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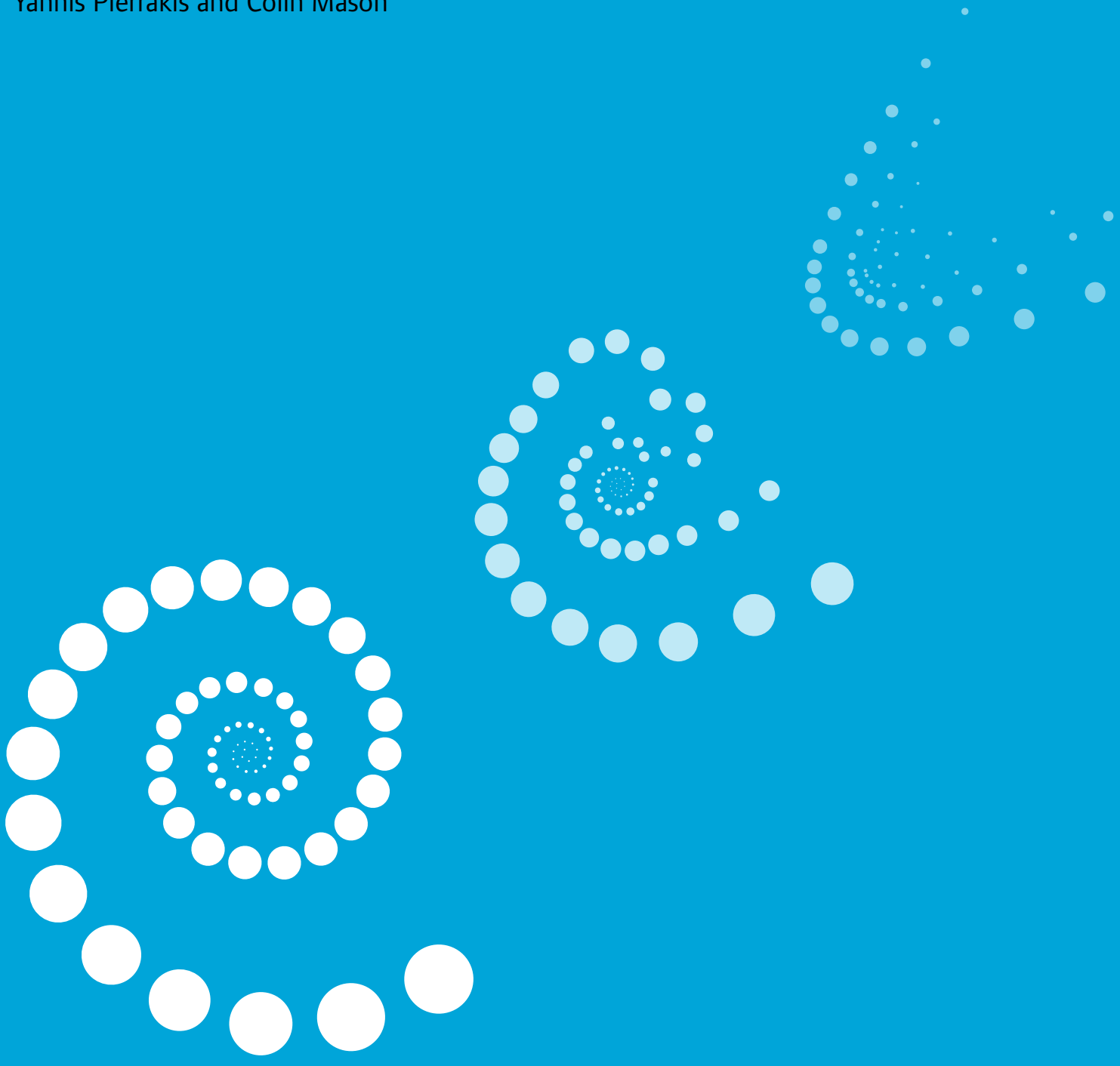
Shifting sands

The changing nature of the early stage venture capital market in the UK

Yannis Pierrakis and Colin Mason



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Foreword

The UK early stage venture capital market is currently experiencing major changes. With private funds – once the bedrock of start-up investment for entrepreneurs – moving away from the early stage, it is not just entrepreneurs but the economy as a whole that will be affected.

The shift comes at a time when there is real pressure for the UK to build great global companies to match those of the US, India and China as well as a harsher environment in which to start a new business. But as long as investors continue drifting away from the smaller deals that new firms depend upon, many businesses will struggle to get a foothold.

This report highlights the growing dependence by entrepreneurs in the UK on public sources of finance and reveals what is hidden behind the published data relating to the early stage venture capital market in the UK since 2000. It also considers how successful government interventions have been in increasing the availability of early stage venture capital.

Clearly, the need for public funds to back companies at the very early stage is now more necessary than ever. The challenge for public funds is to be able to show that their approach and return on investment add value to the economy.

This work is part of a series of research projects led by NESTA on early stage investment in the UK. NESTA's own investment fund adopts a dual approach of direct investment in businesses, and indirect investment through third-party funds. We also offer business support to help companies face the challenges of growing a business, and we advise on innovation policy to ensure that the UK retains its position as the leading private equity market in Europe.

As with all emergent areas of research and analysis, we welcome your comments and your views.

Jonathan Kestenbaum
CEO, NESTA

September, 2008

NESTA is the National Endowment for Science, Technology and the Arts.

Our aim is to transform the UK's capacity for innovation. We invest in early stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

Executive summary

The UK boasts the largest private equity market in Europe, investing £12 billion in 2007. However, there are concerns about the diminishing volume of early stage venture capital investment, including seed and start-up. These concerns have prompted successive governments to respond with various initiatives to address the so-called 'equity gap'.

This report seeks to provide answers to the following questions:

- Has the supply of early stage venture capital increased during the recent investment upswing?
- Who are the main providers of early stage venture capital?
- How significant are government interventions in increasing the supply of early stage venture capital?

The report draws on two sources of statistics – the British Venture Capital Association (BVCA)[1] annual report on investment activity and the Library House[2] database of investments – to bring an original perspective on the changing nature of the early stage venture capital market. It does so by re-working some of the BVCA's published statistics and by combining the BVCA's statistics on investment activity with Library House's database. These sources enable us to present a series of perspectives on different 'slices' of the market.

Early stage venture capital investments have been extremely volatile

The total amounts invested in early stage companies (as defined by BVCA[3]) – and the average size of each investment – have been extremely volatile from one year to the next, especially in start-up investments. The average size of early stage investments has fallen from £1.7million in 2000 to just over £600,000 in 2003, rising again to £1.9 million in 2006 and falling back to £865,000 in 2007. Partially, this volatility may be explained by the small numbers of mega investments which fall outside the equity gap as conventionally defined (under £2 million).

The size of investments is highly skewed towards a large number of relatively small investments and a small number of large investments.

Trends in sub-£2 million investments have also been erratic

Investments below £2 million have accounted for between 70 per cent and 80 per cent of all venture capital investments between 2001 and 2007. Indeed, the number of companies requiring investments below £2 million rose by 20 per cent between 2001 and 2007 (from 880 to 1,049). However, the total amount invested through such investments has followed an erratic trend. The average investment shrank sharply between 2002 and 2006, from £700,000 to £393,000, although it recovered in 2007 to £705,000. As a proportion of total value of investments, investments below

1. See www.bvca.co.uk
2. See www.libraryhouse.net
3. The British Venture Capital Association (BVCA) defines the early stage into two subcategories: (i) start-up: financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially; (ii) other early stage: financing provided to companies that have completed the product development stage and require further funds to initiate commercial manufacturing and sales. They will not yet be generating a profit.

£2 million accounted for 6 per cent in 2007, compared with 9 per cent in 2000.

However, investments of less than £500,000 have risen as a share of all sub-£2 million investments from 61 per cent in 2000 to 76 per cent in 2006, though they fell back to 67 per cent in 2007, as the average investment size rose again.

The public sector has become considerably more important as an investor in both absolute and relative terms

Deals involving public sector funds, both as sole investors and with private investors (funds and individuals), have risen from 18 per cent of all venture capital investments in 2001 to 43 per cent in 2007.

