a more long-term investment horizon for their premium income. Investments in venture capital and private equity investments should therefore be of particular interest to this group of insurers. Table 1 gives an overview of the asset allocation of long-term insurers (Source: ABI, Insurance Statistics Yearbook 1988-1998).

Table 1
Investment Holdings of Long-Term Insurers (1998)

	Amount (in £ bn)	**%**
UK Equity	310	37.5
Foreign Equity	79	9.6
UK Government Bonds	121	14.6
Other UK and Overseas Public Sector Debt	36	4.4
UK Debentures, Loan Stock, Preference Shares	66	8.0
Foreign Debentures, Loan Stock, Preference Shares	41	5.0
Unit Trusts	59	7.1
Loans secured on Property	13	1.6
Property	47	5.7
Other	55	6.7
Total	**827**	**100.0**

Source: ABI, Insurance Yearbook 1988-1998

The majority of assets of UK insurers are invested in UK and foreign equity, followed by public sector debt and corporate debt. Venture capital and private equity investments fall under the category "other". Unfortunately, a more detailed break-down of the asset allocation to venture capital and private equity is not available. However, there are figures from the BVCA that detail the sources of new funds raised by its members. In 1999, British insurance companies provided £533 million (9%) of the £5.8 billion raised by members of the BVCA. Foreign insurers accounted for a further 7% of overall funds (Source: BVCA Report on Investment Activity 1999). In 1999, UK insurers thus contributed more funds to the private equity industry than any other group of UK investors. Yet, insurers' share of investment in venture capital partnerships appears to be highly cyclical. In 1998, UK insurers contributed only 3% of overall funds raised by BVCA members. This cyclicality is to a large extent caused by the fact that many insurers have traditionally invested via semi-captive partnerships. Depending on whether these semi-captives raise new funds, the annual share of insurers' investments in venture capital fluctuates quite strongly.

For insurance companies (and other institutional investors) several different avenues to invest in private equity and venture capital exist. Many of the larger players have traditionally invested via corporate funds (captives and semi-captives). However, investors can invest in quoted investment trusts, limited partnerships and funds of funds. Unfortunately, the available BVCA investment statistics do not reveal the magnitude of funds invested in these different vehicles.

2.2. Premium Income of Long-Term Insurance Companies

The products of long-term insurers fall into several categories. There are life insurance policies, annuities, pensions and income protection insurance. These products are sold both to individuals and companies (e.g. occupational pensions). Table 2 provides an overview of the premium income in these different categories.

Table 2
Premium Income of Long-Term Insurers (in million £)

	1997 Amount	%	1998 Amount	%
UK Premium Income				
Life Insurance	27,682	36	31,239	36
Personal Pensions	16,849	22	17,144	20
Occupational Pensions	15,773	21	22,824	26
Other (income protection, annuities)	1,131	1	1,194	1
Total UK Premium Income	**61,434**	**81**	**72,401**	**83**
Overseas Premium Income	14,438	19	14,930	17
Grand Total	**75,872**	**100**	**87,331**	**100**

Source: ABI, Insurance Facts, Figures and Trends 1999

When excluding the overseas income, it becomes apparent that the majority of UK premium income (55%) is generated by the sales of personal and occupational pensions. Life insurance accounts for 43% of premium income in the UK long-term insurance market. Overall, there is a considerable degree of concentration in the industry. The five largest long-term insurance companies account for 34% of premium and the ten largest account for 54% of income in 1998 (Source: ABI, Insurance Facts, Figures and Trends 1999).

Pension products can be divided into annuities, personal and occupational pensions. Life insurance policies can be divided into several groups. There are policies where premium income is collected on a regular basis and policies where premiums are paid in a single lump sum. One can sub-divide these policies further into *linked* and *non-linked* policies. These distinctions are important, since different regulations govern how premium income arising from these respective policies can be

invested. In essence, in a *linked* policy, part of the premium buys units in investment portfolios. The policyholder thus obtains a share of the profits of the links. The insurance regulations provide detailed instructions on the type of investment vehicle that can be included as *permitted link*. In addition, there are *non-linked* policies. There are *without-profits* products, where an insurance for a specific sum is underwritten. The bulk of non-linked premium income, however, comes from *with-profits* products. Their value increases by the addition of bonuses from the profits of the insurance company's life fund. Detailed regulations set up the parameters on how premium income derived from non-linked policies can be invested.

Out of the long-term insurers' total asset value of £827 bn, £561 bn (68%) is attributed to non-linked funds. The remaining £266 bn (32%) is generated from premium income of linked policies. An additional indicator to examine trends in the insurance industry is the amount of new business generated per product category. Among life insurance products, the share of linked policies out of the total business has been relatively stable during the last five years. Linked policies account for about 30% of UK life regular premium income (Source: ABI, Insurance Facts, Figures and Trends 1999). The main growth area of non-linked policies is among personal pensions. New business of linked personal pensions generated almost £4 bn in new premium income in 1998 whereas new non-linked policies generated premium income of £2 bn. Linked policies thus account for 66% of all new premium income from personal pensions in 1998. This compares with 54% in 1994. Overall, one can therefore observe a small but steady overall increase of premium income from new business from linked policies.

3. Regulation of Long-Term Insurers

Regulating insurance companies has been a domain of the Insurance Directorate of the DTI. In 1997, this responsibility was transferred to HM Treasury which subsequently contracted out the administrative functions to the newly created Financial Services Authority (FSA), the single regulator for the financial services industry in the UK. The Financial Services & Markets Bill detailing the powers of the FSA is currently before Parliament. Various restrictions apply as to how the premium income can be invested. A central motivation of these regulations is the protection of policyholders' interests. This motivation arises from the long-term nature of the insurance business, i.e. to make sure that the insurance company is able to fulfil its contract and meet future liabilities. Regulations are designed to make sure that insurance companies are financially secure. We will briefly look at regulations for non-linked policies, linked policies and pensions.

3.1. Regulation of Non-Linked Policies

The value of non-linked policies increases with the profits generated by the life fund of an insurance company. The regulations applying to non-linked policies are designed to protect the interests of policyholders, i.e. to make sure that future liabilities are met and to encourage insurers to spread their investments to enable the life fund to generate appropriate returns. Insurers must maintain margins of solvency as laid out in the insurance regulations. To calculate these, there are rules that apply to the valuations of assets and future liabilities. The regulator has set maximum thresholds of exposure (*"admissibility"*) for different asset classes (Regulation 57 and Schedule 12 of the 1994 Insurance Company Regulations). In principle, an insurance company is allowed to exceed the exposure to certain assets above the limits laid out in the admissibility rules. However, it will receive no credit for those assets when establishing whether it complied with the solvency requirements. The regulations also distinguish between *individual exposure* to any individual debt or security (or other asset) from a third party, *aggregate exposure* of different types of assets and *counterparty exposure* to all assets from a particular third party. The admissibility rules are designed to reduce any risk that could arise from too much concentration towards one particular type of asset or one particular counterparty. With regard to different venture capital vehicles, the regulations stipulate the following:

- Investments in quoted venture and development capital trusts are treated as quoted securities. The exposure permitted for solvency purposes is 2.5% by any one issuer, i.e. the manager of a collective investment scheme (Schedule 12 of 1994 ICR, para 13). No aggregate exposure limit applies to investment in shares of quoted investment trusts. However, any such investment has to comply with the 10% counterparty exposure rule for all securities issued by an approved counterparty (Schedule 12 of 1994 ICR, para 15)[1]. This means that an insurer cannot invest more than 10% of its assets in shares (and other securities) from a single venture capital investment trust or connected company.