A growth in co-investment has contributed to this trend. Co-investment – involving both public and private sector investors – accounted for just 6 per cent of all investments in 2001 but rose to 26 per cent by 2007. In amounts invested, co-investments accounted for 18 per cent in 2007 compared with just 2 per cent in 2001.

Co-investments are now the dominant form of public sector venture capital investment, accounting for 62 per cent of all deals involving the public sector in 2007 compared with 33 per cent in 2001.

Business angels have become more significant

Separately identifying business angels[4] from the rest of the 'private sector' category reveals that they have become more significant in relative terms. Their share of identifiable private sector investment has doubled from 15 per cent to 30 per cent, between 2001 and 2007. However, given the private nature of angel investing, these investments identified by Library House will inevitably only represent a small proportion of all angel investments and the figures will be biased towards larger deals.

Business angels are prominent co-investment partners, involved in approximately half of all public-private co-investment deals.

Public-private co-investments have become increasingly significant sources of early stage investments

In our analysis we regard early stage investments as below £2 million and in funding rounds 1, 2 or 3. Several trends are apparent.

Deals involving public-private co-investors increased from 11 per cent of all deals in 2001 to 35 per cent in 2007. Co-investment deals accounted for 37 per cent of total investment in 2007 compared with 10 per cent in 2001.

Co-investment deals rose from 36 per cent in 2001 to 62 per cent in 2007 as a proportion of deals involving public sector investors. However, we should not exaggerate the decline of free-standing public sector investments: even by 2007 they still accounted for 21 per cent of all early stage deals (though only 9 per cent of the total amount invested).

Private sector investors remain important – making over 100 investments in 2007, more than either co-investment deals or public sector investments. On their own, they accounted for more than half (53 per cent) of the amount invested in early stage deals in 2007.

Business angels have become increasingly significant as a source of early stage investments, from being involved in just 16 per cent of all early stage deals with private involvement in 2000 to 41 per cent of such deals in 2007.

4. Business angels are affluent individuals who provide capital for a business start-up, usually in exchange for convertible debt or ownership equity.

Summary

This study has revealed three important developments that have changed the nature of the UK's early stage venture capital market since 2000.

First, private sector investors are now responsible for proportionately less investment, although still prominent, while the public sector has become proportionately more significant.

Second, the composition of early stage private investors has changed. There has been a shift from funds to private individuals, including business angels. This includes 'mega angels' investing alone, angel syndicates, and other forms of organised angel investing.

Third, the public sector increasingly invests with a private partner. Such co-investments are becoming more common than free-standing investments.

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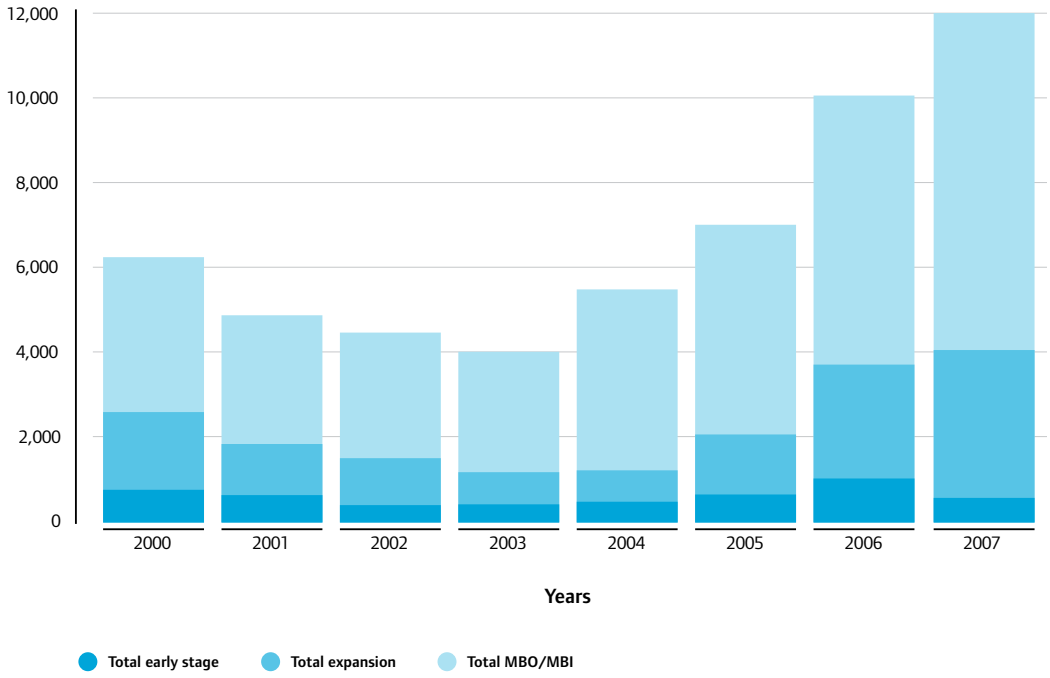
1. Introduction

There are few, if any, dissenters from the view that by funding and supporting innovative companies which, in turn, lead to the emergence of new industries, the venture capital industry plays a crucial role in economic growth and job creation. Paul Gompers and Josh Lerner, leading US authorities on this topic, write that venture capital "helps entrepreneurial firms to invest more than they would otherwise, grow more quickly, and sustain performance in the long term – even after going public".[5]

The UK boasts the largest private equity market in Europe, accounting for one in every three investments. Statistics on investment activity collected by the British Venture Capital Association (BVCA)[6] show a trebling in the value of investments between 2003 and 2007 to nearly £12 billion, after falling in the immediate aftermath of the 'dot-com' collapse (Figure 1). However, the number of investments has remained fairly stable at around 1,300 over the same period, despite fluctuations before 2002 (Figure 2).[7]

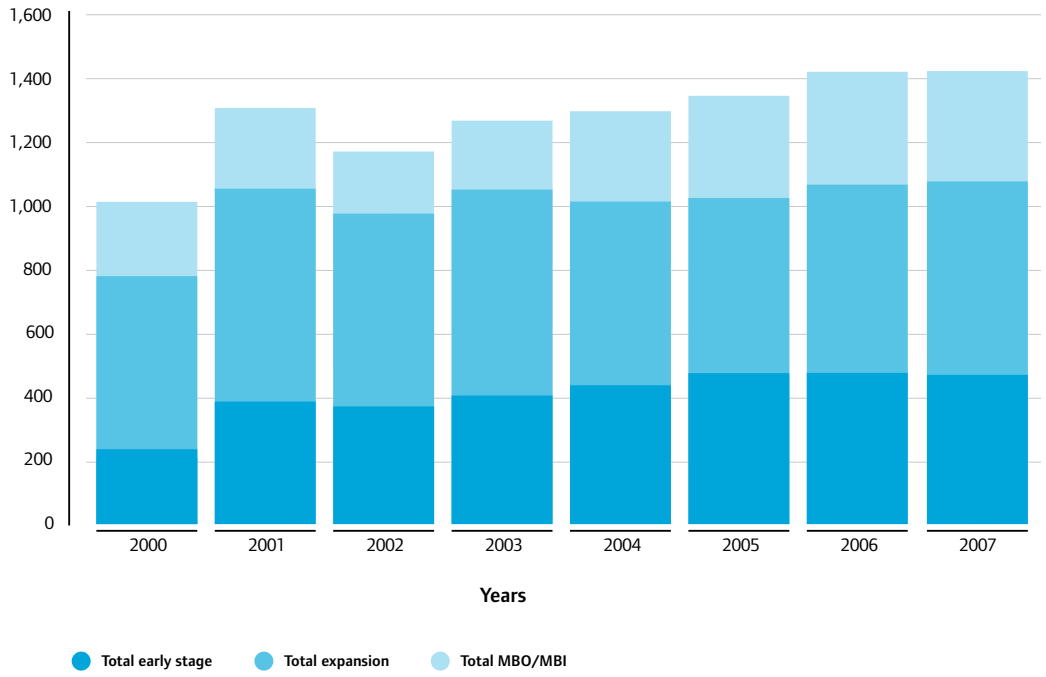
Figure 1: Annual private equity and venture capital investment 2001-2007, by value (£m)



Source: BVCA

5. Gompers, P. A. and Lerner, J. (2001) 'The Money of Invention.' Cambridge, MA: Harvard Business School Press. p.62.
6. The main source of statistics on venture capital activity in the UK is the BVCA's annual report on investment activity, undertaken by PricewaterhouseCoopers, which is compiled from data supplied by its members at the time of the survey. This survey attracts a very high response rate, achieving 100% in some years.
7. The figures are not strictly comparable on a year-on-year basis because of changes both in BVCA membership and in the method of reporting. However, excluding the increase in membership, the growth in investments is still substantial. In addition, the increase in BVCA membership, is mainly due to big buyout houses and not venture capital funds.