- For investments in limited partnerships, an individual exposure limit of 1% applies (Schedule 12 of 1994 ICR, para 11). However, an aggregate exposure limit of 10% applies for all unlisted securities (Schedule 12 of 1994 ICR, para 12). This aggregate exposure, however, also includes other collective investment schemes, for example limited partnerships that invest in property and investments in other unlisted debt and securities. Since most investments in property limited partnerships represent unlisted debt, the 10% upper exposure limit that can be counted towards the solvency margin represents a de facto aggregate exposure limit for the

[1] Unless the issuer is regulated by any UK or EU financial services regulator, it would be considered an unapproved counterparty and a 5% maximum counterparty exposure applies (Schedule 12 of 1994 ICR, para 14).

two most popular alternative asset classes for investments via limited partnerships, property and venture capital.

- Venture capital and private equity investments made via a captive fund are treated like direct investments in unlisted debt and securities. As such, the same regulations apply as outlined in the above paragraph, i.e. the maximum exposure is 1% of assets (Schedule 12 of 1994 ICR, para 11).

In principle, the regulations therefore leave a certain scope for investments in venture capital and private equity partnerships which count towards meeting solvency requirements. In practice, however, this does not mean that insurers are prohibited from investing in this asset class above the levels specified in the regulations. As already mentioned above, the regulations specify the asset exposure levels compatible with meeting the solvency requirements. Over the years, most insurance firms accumulate admissible assets in excess of their future liabilities. These so-called "free assets" are part of the overall asset pool of an insurance company, yet they are not ringfenced to meet liabilities arising from the sales of non-linked policies. The "free asset ratio" – the ratio of free assets to the non-linked assets – is often used to indicate the financial strength of a life insurer. For example, a high free asset ratio may indicate that the insurer is in a position to pay higher bonuses. It also increases the scope of insurance companies to invest in riskier, higher earning assets. League tables are published on a regular basis in order to inform retail investors.

Most long-term insurers with a high free asset ratio therefore have an enhanced amount of discretion over their investment decisions and can allocate funds above those specified in the regulations to particular asset classes. However, an investment in venture capital and private equity – irrespective of the chosen vehicle – is bound to result in a short-term deterioration of an insurer's free asset ratio. This is due to the liability valuation methods laid out in the Insurance Company Regulations. As already mentioned above, the calculation of solvency margins requires a valuation of an insurer's liabilities. This is done by discounting future liabilities. The discount rate applied for this exercise – the "valuation base" – is a compound rate based on the yields of several asset classes (Regulation 59 of 1994 ICR). An investment in a low-yielding asset class will automatically reduce the valuation base and result in a lower free asset ratio. This, in turn, creates an incentive to avoid low yielding asset classes such as venture capital and private equity, whose total returns are driven by capital gains rather than dividends. However, this problem is shared between all low-yielding assets. For example, many technology companies opt against paying annual dividends since they argue that re-investment will lead to higher capital gains. The reduction of free assets experienced by most life insurers should therefore be seen in this wider context. This suggests that the regulator should modify the current rules since valuation bases derived purely from asset yields do not reflect the growth of the underlying asset base.

3.2. Regulation of Linked Policies

The above asset valuation rules do not apply in the case of linked policies since the liability to policyholders is matched by the value of the linked assets. However, there are restrictions on the assets that can be linked to these policies. Schedule 10 of the 1994 Insurance Company Regulations lists a number of so-called "permitted links." Venture capital and private equity, investment vehicles are treated as follows:

- Investments in venture and development capital trusts are, in principle, treated as listed securities which are *readily realisable*. They fall within the so-called permitted links (Schedule 10 of 1994 ICR, para 1). However, if the shares represent ownership rights in unlisted companies (which is usually the case with quoted venture capital trusts), a maximum aggregate exposure of 10% of all unit-linked assets applies (Schedule 10 Para 2 and Prudential Guidance Notes 1996/2 Para 5.3). Furthermore, due to their sometimes considerable bid-offer spread, the shares in smaller investment venture capital trusts *can* fall outside the definition of "readily realisable." [2] This flexible definition, in connection with the regulatory regime based on self-assessment, creates a disincentive for investment executives of unit-linked funds to allocate funds to smaller quoted investment trusts.

- Investments in limited partnerships *cannot* be included as permitted links for linked policies since the investments made by the partnership do not represent *readily realisable* securities. Premium income from linked policies can therefore not be invested in venture capital and private equity investment vehicles that are structured as limited partnerships.

- In principle, an insurance firm could include dividends from a dependent company as links. However, since a captive fund's investments are not readily realisable, such an arrangement would also fall outside the definition of a permitted link (Schedule 10 of 1994 ICR, para 5).

Besides this regulatory barrier, there is a business barrier that makes it difficult to include limited partnerships as investments. The regulations state that the permitted links should be priced on a regular basis. Most unit trusts that constitute permitted links actually provide quotes on a daily basis. This enables insurers to provide transparent information thus enabling retail investors to modify their asset allocation decisions within a linked policy. Even if the regulator allowed stretching the interpretation of "priced on a regular basis" (which is probably unlikely) to allow quarterly valuations, this would not represent an appropriate indicator of the underlying value of a limited partnership's investments. This is due to the fact that investments made by venture

[2] For the purpose of the regulations, "readily realisable" means that at least 97.5% of its quoted value can be realised within seven working days.

capitalists are usually valued at cost or according to the quite conservative BVCA guidelines. Interim valuations are an insufficient performance yardstick since final gains are realised upon exit. Providing valuations that are subject to sudden upward swings could result in windfalls for investors that simply got the timing right. Given these business and regulatory barriers, we would therefore conclude that limited partnerships do not represent appropriate direct links for linked policies.

This situation might be changed through the introduction of innovative products by the private equity industry. Alternatively, the regulator could allow unit trusts which represent permitted links to invest part of their assets in limited partnerships. It is also possible to envisage the creation of fund of funds OEICs (open-ended investment companies) which could be allowed as permitted links in combination with a maximum exposure limit for retail investors. However, in order to protect policy holders' interests, such a regulatory change should be accompanied by appropriate marketing rules that create sufficient transparency as to how such units are priced and how capital gains are distributed. Nonetheless, these vehicles would meet the regulators concern for protecting policy holders' interests and would make private equity and venture capital performance available to the wider public. Retail investors with a higher risk appetite would thus have the possibility to access venture capital vehicles other than quoted investment trusts.

Finally, while insurers might find that the inclusion of a venture capital element into linked policies could respond to retail demand, there would still be an issue of fiscal efficiency. Individuals that invest in so-called venture capital trusts (VCTs) are offered tax incentives in exchange for a five-year commitment. These tax breaks are not available to insurers, so there is a question as to whether there is a demand for a venture capital element in linked retail products.

3.3. Regulation of Pension Products

As shown above, personal and occupational pensions account for 55% of premium income in the UK long-term insurance market. Insurance companies usually run a common fund for the life and pension businesses. The pension products sold by insurance companies are subject to similar regulations to pension funds. The main restriction of investment activity consists of the Minimum Funding Requirement (MFR). The effects of this regulation have already been analysed in the original London Business School report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors." The findings of that report with regard to the MFR equally apply to the pension business of long-term insurers.

A private equity investment will result in an almost automatic short-term deterioration of a pension fund's MFR situation for first-time investors. However, the actual effect is so small that it should not prevent interested funds from allocating money to this asset class. Furthermore, it is a short-

term effect that will be offset once the fund's distributions exceed the initial draw-downs. The indirect impact of the MFR, however, is not to be underestimated, since it biases allocation decisions against those asset classes that are not used as a yardstick for valuing MFR liabilities. As a result, pension fund decision makers that have not decided to allocate assets to private equity have a disincentive to do so in the future.

More recently, the UK government has published guidelines to introduce so-called "stakeholder pensions." A central feature of these stakeholder pensions is that the provider of such a product is subject to a management fee cap of 1% of funds under management. Insurance companies that wish to market stakeholder pensions therefore have to make investment decisions with this fee cap in mind. Since the insurance industry argues that venture capital and private equity investments are more costly to administer than investments in other major asset classes, a fee cap is likely to amplify any existing bias against investment in limited partnerships. It would therefore be deplorable if the laudable efforts of increasing the public's private pension coverage resulted in the holders of stakeholder pensions not being able to participate in venture capital and private equity returns which have outperformed all major UK asset classes during the 1990s.

4. Fiscal Treatment of Insurance Company's Investments in Venture Capital

4.1. Taxation on Capital Gains

Products of long-term insurers are subject to two different tax regimes. While life insurance products are subject to taxation on capital gains, pension products are exempt. For the purpose of calculating tax on capital gains, investments in quoted venture capital investment trusts can be treated like investments in any other quoted security, i.e. tax on capital gains is liable upon disposal of the asset. A very different set of issues arises as far as investments in limited partnerships are concerned. The computation of tax liabilities on gains arising from these investments is complicated by the *tax transparent nature* of limited partnerships. This means that investments made by the general partners have to be treated by insurance firms as direct investments in unquoted securities.

A capital gains tax liability should, in principle, arise at the disposal of shares in an investee company. However, tax computations are complicated because, in practice, many tax liabilities are due to *partial disposals* triggered by various investment practices. They are usually side-effects of sensible investment practice yet result in a considerable administrative burden when calculating tax liabilities. They can be caused at the level of the partnership or at the level of the investee company. We list a couple of investment practices below that may trigger a tax liability for insurance firms due to the fiscal transparency of limited partnerships.

General Issues

- Most problems mentioned by insurers relate to the fact that it is very difficult to obtain an agreement with the Inland Revenue on individual valuations for unquoted companies. In principle, there is a general agreement to use the BVCA valuation guidelines for the purpose of valuing investments in unquoted companies (Prudential Guidance Notes 1995/1, para 4.69). Yet, these guidelines leave considerable scope for interpretation. As a result, the Inland Revenue's preference towards higher valuations is inherently in conflict with venture capitalists' practice of providing conservative interim valuations for unexited investments. Due to the tax transparency of the limited partnership, it becomes the insurers' responsibility to defend the valuation provided by the venture capitalists or calculate their own. Under normal circumstances, this mainly becomes an issue when insurers attempt to claim tax relief on losses of the partnership (see below).

- The fiscal self assessment regime introduced by the Inland Revenue makes firms liable for inaccuracies in their tax computations. In practice, most insurance firms investing in limited partnerships decided to recreate the accounts of all investee firms for their tax computations. Insurers also argue that, as a consequence of their tax transparency, some partnerships have maintained poor reporting standards. This can result in a situation where the taxation managers of insurers have to spend considerable time obtaining the relevant information. For example, to agree a share valuation with the Inland Revenue, it will often be necessary to present accounts or trading histories for the company going back over several years, to establish the historic earnings potential. This can be very difficult if the insurer is not a direct investor. In practice, insurers may have to value investments themselves and then reach agreements with the Inland Revenue.

- The interviewed taxation managers mentioned that it is very difficult to claim tax relief on losses of the partnership. While the limited partnership may have written off individual unperforming investments, it is not uncommon that the investee firm will continue to operate. In that case, tax inspectors appear to be extremely reluctant to grant a tax relief unless insurers can demonstrate that the investee company is no longer trading or that there will be no prospects of future distributions. This results in an imbalance where gains are taxed at the end of the fiscal year, whereas relief for losses will sometimes only be granted several years after the partnership wrote off the investments.

Partial Disposals at Partnership Level

- Partial disposals can be triggered by changes in profit sharing ratios which arise at the level of the partnership. Most partnerships have a hurdle arrangement, i.e. an arrangement that provides a profit share (usually 20%) for the general partners after a preferential return has been achieved (see also main report). Only after paying back the initial draw-downs and achieving this hurdle return, will distributions be used to remunerate general partners. Limited partners, who until now were treated as owning all the investments, technically dispose of a certain percentage of these investments to make up for the general partner's profit share. No chargeable loss or gain should arise from this practice, because the disposals will be valued in the partnership's accounts at cost. Insurers, however, report of instances where general partners revalued individual investments. Only if the gains from an upward valuation are at the same time attributed to the limited partners, do they become liable to a tax charge on capital gains. Note that any gains do not have to be attributed to the limited partners, but can be attributed to a general account at the partnership level. Altogether, the perceived uncertainties and complications regarding the fiscal treatment or profit sharing arrangements serve to reinforce any bias against more widespread investments in this asset class.

- Additional partial disposals that arise at the level of the partnership are relatively rare. The most common incidence is probably when one of the limited partners defaults on his payment.

Partial Disposals at Investee Company Level

- At the level of the investee company, partial disposals are more common. A partial disposal can occur when the investment is exited. Any partial disposal requires a valuation of the assets undisposed of. If the investment is exited via a flotation, this is usually not a problem, since daily share price quotations are available. Partial disposals during trade sales are very rare. Instead, so-called "contingent sales considerations" (arrangements, where the final sales price of an investee firm at a trade sale will depend on its future sales) are used which represent a right to obtain future revenues. They will be taxed when receiving the right, rather than receiving the revenue. Insurers mentioned that it has in the past been difficult to agree on valuations for these rights with the Inland Revenue.

- There have been instances where the management of investee companies was incentivised by being allowed to buy-back shares from the partnership (rather than using share options). If a different, i.e. higher price than the initial issue price is agreed upon, insurers are made liable for the arising capital gain. Here, it has in the past been difficult to reach an agreement with the Inland Revenue on values for the assets undisposed of.

Other Issues

- Investments into 'distressed' companies which entail a series of capital restructuring transactions are difficult to administer. The restructuring is often highly complex from a tax viewpoint. Apart from the time that is needed to properly understand these transactions, it is often difficult to obtain accurate information relating to the precise legal steps that have been undertaken.