Figure 2: Annual private equity and venture capital investment 2001-2007, by number of deals



Source: BVCA

But this is not the whole story. Closer examination of the details behind these aggregate statistics suggests that this expansion in investment activity has been in 'private equity' rather than 'venture capital', propelled by a huge increase in funding for management buy-outs and buy-ins (MBOs and MBIs). Their share of total investment increased from 56 per cent in 2000 to more than 75 per cent in 2004 and has remained above 60 per cent since then. This, in turn, has driven up the average (mean) size of investment to £9 million in 2007, more than twice its 2001 value.

Young, innovative companies – widely regarded as key drivers of productivity growth and job creation[8] – particularly need venture capital because they require significant capital up-front to develop new products in advance of sales.[9] Recent trends in venture capital investing have therefore raised concerns that such firms may find it harder to access appropriate finance; this is increasing the proportion of under-capitalised businesses, which lack the resources to grow and are at increased risk of failure, and it is reducing the number of start-ups.[10]

The reluctance of venture capital firms to make small investments in early stage businesses can be attributed to three factors.

First, the costs of investment appraisal and monitoring are high and fixed regardless of the size of investment; they absorb a disproportionate amount of investor time given their significance and potential return. Indeed, these costs may actually be higher in innovative small firms which present many uncertainties: inexperienced management, untried markets, technological uncertainties and timing risks.[11]

Second, there has been a huge growth in the size of venture capital funds; the inevitable outcome has been to drive up deal sizes. Larger private sector funds do not make more investments than smaller funds; rather, their investments are larger.[12] Since deal sizes and stage of investment are related, this has also resulted in an inevitable shift to later-stage deals.

Third, these cost issues have been compounded by the poor returns from early stage venture

8. NESTA (2008) 'Unlocking the potential of innovative firms.' Policy Briefing. London: NESTA.
9. Oakey, R. (1984) Innovation and regional growth in small high technology firms: evidence from Britain and the USA. 'Regional Studies.' 18: pp.237-251.
10. This, of course, is not a new concern. Indeed, the identification of an equity gap dates back to the 1930s and has periodically been rediscovered since then.
11. Mason, C. M. and Harrison, R. T. (2004) Does investing in technology-based firms involve higher risk? An exploratory study of the performance of technology and non-technology investments by business angels. 'Venture Capital: An International Journal of Entrepreneurial Finance.' 6: pp.313-332.
12. Almeida Capital (2005) 'A Mapping Study of Venture Capital Provision to SMEs in England and Wales.' Sheffield: Small Business Service.

capital investing. Private equity, in contrast, has been very profitable and has therefore been favoured by financial institutions.

Successive governments have responded to concerns about the perceived diminishing volume of early stage venture capital investment, including seed and start-up funding, with various initiatives. Early initiatives focused on the creation of new institutions, notably Industrial and Commercial Finance Corporation ICFC (now 3i) and 'junior' stock markets (the Unlisted Securities Market and AIM). In the 1980s emphasis shifted to tax-based incentives, starting with the Business Expansion Scheme, which was replaced in 1994 by the Enterprise Investment Scheme, and Venture Capital Trusts, introduced in 1995. Since the election of the Labour Government in 1997, fund-based schemes, such as Regional Venture Capital Funds, Early Growth Funds and University Challenge Funds have been favoured. The regional development agencies in Scotland and Wales have created their own funds.

However, intervention has shifted from the creation of publicly-funded and managed funds to hybrid funds in which government creates incentives which enhance the returns or lower the risk, in order to attract private sector institutions to invest in co-funded investment vehicles that are managed by private sector fund managers.[13] There has been a recent further shift in favour of publicly supported co-investment funds which are obliged to invest alongside private investors in deals identified by private investors. This is partly a response to the changing nature of the equity gap which commentators suggest is now between £500,000 and £2 million, affecting businesses seeking post-seed but pre-institutional capital.[14, 15]

Not everyone is convinced of the need for government intervention to increase the supply of early stage venture capital. Indeed, there are inherent difficulties in differentiating between deserving companies unable to access finance because of market inefficiencies, and those that can't raise finance because they fail to meet appropriate investment criteria; the latter simply reflect the effective operation of the market. Several recent reports have suggested that there is no longer a shortage of early stage venture capital.[16, 17] Moreover, many private sector venture capital fund managers are critical of the investment objectives of publicly backed funds and the quality of their management.[18]

13. Murray, G. (2007) Venture capital and government policy. In Landström, H. (ed.) 'Handbook of Research on Venture Capital.' Cheltenham: Edward Elgar. pp.113-151.
14. Almeida Capital, op. cit.
15. Hayton, K., Thom, G., Percy, V., Boyd, C. and Latimer, K. (2008) 'Evaluation of the Scottish Co-Investment Fund, A Report to Scottish Enterprise.' Glasgow: Scottish Enterprise.
16. Library House (2006) 'Beyond the Chasm – the venture capital backed report 2006.' Cambridge: Library House in association with UBS.
17. BVCA (2006) 'Report on Investment Activity.' London: BVCA.
18. Almeida Capital (2005) op. cit.
19. Library House began collecting data on venture capital in the UK in 2004. Since this date it has actively sourced all new deals throughout the UK and where possible identified the past deals the companies were involved in. As a consequence the data prior to 2004 may not be as comprehensive as in later years.

This report seeks to bring some clarity to the debate on trends in the supply of early stage venture capital. Data limitations impose significant constraints on our analysis. The main source of data is the BVCA's annual report on investment activity; this provides considerable detail on investment trends, although the data is only available in aggregate form. Library House has created a database of venture capital investments.[19] The availability of such information on individual deals allows considerable flexibility in analysis. However, its coverage is restricted to publicly reported investments, with attendant limitations in information capture and classification. Despite these constraints, we believe that we are able to bring an original perspective on the changing nature of the early stage venture capital market both by re-working some of the BVCA's published statistics and by combining the BVCA's statistics on investment activity with Library House's database. These sources enable us to present a series of perspectives on different 'slices' of the market.

As noted at the outset, venture capital investment trends are cyclical. Our analysis covers the period since 2000 when the venture capital industry returned to normality following the excesses of the 'dot-com' boom. There was a decline in investment between 2000 and 2002 as venture capital firms adjusted to the loss of many of their late-1990s investments, but the investment market started to recover from around 2003. We seek to answer three questions:

- Has the supply of early stage venture capital increased during the recent investment upswing?
- Who are the main providers of early stage venture capital?
- Specifically, how significant are government interventions in increasing the supply of early stage venture capital?

2. Defining early stage investments

A lack of consistency in definitions is one of the primary reasons for the lack of consensus about the scale of early stage investment activity.

The British Venture Capital Association (BVCA) defines the early stage into two sub-categories:

1. Start-up: financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially.

2. Other early stage: financing provided to companies that have completed the product development stage and require further funds to initiate commercial manufacturing and sales. They will not yet be generating a profit.

The European Venture Capital Association (EVCA) definition of early stage separates the seed stage from the start-up stage to create an additional sub-category. Seed capital is defined as financing provided to research, assess and develop an initial concept before a business has reached the start-up phase.

Library House classifies its investments in terms of financing rounds rather than stages of finance. However, it does identify companies at the product development stages, defined as companies that have produced prototypes with a product being improved for commercialisation.

A limitation of these definitions is that they do not take account of the amount invested. The 'equity gap' concept includes both stage of investment and size of investment components. Government regards the upper limit of the equity gap to be £2 million.[20] In our analysis, we therefore separate the early stage into two categories based on the amount of investment they are seeking to raise:

- Investments below £2 million.
- Investments above £2 million.