According to the interviewed taxation manager, the costs of administering investments in venture capital and private equity limited partnerships are substantially higher than those of investing in other alternative assets classes. The tax transparency of limited partnerships means that good investment practice sometimes becomes awkward to administer. Furthermore, partnerships in the early stage area usually undertake a larger number of relatively low value transactions each year, which occupies a large amount of administrative resources. This has biased some insurers against investing in early stage funds.

Funds of Funds

The above problems are amplified when insurance companies wish to invest in funds of funds. Due to the double layer of transparency, every investment made by a limited partnership that the fund of funds manager is invested in has to be treated separately for tax computation purposes. For an insurance company, a single investment in a larger fund of funds can produce the obligation to recreate accounts for up to 400 companies. This problem is also evident when a larger limited partnership which is not a fund of fund invests into several smaller seed funds in order to enhance future deal flow. From an administrative point of view, an insurer's investment in limited partnerships with several layers of transparency is therefore very costly. As a result, most insurers have tended to avoid investments in funds of funds unless they managed to set up some sort of feeder fund which is subject to a different tax regime. This situation is unfortunate, since these vehicles have in the past achieved strong returns and are arguably the least risky due to their in-built element of diversification. As such, they should meet the regulator's concern with regard to the protection of policy holders' interests.

4.2. Leverage of Tax Computation Costs in the Pension Business

The costs and complications that may arise during the computation of tax on capital gains have in the past biased insurance companies against private equity and venture capital. Unfortunately, the problems highlighted above are amplified by the investment practice of most insurers. Remember from the above discussion that the pension business of long-term insurers is exempt from tax on

capital gains. However, insurance companies usually run a common investment activity for their life and pension business. As a result, tax computations have to be carried out for all investments, irrespective of whether they are earmarked to meet pension or life policy liabilities. The overall tax rate of an insurer is subsequently calculated as a percentage of liabilities that arise from its life business.

Due to the common investment activity, any asset allocation bias against venture capital and private equity feeds back on the pension business. In this context, it is important to point out that the recent growth of the pension business of insurance companies is, to a certain extent, also caused by an increasing number of smaller pension funds that outsource their investment activities to larger groups like insurance firms.

We therefore conclude that the current regime applying to the taxation of capital gains of venture capital and private equity limited partnerships acts as a disincentive to insurers' investment in this asset class. Furthermore, the consolidation of the investment activities of insurers and smaller pension funds create a situation where the disincentives feed back into areas that are not subject to capital gains tax. Any allocation bias against venture capital and private equity is "leveraged" from an insurers life business onto its pension business. We would therefore recommend that the existing regulations applying to the taxation of venture capital and private equity limited partnerships are reviewed.

5. Conclusions and Recommendations

Before presenting our conclusions, we would like to stress that this report does not recommend that insurers should increase their asset allocation to venture capital. It leaves this decision to insurers who should balance the opportunities and risks presented by this asset class. In this context, we would like to repeat that, by committing 9% of funds raised by members of the BVCA in 1999, UK insurers contributed more funds to the private equity industry than any other group of UK investors. Yet, insurers' share of investment in venture capital partnerships appears to be highly cyclical. Furthermore, in the heavily regulated insurance industries, factors other than the investment fundamentals impact on asset allocation decisions. This report identified two distinct areas – the regulatory and fiscal framework – that influence long-term insurers' attitudes to venture capital and private equity. Accordingly, this report's recommendations focus on a number of points than should be addressed *if* more widespread investment in this asset class is desired. Most recommendations are aimed at removing regulatory and fiscal barriers to achieving investment performance at an acceptable level of risk and management cost.

We believe that the ABI is better placed than the BVCA to be the primary force behind any effort to modify the existing regulatory framework. The ABI in conjunction with the BVCA should lobby for changes in the regulatory framework if there is a clear demand from the ABI's constituency. The debate after the publication of the London Business School report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors" showed that interest in this asset class is increasing. The venture capital industry should continue to inform the regulator, insurers and other institutional investors about the opportunities of the asset class which has outperformed all other major asset classes throughout the 1990s. An investment in a *diversified* portfolio of venture capital and private equity investment is consistent with the regulator's objective to protect the interests of insurance policy holders.

5.1. Possible Regulatory Modifications to Increase Venture Capital and Private Equity Investments by Long-Term Insurers

The various insurance company regulations prescribe how premium income of life insurers can be invested. In the area of non-linked with-profits policies, we believe that there is sufficient scope for larger insurers to invest in venture capital and private equity. Insurers can invest in shares of quoted venture capital investment trusts and participations in limited partnerships. The regulations define individual, aggregate and counterparty exposure limits to avoid risk from a too high concentration on a particular asset type. However, insurers are not prohibited from investing beyond the limits set out in the regulations if they have sufficient free assets that are not earmarked to meet particular liabilities. Nonetheless, the admissibility limits restrict the freedom of insurers to invest their premium income. The following areas might be considered to increase more widespread investments in venture capital and private equity vehicles:

- One way to encourage more widespread investment might be to increase the exposure limits – both individual and aggregate – set out in the admissibility rules. The individual exposure limit of 1% of assets to interests in collective investment schemes (Schedule 12 of 1994 ICR, para 11) effectively prevents smaller insurers from investing in some of the larger and most successful private equity limited partnerships which require limited partners to make larger contributions. The current maximum aggregate exposure of 10% of assets towards collective investment schemes (Schedule 12 of 1994 ICR, para 12) also includes most indirect property interests and thus effectively acts as an upper ceiling for the two most widespread types of alternative investments. A higher ceiling, or separate admissibility limits for limited partnership interests in venture capital and property, might be more appropriate. In this context, we would like to point out that the admissibility rules are motivated by the desire to protect policyholders' interests. Yet, they could have the perverse effect of preventing investment diversification and thus increase policyholders' risk. The London Business School

report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors" argued that appropriate diversification effectively reduces the risk of investments in private equity. For smaller insurers or insurers with a low free asset ratio, a too conservative exposure limit might prevent them from allocating the assets required to reduce their portfolio risk. The likely outcome of this dilemma is, however, that insurers affected by this problem will avoid an asset class that has outperformed all other UK asset classes during the 1990s. Investment into fund of funds products would effectively eliminate most of the diversifiable risk, yet due to the fiscal treatment of these products (see below) they are very costly to administer.

- The exposure limits set out in the regulations can have a further side-effect. Investors that operate close to their exposure limit can be obliged to sell a well-performing asset because the exposure limits are overshot by a value increase. Free assets can act as a buffer, but the trend towards falling free asset ratios (see below) has somewhat reduced that possibility. This risk applies to all assets subject to tight exposure limits. It is less of a problem for investments in limited partnerships, which distribute cash rather than reinvest their proceeds, than for investments in quoted venture capital investment trusts.

- The recent years have seen a reduction of free asset ratios for most insurers. This is a direct consequence of the methods prescribed for valuing non-linked liabilities. The rate used to discount future liabilities is based on asset yields. Dividend yields for equity have recently fallen since an increasing number of firms, especially technology companies, opt against paying annual dividends since they argue that re-investment will lead to higher capital gains. Investments in low-yielding asset classes such a venture capital and private equity will result in a further short-term deterioration of an insurer's free asset ratio. A reduced free asset ratio will, in turn, reduce insurers' capacity to invest in asset classes for which exposure limits are set out in the regulations. In order to eliminate the adverse effect of investments in low yielding assets on free asset ratios, the regulator should modify the valuation methods applied to life insurers' non-linked liabilities. The incorporation of some notion of capital gains into the discount rates would at same time reflect economic reality and eliminate a bias against all low-yielding assets, not just venture capital and private equity.

As far as the linked business of life insurers is concerned, it is impossible under current regulations to invest in venture capital vehicles other than quoted investment trusts. This report argued that there are not only regulatory barriers, but also business barriers (mainly valuation intervals) that make it difficult to incorporate a limited partnership element into linked policies. It could therefore be investigated whether there are innovative ways to incorporate a venture capital and private equity element into linked policies. A working party of the ABI, BVCA and the FSA could ensure that the regulator's concern for protecting the policyholders' interests is met with the business practice of insurers and venture capitalists.

5.2. Possible Modifications to the Taxation of Limited Partnerships

From a fiscal point of view, investments in the shares of quoted venture capital investment trusts are straightforward, since any capital gain is taxed upon disposal. Due to their tax transparent nature, the taxation of limited partnerships – the primary venture capital investment vehicle – is more complicated and results in considerable administrative costs for insurers. These problems are amplified when insurers invest via a fund of funds which makes this vehicle very costly to administer. In addition, the above problems feeds back on an insurers' pension business since insurance companies usually run a common investment activity for both their life insurance and pension business. Finally, the administrative burden becomes an issue for stakeholder pensions which have a built-in fee cap. In the absence of a modification of current practice, any fee cap will probably bias the providers of these products against venture capital and private equity.

A modification of the current tax regime or Inland Revenue practice would remove what is seen by UK insurers as one of the most important barriers to a more widespread investment in venture capital and private equity. If the UK government wants to increase institutional investments in smaller unlisted companies, a simplification of the fiscal regime would be an obvious area of reform. We would like to point out that this report is not trying to advocate specific tax breaks for these investments or propose any arrangement that would lead to a tax avoidance. Instead, we would like to see a modification of current practice in order to simplify the treatment of tax computations, thus reducing the administrative burden and cost for insurers. The main complications that arise from the current tax treatment are outlined in chapter 4 of this report. Several possible alternatives could simplify the current regime:

- A regime for non-transparent feeder funds could be introduced (on-shore or off-shore). However, such a change might be opposed by the Inland Revenue, if the feeder fund is located off-shore, since this raises questions about the repatriation of capital gains.

- Investments in limited partnerships could be taxed based on audited valuations of limited partnerships. Limited partnerships would remain tax transparent, but this solution would effectively centralise tax computation and compliance work at the partnership level. Insurers would probably be prepared to pay slightly higher management fees. Yet, the danger of this solution is that such an arrangement could create a two-tier system of limited partners, i.e. venture capitalists would avoid investors which would put them under the obligation to carry out more extensive audited tax computations. Still, such a solution would be more efficient than current practice since it centralises an activity that would otherwise have to be carried out separately by each of those limited partners that are liable to tax on capital gains.

- Investments in limited partnerships could be taxed on a difference between annual capital inflows and outflows. This would probably be the most radical simplification, yet it would result in a deferral of capital gains tax charges. The cost to the Inland Revenue would be containable due to the limited life of limited partnerships. Furthermore, it would be a one-off since a steady inflow of tax liabilities would follow once such a regime is in power.

This list of alternative solutions is by no means exhaustive and each of the alternatives has certain advantages and disadvantages for the involved parties. We would therefore strongly recommend that the BVCA, the ABI and the Inland Revenue set up a working party to look at ways of simplifying the fiscal treatment of limited partnerships. This would remove one of the most important barrier to a more widespread investment in this asset class. In the meantime, the BVCA could explore the idea of minimum standards not only for reporting but also for tax computations purposes.

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This research report reflects the views of its author and not of the individuals or organisations mentioned above contacted during the course of the research. All errors of fact and omissions are the sole responsibility of the author.

APPENDIX

UK Venture Capital and Private Equity as an Asset Class for Institutional Investors

- EXECUTIVE SUMMARY -[3]

Introduction

The terms venture capital and private equity describe equity investments in unquoted companies. In the UK and much of continental Europe, venture capital is synonymous with the term private equity. In the US, however, venture capital usually refers to the provision of funds for young, entrepreneurial businesses whereas private equity is mainly associated with the financing of leveraged management buy-outs and buy-ins.

This report has been written as a result of the declining share of UK institutional investors among the providers of funding of the UK venture capital and private equity industry. It has a dual objective: Its first part will explain the concept of private equity finance and the fundraising and investment processes of venture capitalists. The second part will examine the characteristics of venture capital and private equity. We will analyse the returns, the risk and the cash-flow implication of venture capital investments in order to assess the suitability of this asset class for institutional investors. From an investor's perspective, the characteristics of venture capital and private equity are very similar, i.e. investments in this asset class are predominantly handled by limited partnerships operating fixed-life funds. We will therefore use both terms interchangeably during this report.

The key findings of the report can be summarised as follows: The long-term performance of the UK venture capital industry since 1980 stands at 14.2% per annum. Over the period between 1987 (the first year for which individual fund valuations are available) and 1998, its cumulative returns have outperformed all principle UK comparators. The analysis of annual returns revealed a movement parallel to public equity return indices. However, the spread of returns of individual funds is quite large. Diversification is therefore of utmost importance when investing in this asset class. Finally, private equity investments have particular cash-flow properties. Individual funds start making net contributions to investors after between three and five years. An appropriately structured private equity portfolio will finance itself after an initial net investment period and continue to generate substantial positive cash-flows for several years. This characteristic of private equity can be attractive for pension funds irrespective of their maturity.

Venture Capital and Private Equity

Venture capital and private equity are mechanisms of financing companies that represent an alternative to raising funds on public equity or debt markets. This is frequently the case because risk, uncertainty or simply the long time horizon associated with the investment deter debt providers from funding these firms. These conditions apply especially in high-technology environments, where the commercial potential of innovations is difficult to estimate for potential backers. However, private equity is not limited to technology-based firms or growth-oriented start-up businesses. It has also become a common mechanism to finance the separation of non-core assets from a parent company, to facilitate management succession in family-owned firms or de-list undervalued firms from the stock market ("public to private transactions").

[3] This executive summary is part of the research report "UK Venture Capital and Private Equity as an Asset Class for Institutional Investors" authored by Oliver Burgel and published jointly by London Business School and the British Venture Capital Association in January 2000. The performance figures used within that report were those for 1998, the most recent figures available at that time. 1999 performance figures are now available from the BVCA.

Venture capital providers become co-owners of these companies and share risk and returns to the extent in which they participate in them. Their returns directly depend on the growth and profitability of the investee firm. Venture capitalists realise their returns through selling their stakes in investee companies. Successful investments are usually exited through trade sales or offerings on the stock market.