3. Trends in early stage venture capital investments

The BVCA's investment statistics reveal that the amounts committed to early stage investments have been extremely volatile on a year-on-year basis, especially for start-ups (Table 1a). As a share of total investment by value, early stage investments have fallen from 11 per cent in 2000, albeit erratically, to less than 4 per cent in 2007. The number of companies raising venture capital has been less volatile, ranging from 398 to 502, and accounts for a rising share of all investments (31 per cent in 2001; 38 per cent in 2007) (Table 1b). The average size of early stage investments has also been extremely volatile, falling from £1.7 million in 2000 to just over £600,000 in 2003, rising to £1.9 milion in 2006 and falling back to £865,000 in 2007 (Table 1c).

Library House data provides further insight into these statistics, highlighting the skewed nature of early stage investments. The mean investment size for a sample analysis of 122 investments in companies (in 2007) at the product development stage was £2.9 million whereas the median was £1 million. The nine

20. HM Treasury/Small Business Service (2003) 'Bridging the Finance Gap: next steps in improving access to growth capital for small businesses.' London: HMSO.

Table 1: UK early stage investments

1a. Amount invested (£m)

Finance stage	2007	2006	2005	2004	2003	2002	2001	2000
Start-up	190	531	160	96	73	99	163	175
Other early stage	244	415	222	188	190	196	227	528
Total early stage	434	946	382	284	263	295	390	703
Early stage as a percentage of total investment	3.6	9.3	5.6	4.2	6.5	6.6	8.2	11.0

Source: BVCA Report on Investment Activity (various years)

1b. Number of companies

Finance stage	2007	2006	2005	2004	2003	2002	2001	2000
Start-up	207	245	208	190	185	165	190	153
Other early stage	295	255	285	264	242	233	218	256
Total early stage	502	500	493	454	427	398	408	409
Early stage as a percentage of total investment	38	38	38	35	34	33	31	35

Source: BVCA Report on Investment Activity (various years)

1c. Average amount invested (£000)

Finance stage	2007	2006	2005	2004	2003	2002	2001	2000
Start-up	918	2,167	769	505	395	600	858	1,144
Other early stage	827	1,627	779	712	785	841	1,041	2,062
Total early stage	865	1,892	775	626	616	741	956	1,719

Source: BVCA Report on Investment Activity (various years)

21. This is only a sample of deals at the product development stage. These are investments that were made to companies that are currently (2008) at the product development stage, and at the time of the investment were either at the concept or product development stage. Companies that are not currently at the product development stage, but have received investments in previous years when they were at product development stage, are not included in this sample. Therefore, this sample may be biased towards companies that have not exited (out of business or any other exit) or have taken more time to exit or move up the development ladder.

Table 2: Median size of investments in product development stage companies (£000) [21]

Year	Number of deals	Amounts invested	Average	Median
2001	51	155,158	3,042	380
2002	55	87,760	1,596	400
2003	42	108,487	2,583	450
2004	85	115,083	1,354	400
2005	101	206,974	2,049	575
2006	123	244,509	1,988	545
2007	122	352,959	2,893	1,000

Source: Calculated from Library House database

largest deals had an average size of £17 million and the next 18 had an average size of £5.7 million. The average investment of the remaining 95 companies was £978,000 In a similar analysis for 2006, the average deal size for a sample of 123 companies at the product development stage was nearly £2 million compared with a median of £545,000 (Table 2). The four largest deals had an average size of £19 million and the next seven an average size of £4.9 million. The average investment of the remaining 96 companies was £569,000.

This analysis gives us two important insights into early stage investment. First, the highly skewed nature of early stage investments, involving a large number of relatively small investments and a small number of large investments, means that it is potentially misleading simply to focus on trends in the amounts invested. Second, variations in the number of mega-investments in any year are likely to explain year-on-year volatility in those amounts invested in early stage deals.

4. Trends in sub-£2 million investments

We have seen how the statistics are likely to be exaggerated by small numbers of atypical mega investments. One way of avoiding distortion in our analysis is to restrict the focus to investments of less than £2 million, a sum typical of early stage investments. However, this approach has two limitations: BVCA statistics do not break down such investments by stage; and it is not possible to differentiate between initial and follow-on investments.

Investments below £2 million have accounted for between 70 per cent and 80 per cent of all investments in the period 2001-7 (Table 3a). The number of companies raising amounts of less than £2 million has risen by 20 per cent – from 880 to 1,049 – between 2001 and 2007. However, their share of total investment has followed an erratic trend, accounting for 6 per cent in 2007, compared with 9 per cent in 2000 (Table 3b). The average size of sub-£2 million investments fell sharply between 2002 and 2006, from £700,000 to just £393,000, recovering in 2007 to £705,000 (Table 3c).

The falling size of average investments (to 2006) reflects the increasing significance of investments of less than £500,000. These have risen as a share of all sub-£2 million investments from 61 per cent in 2000 to 76

Table 3: Investments of less than £2m

3a. Number of companies

Investment size (£000s)	2007	2006	2005	2004	2003	2002	2001	2000
0-4.9	53	92	38	16	18	19	19	6
5-9.9	19	11	11	9	14	13	8	14
10-19.9	28	21	19	27	14	18	23	16
20-49.9	110	80	100	95	80	47	40	61
50-99.9	138	109	98	114	105	87	84	79
100-199.9	161	198	172	167	171	145	135	128
200-499.9	279	258	291	283	296	216	225	230
500-999.9	141	125	146	169	165	180	195	172
1,000-1,999	120	115	156	152	152	181	204	176
Total 0-£499.9	788	769	729	711	698	545	534	534
Total 0-£2m	1,049	1,009	1,031	1,032	1,015	906	933	882
Investments of less than £500,000 as a percentage of investments of under £2m	67	76	71	69	68	60	57	61
Investments of under £2m as a percentage of all investments	79	77	78	80	79	76	71	74

Source: BVCA Report on Investment Activity (various years)

3b. Amount invested (£m)

Investment size (£000s)	2007	2006	2005	2004	2003	2002	2001	2000
0-4.9	*	*	*	*	*	*	*	*
5-9.9	*	*	*	*	*	*	*	*
10-19.9	1	*	*	*	*	1	*	*
20-49.9	8	3	3	3	2	5	2	2
50-99.9	22	8	7	8	6	13	8	6
100-199.9	54	29	23	23	21	35	28	19
200-499.9	171	88	86	86	79	117	88	87
500-999.9	206	95	98	115	100	156	153	145
1,000-1,999	278	174	215	215	186	307	301	337
Total 0-£499.9	**256**	**128**	**119**	**120**	**108**	**171**	**126**	**114**
Total 0-£2m	**740**	**397**	**432**	**450**	**394**	**634**	**580**	**596**
Investments of less than £500,000 as a percentage of investments of under £2m	35	32	28	27	27	27	22	19
Investments of under £2m as a percentage of all investments	6	4	5	8	10	14	12	9

Note: * indicates a value greater than 0 but less than 0.5

Source: BVCA Report on Investment Activity (various years)

3c. Mean size of sub-£2m investments

	2007	2006	2005	2004	2003	2002	2001	2000
Mean investment (£000)	705	393	419	436	388	700	622	677

Source: BVCA Report on Investment Activity (various years)

per cent in 2006, falling back to 67 per cent in 2007 (Table 3a), while their share of the amount invested in deals of under £2 million has risen from 19 per cent to 35 per cent over the same period (Table 3b).

In the next section, we explore the extent to which trends in sub-£2 million investments reflect the changing nature of early stage investors. We highlight both the growing significance of public sector venture capital funds, which now dominate this segment of the market, and the changing nature of public sector participation. Public sector funds typically have a maximum investment size (£250,000 or £500,000) hence their growing significance serves to drive down average investment sizes.

5. Types of investors in the early stage venture capital market

We now turn to the Library House database to investigate further the shifting trends in the UK's venture capital market. We have already discussed the limitations associated

with its coverage and classification. However, the specific information it provides on each investment enables us to probe more deeply into investment trends than is possible from BVCA statistics.

5.1 Total investment activity: public vs. private investors

The Library House database disaggregates the type of investments into two categories: those involving one or more private sector investors;[22] and those involving one or more publicly backed funds (e.g. Regional Venture Capital Funds, University Challenge Funds).[23]

By disaggregating the data we created three new categories:

1. Deals involving solely private sector investors.

2. Deals solely made by free-standing publicly backed funds.

3. Deals – which we term co-investments – in which one or more private sector investors has invested alongside one or more public sector funds.