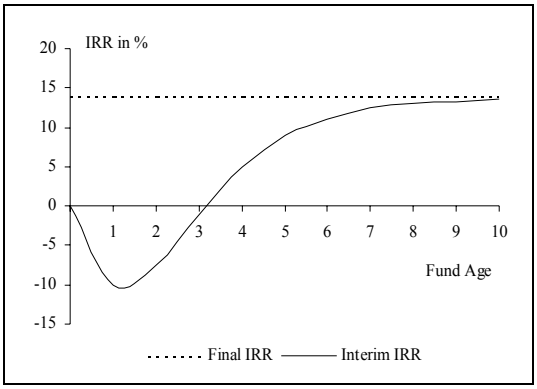
In the UK, the main providers of formal private equity are venture capital firms. The majority of these firms are *independent* venture capital firms, which raise their funds for investment from external sources, mainly institutional investors such as banks, insurance companies and pension funds. *Captive* venture capital firms obtain their funds from parent organisations which are usually financial institutions. Increasingly, some of these captives also raise funds from institutional investors. They are known as *semi-captives*. For institutional investors, fixed life funds managed through independent and semi-captive *limited partnerships* are the primary vehicles to invest in private equity.

In limited partnerships, institutional investors constitute the *limited partners* and venture capital firms act as *general partners*. The minimum investment considered by most venture capital firms usually amounts to 1% of the total funds being raised. The maximum investment usually accepted from a single investor corresponds to about 10% of the total fund size. The majority of limited partnerships include between ten and 30 limited partners. A limited partnership usually has a fixed ten-year life during which the general partners select investments, structure deals, monitor investments and design the appropriate exit strategies on behalf of the limited partners. In exchange, they receive a *management fee* and a share of the overall returns of the fund. The latter is referred to as *carried interest*. The partnership's funds will usually be invested by the general partners within three to five years. Despite being set up with an intended life of ten years, nearly all funds continue to exist beyond that period because some investments will not be fully exited within the intended life of the fund. When all investments are fully divested, a limited partnership can be terminated or "wound up."

Performance Measurement of Venture Capital Funds

The Internal Rate of Return (IRR) method is the most appropriate method to measure the performance of venture capital and private equity funds. The time-weighted rate of return method used to measure pension funds will often produce misleading results when applied to a private equity fund. The definitive return of a private equity fund can only be calculated when a fund is wound up. Between inception and termination of a fund, its returns follow the so-called J-curve pattern (Figure 1).

Figure 1
The Evolution of Venture Capital Returns over Time: The J-Curve Pattern



Note: The graph shows an illustrative example

The common practice of paying the management fee and start-up costs out of the first draw-downs will not produce an equivalent book value. As a result, a private equity fund will initially show a

negative return. When the first realisations are made, the fund returns start to rise quite steeply. After about three to five years, the interim IRR will give a reasonable indication of the definitive IRR. This period is shorter for buy-out funds than for early stage and development funds. Funds that are four years and older are considered "mature funds."

A one-year IRR is a meaningless measure at the individual fund level. At the industry level, it is a hypothetical measure that is indicative of the industry's performance. However, short-term industry IRRs should be discussed in conjunction with the level of investment activity, since a low or negative industry IRR can simply be caused by a surge of investment activity (the J-curve pattern). Conversely, unusually high short-term industry IRRs can be the result of a few large funds that made successful exits. As a rule of thumb, most industry-level performance statistics are determined to a large extent by the performance of MBO funds which dominate the industry in terms of net cash-flows.

The Returns of the UK Venture Capital and Private Equity Industry

In order to assess the performance of the UK private equity industry, we calculated the returns based on the monthly cash-flows and annual valuations. Four different analyses were carried out: First, we calculated the industry-level IRRs by investment stage and vintage year. These returns were calculated over different time periods. The results of this analysis are displayed in Table 1. Second, we compared these figures to the returns of the US and European private equity industries. Third, we compared private equity returns to the returns that one could have generated by investing the identical cash-flows in various other UK asset classes. Fourth, we looked at the capital realisations in absolute terms. All returns are net of all management fees and carried interest. The results of these analyses can be summarised as follows:

- In 1998, the industry had a particularly successful year with an aggregate one-year return of 37.5% for mature funds and 28.3% for all funds. The negative one-year IRR for early stage funds is to a large extent caused by a 65% increase in investment activity in 1998, which - due to fund start-up costs and conservative valuation guidelines – has not yet resulted in an equivalent creation of book value (the J-curve phenomenon). The exceptionally high returns for generalist funds are caused by the divestments of two individual funds. The returns of MBO funds are remarkable since they have been generated despite a 45% increase of investment activity over the same period.

Table 1
Performance by Investment Stage up to 1998 (in %)

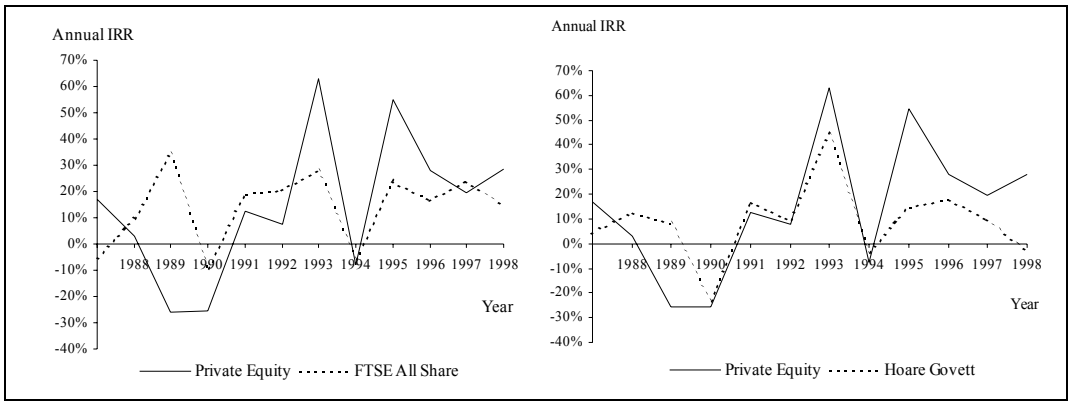
Investment Focus	One year 1998	Two Year 1997-98	Three Year 1996-98	Four Year 1995-98	Five Year 1994-98	Six Year 1993-98	Seven Year 1992-98	Eight Year 1991-98	Nine Year 1990-98	Ten Year 1989-98
Early Stage	-27.5	0.9	4.0	44.2	7.4	26.7	26.9	19.3	13.8	7.9
Development	13.5	20.7	25.5	26.5	23.3	26.6	20.1	17.2	12.4	7.7
Mid MBO	17.9	14.7	28.7	29.6	26.5	32.8	26.5	20.1	14.8	12.0
Large MBO	26.2	25.5	26.2	42.8	27.4	42.3	33.6	29.4	19.1	17.1
Generalist	64.0	34.2	34.5	35.3	20.5	21.7	20.4	26.3	23.6	11.0
Total	28.3	24.6	27.7	37.6	24.3	32.3	27.3	25.1	18.1	12.7
Number of funds	188	176	143	134	134	118	108	102	90	77
Mature funds only	37.5	25.7	25.8	39.3	22.5	38.5	27.3	23.0	17.1	8.3
Number of funds	134	118	108	102	90	77	59	42	30	22

Source: LBS Calculations

- The long-term industry performance since 1980 of the entire industry stands at 14.2% per annum. This indicator is arguably the most reliable indicator of the long-term performance potential of this asset class.

- Over the period from 1987 (the earliest year for which fund valuations are available) to 1998, the cumulative annualised venture capital returns were slightly higher than public equity returns (14.8% and 14.6% respectively). All other major UK asset classes were outperformed by a substantial margin of 240 to 460 basis points. Since 1992, cumulative private equity returns have outperformed UK equities by a substantial margin of 910 basis points and other UK asset classes by a margin of 1270 and 1520 basis points. These figures are based on a comparison between historical private equity cash-flows and identical cash-flows invested in and divested from index-tracking derivatives for other asset classes.

Figure 2:
Annual Private Equity Returns Relative to Public Equity Returns up to 1998



- Private equity returns appear to be cyclical. During most of the period for which data is available, they moved in parallel with the public equity market. The similarity of the movements between the small cap segment of the UK stock market and private equity returns is particularly striking (Figure 2). The upward and downward spikes are much more pronounced, which suggests that public equity market changes are amplified in the private equity market. Since our data on private equity valuations only goes back to 1987, our analysis covers a very short time period. The results should therefore be interpreted bearing in mind this important limitation.

- During the 1990s, the UK buy-out and generalist segment of the industry have outperformed their US and European peers. In the early stage and development area, the returns of the UK venture capital firms were lower than those of their US and European counterparts during most years.

- Compared to the US, there has been a stronger performance in the recent past in terms of aggregate performance across all investment stages. Short and mid-term industry IRRs are above the US level up to a five-year investment horizon (24.3% for the UK; 20.5% for the US). At the current stage, the longer term track record still points in favour of the US private equity industry which has generated returns of 16.9% and 17.1% over a ten and twenty-year period. This compares to 12.7% and 14.2% for the UK respectively. The pooled returns of the British private equity industry were consistently higher than those of the European industry as a whole, irrespective of the chosen time horizon.

- When looking at the history of absolute returns, we found that the sum of distributions and retained asset values currently stands at 175% of the funds drawn down by the general partners to investors.

- Several young funds that have not yet reached the stage of maturity have already produced returns in excess of 15%. Since the returns of these funds are likely to increase as they reach maturity and exit their investments, the dynamics of industry-level performance measurement will result in industry level returns above 20% for a few years. However, this is good news for current investors only since these returns reflect past investment decisions.

The Spread of Returns of Venture Capital and Private Equity Funds

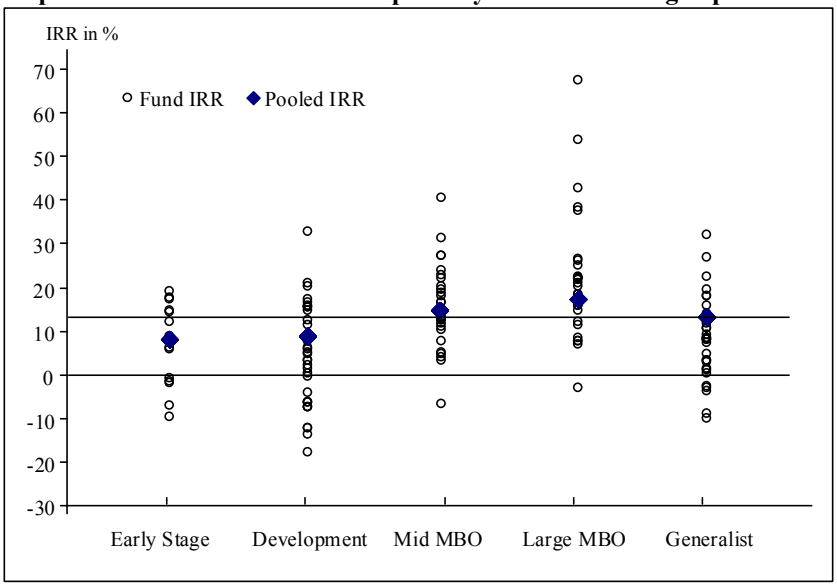
After looking at the performance of the venture capital and private equity industry, we examined the risk associated with investments in these funds. To this end, we analysed the spread and the distribution of the returns at the fund level. The results are displayed in Table 2.

Table 2
Range of Returns of Mature Funds by Investment Stage up to 1998

Investment Stage	Number of funds	Pooled IRR	Mean IRR	Median IRR	Minimum	Maximum	Range	Standard Deviation
Early Stage	17	8.2	6.9	8.1	-9.6	18.9	28.5	8.7
Development	34	9.1	4.6	4.8	-17.7	32.9	50.6	11.6
Mid MBO	27	16.4	15.7	14.9	-6.6	40.6	47.2	9.8
Large MBO	26	17.8	22.3	20.5	-3.0	67.3	70.3	15.3
Generalist	30	12.0	8.1	7.9	-9.9	32.0	41.9	9.8
All Funds	**134**	**14.3**	**11.3**	**10.8**	**-17.7**	**67.3**	**85.0**	**13.1**
Technology Funds only	26	9.8	10.2	9.1	-0.2	20.2	20.4	6.2

Source: LBS calculations
Note: The table shows IRRs since 1980 for mature funds started before 1995.

Figure 3
Spread of Fund IRRs Since Inception by Investment Stage up to 1998



Source: LBS calculations

- The analysis of the spread of returns shows that there is considerable variation at the fund level. Since 1980, the returns of individual funds ranged from –17.7% to 67.3%. Additional analyses also show that the spread of returns is not a function of the presence of successful or unsuccessful outliers. Instead, their distribution is close to a normal distribution around the mean IRR by investment stage and fund size.

- To date, the *aggregate* risk-return profile of mature funds has been more favourable for later stage investments and larger funds. Nonetheless, attractive returns have been generated by *individual* funds irrespective of vintage year, investment stage and fund size. Partnership selection skills are likely to have a large impact on the performance of the private equity portfolio.

- Technology-focused venture capital funds, the group of funds conventionally associated with the highest risk, have in the past actually been the least risky when considering risk in terms of IRR fluctuations and the possibility of not recovering invested funds.