Investments in this final category include both *ad hoc* syndications between public sector funds and private investors as well as investments involving funds that have been established specifically to make co-investments with private investors.[24]

Of course, public sector intervention in the early stage venture capital market goes beyond the establishment of public sector funds. Tax-based incentives to encourage private investors to invest in unquoted companies through the Enterprise Investment Scheme and Venture Capital Trusts (VCTs) are also very significant. Unfortunately, the Library House database does not identify investments made using the Enterprise Investment Scheme and its coverage of investments by VCTs is very patchy.[25]

Three key trends can be identified since 2000 (Figure 3, Table 4).

First, the public sector has become considerably more important as an investor in both absolute and relative terms. Deals involving both public sector funds and private investors (funds and individuals) and also those just involving public sector funds have risen from 67 to 221 between 2001 and 2007. Their contribution to market share has risen from 18 per cent in 2001 to 43 per cent in 2007. Unfortunately, the Library House database does not always separately identify the amounts invested by different investors in co-investment situations, so it is extremely difficult to distinguish between the amounts invested by private and public sector investors in co-investment deals. But for what it is worth,

22. This includes venture capital/private equity firms, banks and other debt providers, charities, trusts and foundations, companies, investor networks (e.g. angel syndicates), family offices and individuals.
23. These are funds which have received some or all of their capital from the public sector, including central government departments, regional development agencies and the European Union (e.g. ERDF). They are normally managed by independent fund managers.
24. Unfortunately, the Library House database does not differentiate between co-investment funds and other public sector funds. So, for example, investments made by the Scottish Co-Investment Fund, Scottish Seed Fund, Scottish Venture Fund and Business Growth Fund are not separately identified but simply classified as 'Scottish Enterprise'.
25. Library House only reports the fund managers, not the specific fund. It only separately reports investments by VCTs when they have 'VCT' in their title.

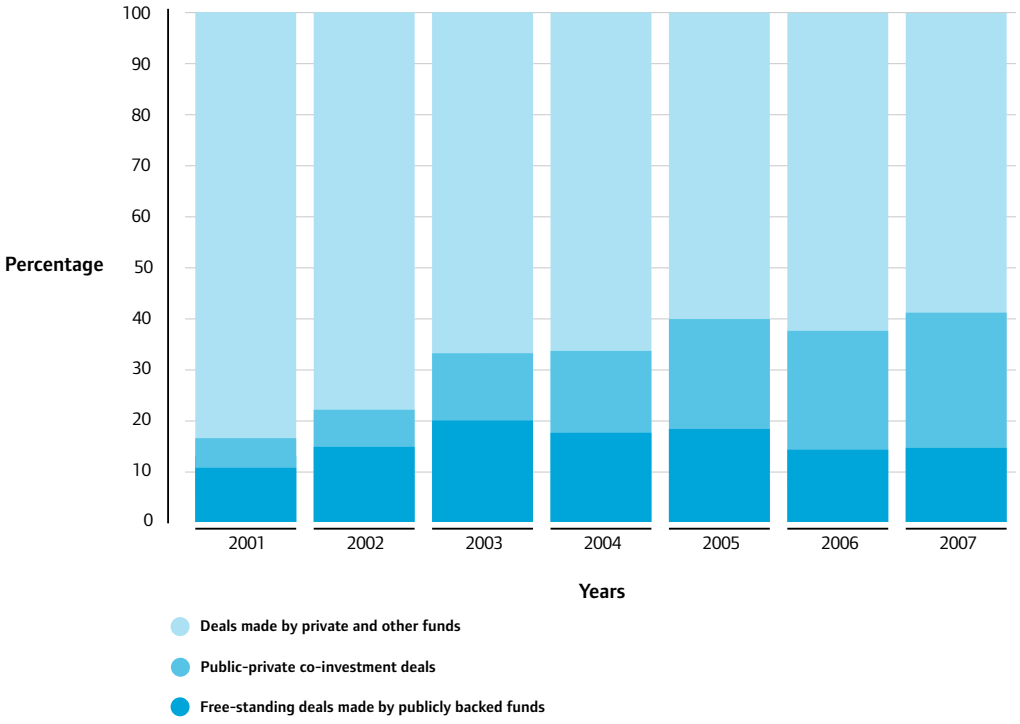
Table 4: Number of investments by type of investor, 2001-2007

Year	Number of Deals			
	Deals made by private and other funds	Public-private investment deals	Deals made by free-standing public VC funds	Total
2001	306	22	45	373
2002	249	23	51	323
2003	273	54	86	413
2004	331	82	98	511
2005	336	122	112	570
2006	347	128	89	564
2007	296	138	83	517

Note: Only includes deals with the investor(s') name disclosed

Source: Calculated from Library House database

Figure 3: Proportion of investments by type of investor, 2001-2007



Source: Calculated from Library House database

Table 5: Amount invested (£m) by type of investor, 2001-2007

Year	Number of deals (with disclosed amounts)	Investments made by private and other funds	Public-private co-investment amounts*	Investments made by free-standing public VC funds	Total
2001	306	1,317,044	26,699	20,235	1,363,978
2002	267	889,682	14,230	9,643	913,555
2003	338	668,114	52,012	17,567	737,693
2004	431	956,374	61,854	18,562	1,036,790
2005	390	611,835	85,958	32,180	729,973
2006	432	1,008,780	128,764	17,600	1,155,144
2007	387	782,669	178,851	18,549	980,069

* This includes the amounts invested by both private and public investors

Note: Only includes deals with the investor(s') name disclosed

Source: Calculated from Library House database

Table 6: Distribution of deal sizes by type of investor, 2007

	Less than £100k	£100 – £249k	£250 – £499k	£500 – £999k	£1m – £1.9m	£2m – £4.9m	£5m – £9.9m	£10m – £51m
Public sector investors (n=58)	17	21	10	6	1	-	-	-
Public-private co-investments (n=114)	3	16	19	30	24	17	3	2
Private investors (n=195)	11	11	21	25	40	43	25	19

Source: Calculated from Library House database

investments involving public sector investors, and including amounts invested by private investors in co-investment deals, increased from 3 per cent of total investments by value in 2001 to 20 per cent in 2007 (Table 5).

Second, the increasing significance of the public sector has arisen because of the growth of co-investments. These accounted for just 6 per cent of all investments in 2001 but 26 per cent by 2007. In terms of amounts invested, co-investments accounted for 18 per cent of total investment in 2007 compared with just 2 per cent in 2001.

Third, co-investments are now the dominant form of public sector venture capital investment, accounting for 62 per cent of all deals involving the public sector in 2007 compared with 33 per cent in 2001. Indeed, in terms of amounts invested, investments by free-standing public sector funds are now fairly marginal, accounting for just 2 per cent of total venture capital investments by value in 2007.

Finally, Table 6 (also see Figure 4) gives us a sense of the different parts of the funding spectrum occupied by these different types of investors. Private sector investments (see footnote 22 for definition) have an average size of £3.7 million but a very wide size distribution, with 11 per cent of deals below £250,000 but 45 per cent above £5 million. The average public-private co-investment is smaller at £1.5 million, with 81 per cent of investments at £2 million and below. Deals involving only public sector funds were largely confined to £500,000 and under (83 per cent; £378,000 average size).

5.2 Unpacking the private investor category: the significance of business angels

The 'private sector' comprises a very broad category of investors (see footnote 22). However, by examining each investment in the Library House database, it has been possible to identify those investments involving business angels.[26] Two points of note emerge from this analysis.

First, business angels have become more significant in both absolute and relative terms, their investments rising from 40 in 2001 to 100 in 2007 and their share of private sector investment doubling from 15 per cent to 30 per cent (Table 7).

Second, business angels and angel groups are prominent co-investment partners, involved in 45 per cent to 59 per cent of all public-private co-investment deals (Figure 9, Table 10, Appendix).

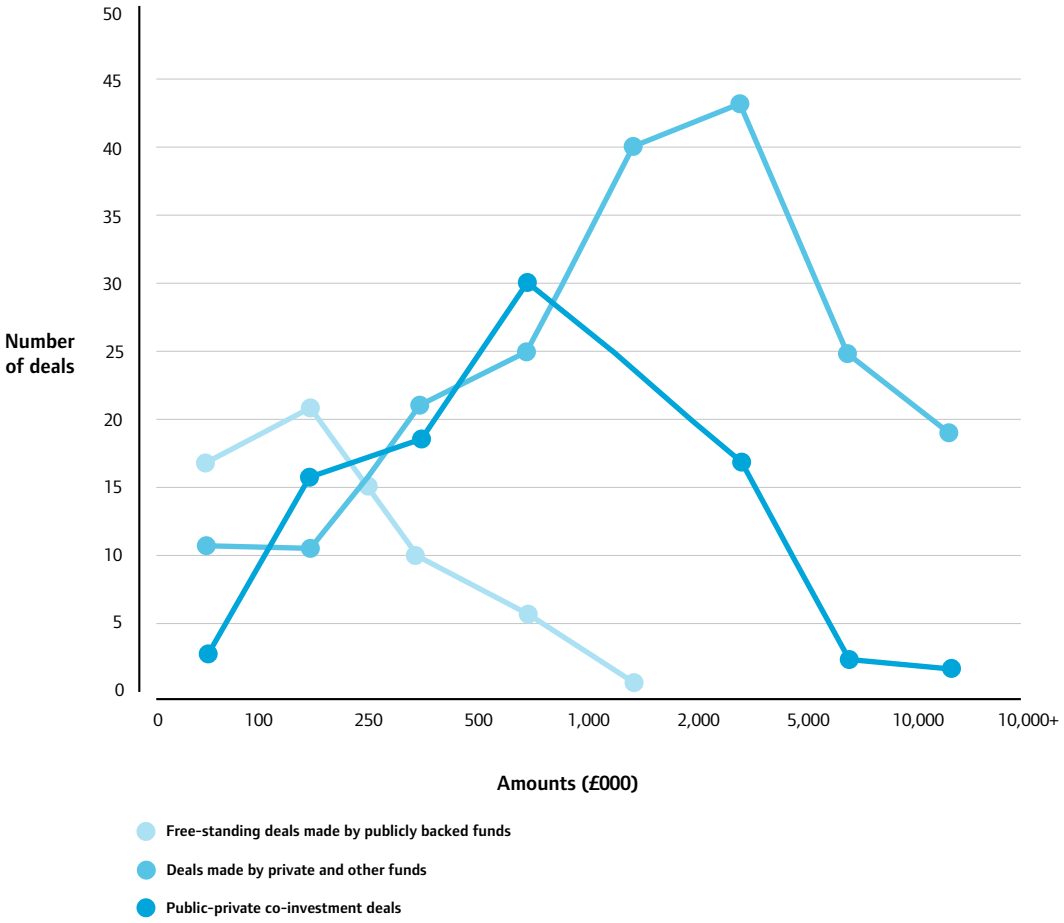
5.3 Early stage deals below £2 million

We take this analysis a stage further to examine the characteristics of early stage investments. The Library House database categorises deals in terms of rounds rather than stage of business development; so we define early stage deals as involving investments below £2 million and in rounds 1, 2 or 3. These are shown in Table 8. Several trends are apparent.

First, in the context of an overall increase in early stage investment activity, deals involving public-private co-investors have increased from 11 per cent of all deals in 2001 to 36 per cent in 2007. In terms of the amount invested, co-investment deals accounted for 37 per cent of the total in 2007 compared with 10 per cent in 2001.

26. We define these as deals in which the investor was a named angel group, a named individual or described as a 'business angel(s)' or 'private investor(s)'. However, given the private nature of angel investing these investments identified by Library House will only be a small proportion of all angel investments and be biased towards larger deals.

Figure 4: Graph of number of deals by size, range and investor in 2007



Source: Calculated from Library House database

Table 7: Trends in investments by business angels

Year	Total number of investments with private investors	Number of investments with business angel investors	Deals involving business angels as a proportion of all investments involving private sector investors
2001	275	40	15 per cent
2002	227	40	18 per cent
2003	255	46	18 per cent
2004	339	69	20 per cent
2005	320	77	24 per cent
2006	346	101	29 per cent
2007	329	100	30 per cent

Note: Disclosed deals only

Source: Calculated from Library House database

Table 8: Early stage investments* by year and type of investor

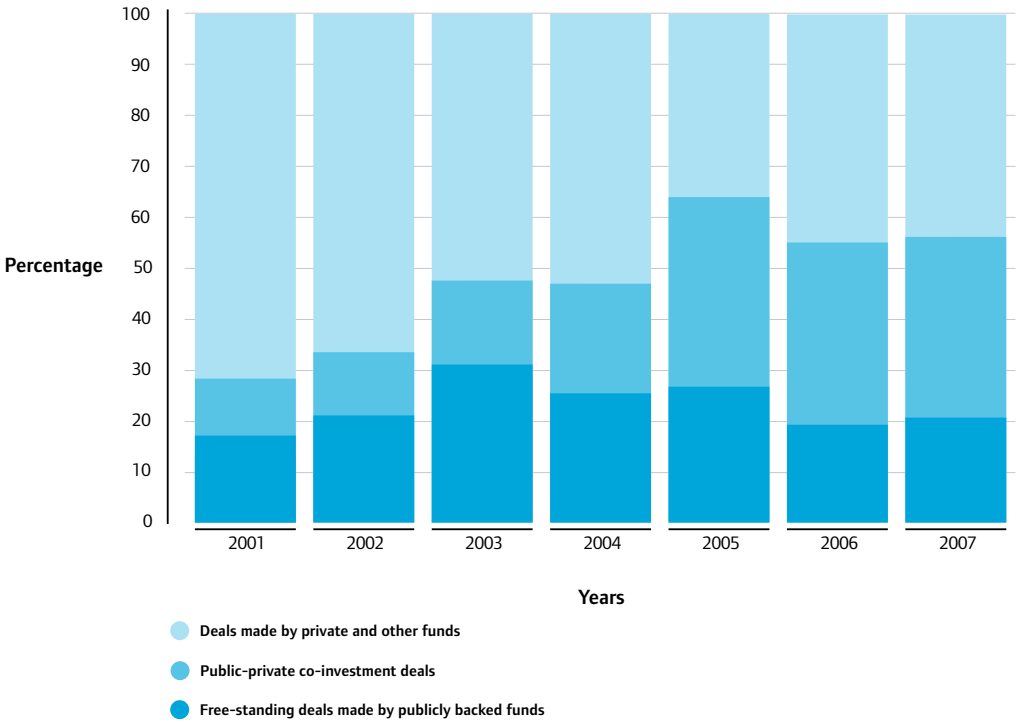
Year	Number of Deals					
	Deals made by private and other funds	Public-private investment deals	Free-standing deals made by publicly backed funds	Total	Deals by business angels	Business angels investments as a percentage of all deals with private investors involvement^
2001	111	17	30	158	20	16 per cent
2002	104	19	35	158	26	21 per cent
2003	124	41	76	241	37	22 per cent
2004	155	66	79	300	54	24 per cent
2005	94	101	75	270	57	29 per cent
2006	118	85	56	259	70	34 per cent
2007	106	88	53	247	79	41 per cent

* Rounds 1, 2 and 3 and less than £2m

^ Deals made by private and other funds and public-private co-investment deals

Source: Calculated from Library House database

Figure 5: Graph of proportion of early stage* investments deals, 2001-7



* Defined as deals in rounds 1, 2 and 3 and less than £2m

Source: Calculated from Library House database

Table 9: Amount invested (£m) by type of investor, 2001-2007

Year	Amounts invested (only disclosed deals)			
	Investments made by private and other funds*	Public-private co-investments	Free-standing investments made by publicly backed funds	Total
2001	102,461	11,508	5,685	119,654
2002	87,355	10,630	9,643	107,628
2003	95,942	22,736	17,647	136,325
2004	112,227	36,940	18,399	167,566
2005	82,755	50,858	17,145	150,758
2006	91,926	50,783	13,028	155,737
2007	93,759	65,333	15,812	174,904

* Rounds 1, 2 and 3 and less than £2m

Source: Calculated from Library House database

Second, co-investment deals have risen from 36 per cent in 2001 to 62 per cent in 2007 as a proportion of deals involving public sector investors. Nevertheless, the decline of free-standing public sector investments must not be exaggerated: in 2007, despite the fact that in terms of total venture capital investments, free-standing public sector funds are fairly marginal, in the early stage market they still accounted for 21 per cent of all early stage deals but only 9 per cent of the total amount invested.