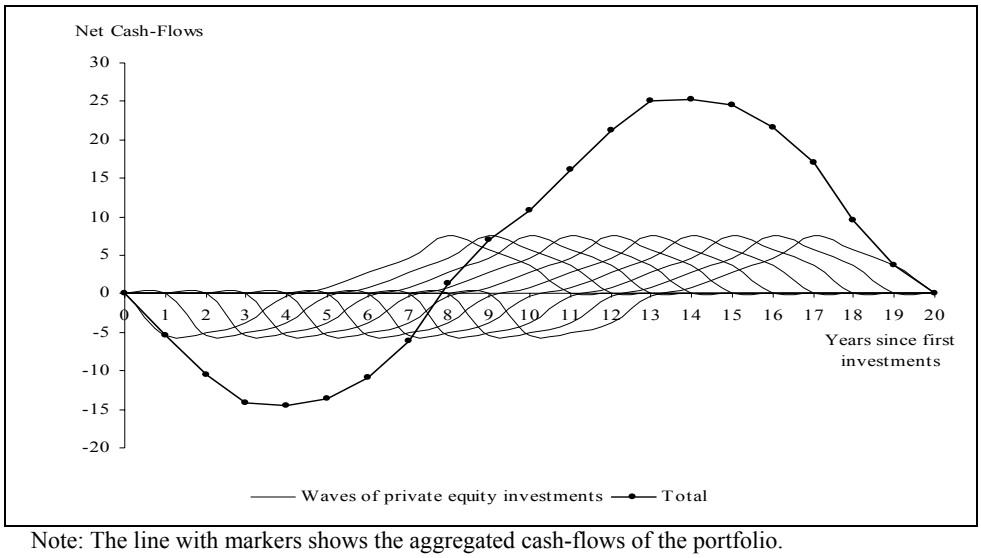
- Due to the considerable spread of returns, diversification is of utmost importance for investors. Investors should make appropriate asset allocation decisions to allow for an effective diversification rather than invest in just one or two funds. Alternatively, they should consider an indirect investment via a fund of funds.

The Cash-flow Implications of a Venture Capital Investment

An investor who commits a certain amount to a limited partnership should be aware that this is a theoretical maximum amount. In practice, the maximum commitment is rarely solicited from an investor. According to our data, private equity funds that specialise in large MBOs will usually draw down up to 90-95% of total commitments. Funds that focus on investing in smaller firms will request on average 80-90% of the committed money. Usually, investors receive a notification shortly before the money is drawn down by venture capital firms. Some of the larger funds will have monthly draw-downs that vary in their amounts. Our results with regard to the cash-flow implications can be summarised as follows:

- Private equity funds usually generate positive net cash-flows after three to five years. This period tends to be shorter for MBO funds than for early stage and development funds.

Figure 4
Simulation of Long-Term Cash-Flow Implications of Private Equity Investments



Note: The line with markers shows the aggregated cash-flows of the portfolio.
Source: LBS calculations

- Depending on the investment opportunities and fund size, monthly cash-flows can vary considerably in their amount. Diversification into several private equity funds will therefore smooth the cash-flow pattern considerably and make it more predictable.

- The final part of our analysis consists of a cash-flow simulation for a private equity portfolio over a twenty year period. The results are displayed in Figure 4. In our example based on the average historical cash-flows, a portfolio that consists of ten annual waves of investments will require annual net contributions until the eighth year and generate positive returns for a further 12 years.

Recommendations for Institutional Investors

- Our analyses have shown that the aggregate historical returns currently stand at 14.2%. Since 1987, cumulative venture capital returns have outperformed UK public equity returns by a narrow margin and all other major UK asset classes by a substantial margin of 240 to 460 basis points. These returns are net of all management fees and carried interest. Since 1992, cumulative private equity returns have outperformed UK equities by a substantial margin of 910 basis points and other UK asset classes by a margin of 1270 and 1520 basis points.

- Overall, the decision to invest in this asset class should be taken with a long-term perspective in mind. Since venture capital returns follow the J-curve pattern, it takes three to five years before investors experience positive returns and net cash-flows.

- The term "committed capital" does not imply that an equivalent amount of money is working during the entire life of the limited partnership. The return figures above therefore do not represent the compound returns of the assets allocated by pension funds to private equity. This is a consequence of two related investment practices. First, funds are usually drawn down on a deal-by-deal basis. Second, the committed capital is usually the maximum amount made available to the partnership since general partners draw between 80% and 95% of committed capital from investors. Institutional investors that seek a target range of absolute returns should therefore be prepared to make higher nominal fund allocations to this asset class.

- While the aggregated returns have been attractive, there are considerable fund-level differences in terms of returns and cash-flows. Diversification is thus of utmost importance when investing in this asset class. Diversification smoothes positive and negative cash-flows and substantially reduces the return spread.

- Institutional investors that want to reduce diversifiable risk should be prepared to make appropriate commitments to this asset class. For smaller investment funds, we would not recommend an investment in this asset class unless a sufficient share of funds is allocated to allow for an effective diversification or unless they invest via a fund of funds or in a selection of quoted investment trusts.

- As an alternative to direct investments in limited partnerships, first-time and smaller investors can invest in this asset class indirectly via gatekeepers that operate funds of funds. In exchange for a management fee, one can access the full benefits of diversification. First-time investors, in particular, can benefit from the gatekeepers' experience and start building up in-house expertise over the years.

- The managers of private equity portfolios should be subjected to different organisational procedures than the managers of public equity portfolios. Different selection and monitoring processes and incentive structures for investment managers are required to take into account the particular characteristics of this asset class. For example, a measurement of private equity returns on a quarterly basis only makes sense if the managed portfolio comprises a very large number of individual private equity participations. Furthermore, the assessment of track-records and selection of venture capital firms - skills that have a large impact on the returns of

private equity portfolio - require an expertise which is quite different from analysing public equity markets. We would therefore recommend that pension funds appoint dedicated private equity managers and subject them to different incentive and monitoring procedures.

- A well structured private equity portfolio can have attractive cash-flow implications. Initially, it will require net contributions over several years. After this period, such a portfolio will generate positive net cash-flows for a longer period. Both the aggregate amount and the timing of cash-flows can be influenced by the structure of the portfolio. Despite the common belief that pension funds approaching maturity should not invest in private equity for reasons of illiquidity, we believe that an appropriately structured private equity portfolio can be attractive for all pension funds irrespective of their maturity since it generates substantial positive net cash-flows after an initial investment period.

- More recently, the emergence of the secondary market has led to a substantial improvement of the liquidity situation of the private equity industry. Stakes in limited partnerships can thus be liquidated before the partnership is wound up.

Recommendations for the Venture Capital and Private Equity Industry

- In our view, the industry would be ill-advised to sell the high short-term returns as those returns that investors can expect in the long run. The high returns reflect a number of very successful years for the industry as a whole, which is partly due to a buoyant stock market. Given the time horizons of the investment process, the high returns also reflect investments made between three and seven years ago and, to a lesser extent, those made in the recent past. The aggregate returns of mature funds are likely to stay at current levels for a few years, since many younger funds have already generated attractive returns. However, it is unlikely that future annual returns can be sustained at current annual levels of 30% for an extended period of time. Communication should therefore mainly focus on the long-term returns which outperform its main comparators.

Recommendations for Government and Regulators

- While the recent appeals to institutional investors to invest in venture capital funds in order to increase the provision of funds for growth-oriented, entrepreneurial businesses is laudable, the British Government should also realise that the Minimum Funding Requirement (MFR) has provided a barrier to achieving this very objective. For pension funds that invest in this asset class for the first time, a private equity investment will lead to a deterioration of their MFR position. However, given that the average pension fund's asset allocation to private equity is below 5%, the actual effect on a scheme's MFR position is quite small in absolute terms. The indirect impact, however, is not to be underestimated, since it biases trustees' asset allocation decisions against those asset classes that are not used as yardstick for valuing MFR liabilities. As a result, trustees of funds that have not decided to allocate assets to venture capital have a disincentive to do so in the future. We therefore hope that the current review of the MFR will correct its potentially harmful effects on allocation decisions and pension fund performance.