Third, although private sector investors have become less significant, dropping from 70 per cent of early stage deals in 2001 to 43 per cent in 2007, and in value terms from 86 per cent to 53 per cent, they clearly remain a significant source of early stage finance. They made over 100 investments in 2007, which was more than either co-investment deals or public sector investments.

Fourth, the composition of the private sector category has changed. Business angels have become increasingly significant as a source of early stage investment since 2000 at the expense of private sector funds, increasing almost fourfold from 20 to 79 investments and from just 16 per cent of all early stage deals with private involvement in 2000 to 41 per cent in 2007.

6. Conclusion

The report has sought to answer three questions. The first concerned whether the supply of early stage venture capital has increased during the recent investment upswing.

Aggregate investment trends in the UK's early stage venture capital market since 2000 are confusing and difficult to summarise easily. The skewed size distribution of investments and small numbers of mega investments have resulted in a volatile market, with trends sensitive to the choice of start and end year. It is therefore foolhardy to infer trends on the basis of just two or three years of data. It is equally difficult to discern clear trends in the early stage market.

On the one hand, there has clearly been a decline in the share of total venture capital/private equity investment by value that is accounted for by early stage investments since 2000, as a result of the continued growth in management buy-outs and buy-ins. On the other hand, the share of total deals accounted for by early stage investments has increased. Moreover, the overall number of early stage investments has also increased since 2000.

The second question concerned the main providers of early stage venture capital.

The most important development revealed by this study is the changing nature of the UK's

early stage venture capital market since 2000. The private sector is now proportionately less significant, although still prominent, while the public sector has become proportionately more so. Further unpacking of the statistics reveals that the composition of early stage private investors has also changed, with funds becoming less significant and private individuals becoming more significant. This includes 'mega angels' investing alone, angel syndicates, and other forms of organised angel investing.

The third question concerned the significance of government interventions to increase the supply of early stage venture capital. This question could only be addressed in fairly narrow terms. The evidence to emerge from our analysis is that public sector investment in the early stage market has shifted from stand-alone public sector funds to co-investing with private investors. This includes both *ad hoc* co-investing by free-standing public sector funds with private investors as well as co-investment funds which are required to invest alongside private investors.

This poses the question as to whether or not this increased public sector involvement in early stage venture capital investing has 'crowded out' private sector investors? While, given the limitations of our data, we cannot provide a conclusive answer to this question, there is no evidence that this is occurring. First, the increase in public sector investment since 2000 has reduced the average size of investments in the sub-£2 million category; this would suggest that they have filled a gap in the supply of small investments. Second, co-investment schemes would appear to have boosted angel investment activity. The recent evaluation of the Scottish Co-Investment Scheme indicates that it has provided angel groups with greater liquidity to make more investments, do more funding rounds, in a context where the minimum size of investment by private venture capital funds has increased.[27]

Having intervened – seemingly effectively – through the establishment of co-investment funds, the question remaining for policymakers is whether government can now, or in the future, withdraw in the confidence that private sector investors will provide sufficient early stage venture capital on their own. To reach a robust conclusion requires further research to answer the following questions.

1. Do the organised angel groups have sufficient capital to maintain or increase their scale of investment without the leverage provided by co-investment funds?

2. Does the funding limit on the amount that can be invested in a single company by public sector funds constrain follow-on investing in a co-investment situation?[28]

3. What have been the returns achieved by co-investments and how do they compare with the returns achieved by other types of investments, and will such returns be sufficient to recycle into further investments without the need for further government financial commitment?

4. Are co-investments sufficiently attractive to encourage more private sector investors and thereby reduce the need for further government intervention?

5. We have noted the favourable assessment of the Scottish Co-Investment Scheme. Are other co-investment schemes with different models equally successful and is the experience of their investment partners equally positive?

6. Finally, and more generally, what effect is the current 'credit crunch' having on private investors operating in the early stage venture capital market?

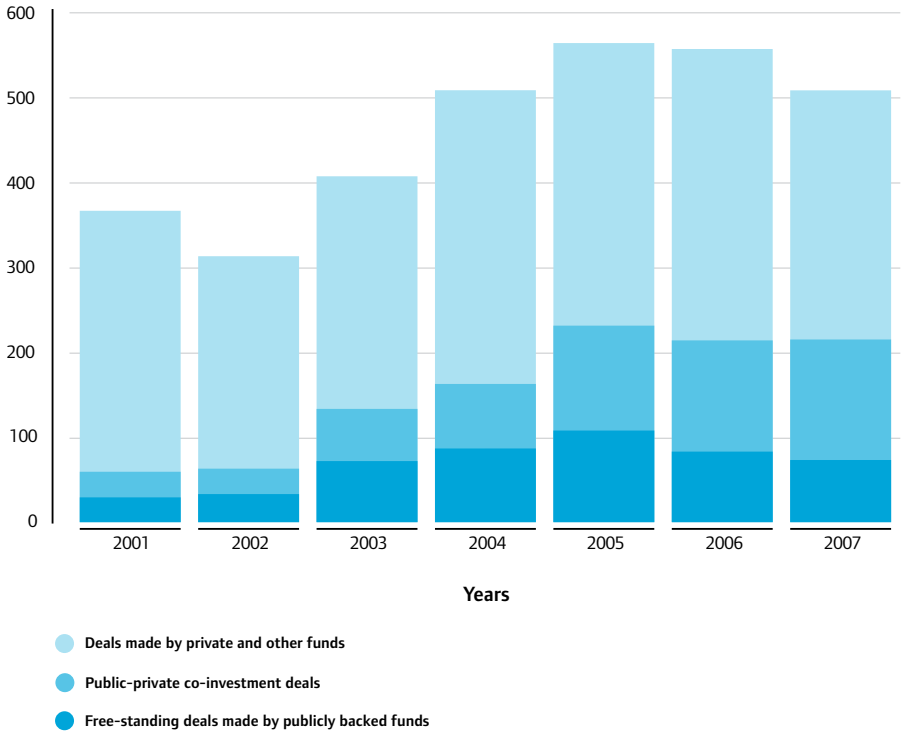
Given the importance of public-private co-investing revealed in this report, and how little we know about its process, operation and outcomes, NESTA will continue to undertake research on this topic.

27. Hayton *et al*., op. cit.
28. For example, Regional Venture Capital Funds are only allowed to invest up to £250,000 in a single investment and a maximum of £500,000 per company.

Appendix

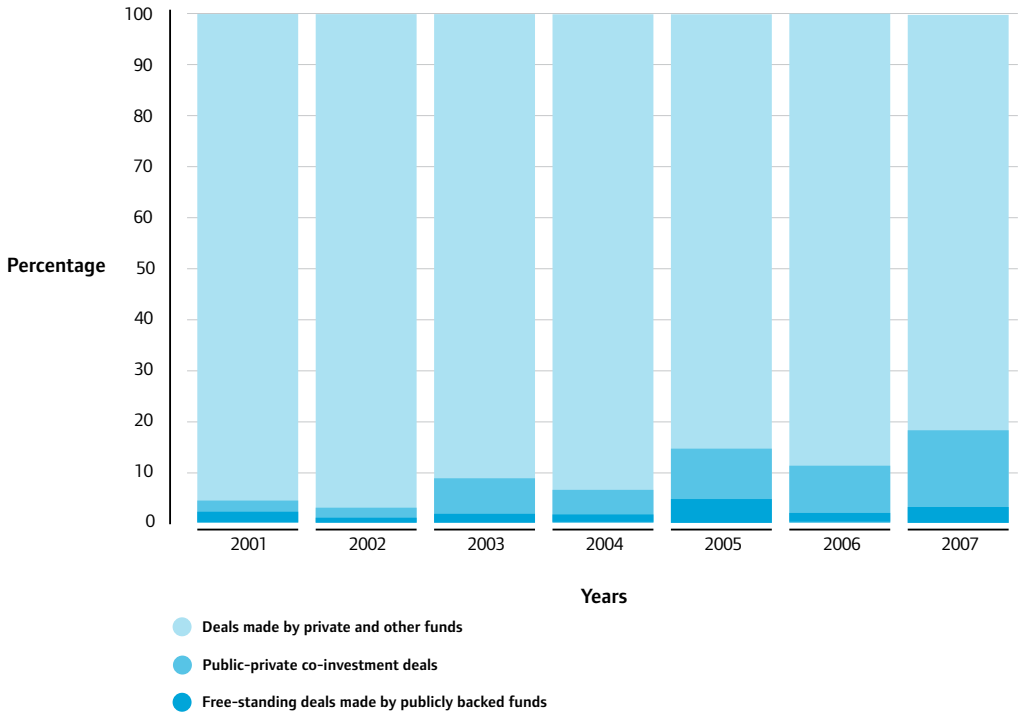
Total investment activity: public vs. private investors

Figure 6: Number of investment deals, 2000-7



Source: Calculated from Library House database

Figure 7: Proportion of amount invested by type of investor, 2001-7



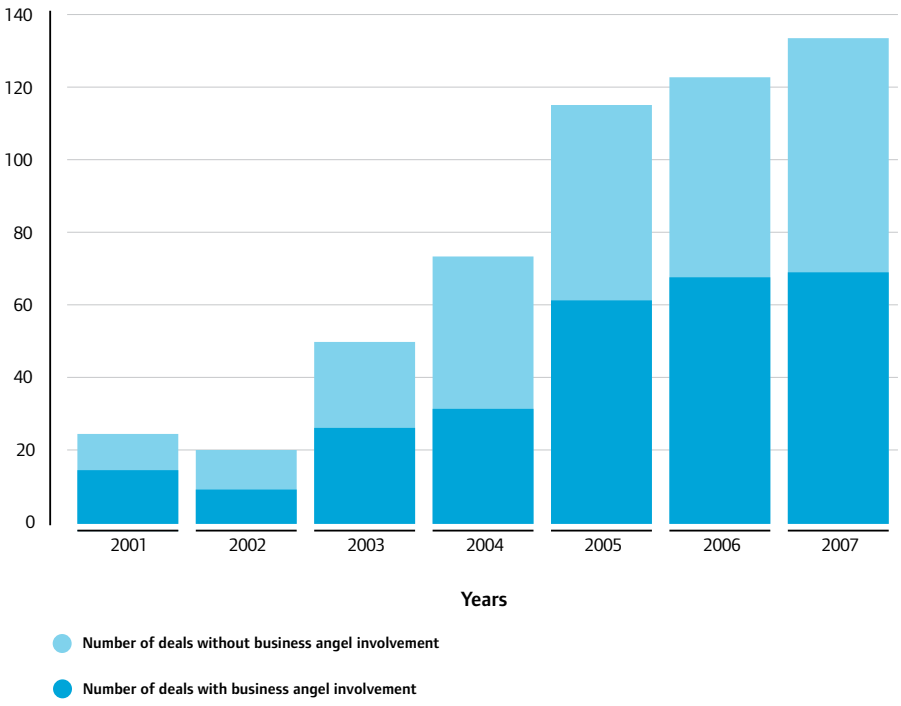
Source: Calculated from Library House database

Table 10: Participation of business angels in public-private co-investment deals

Year	Number of co-investment deals	Number of deals that involved BAs	Percentage
2001	22	13	59 per cent
2002	23	11	46 per cent
2003	54	27	50 per cent
2004	82	37	45 per cent
2005	122	63	52 per cent
2006	128	69	54 per cent
2007	138	70	51 per cent

Source: Calculated from Library House database

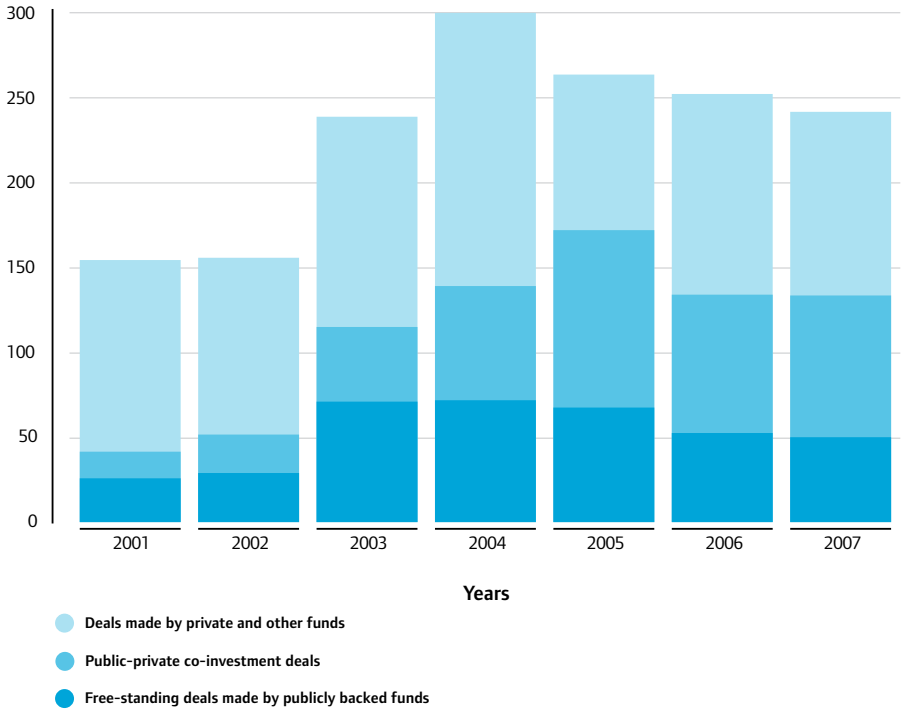
Figure 8: Number of public-private co-investment deals with business angel involvement, 2001-7



Source: Calculated from Library House database

Early stage below £2m

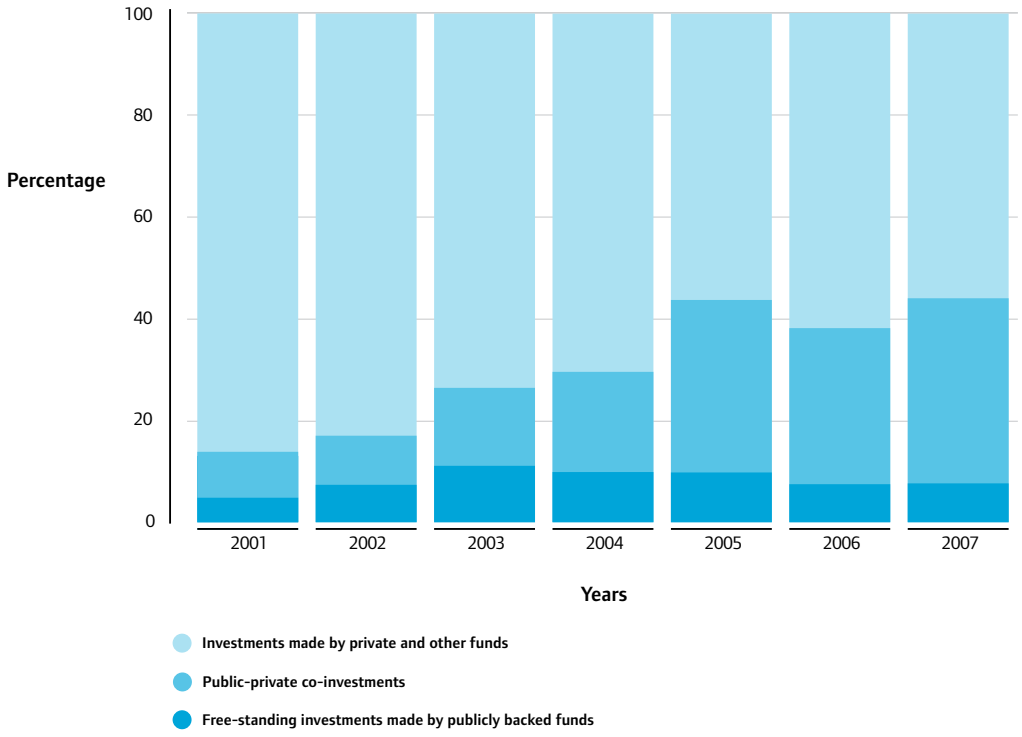
Figure 9: Number of early stage* investments deals, 2001-7



* Rounds 1, 2 and 3 and less than £2m

Source: Calculated from Library House database

Figure 10: Proportion of invested amounts in the early stage*, 2001-7



* Rounds 1, 2 and 3 and less than £2m

Source: Calculated from Library House database

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