The Risk Capital Market in Scotland 2005 - 2007

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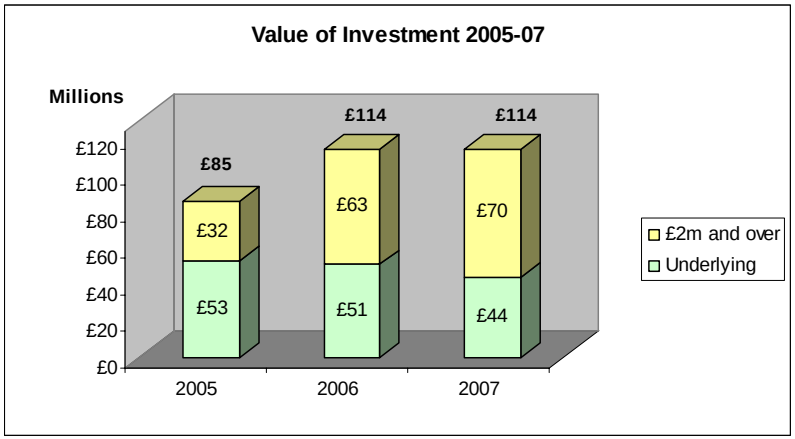
E.2 In summary, the report looks at:

- The number of investments and value;
- Investment by industry sector;
- Investment at each stage of company growth
- The location of companies receiving, and investors providing, finance
- The types of investors making investment (whether angel, VC or other institution or hybrid)

Number and Value of Investments

E.3 Total early stage risk capital investment in Scotland was £114m in 2007. Investment reached a peak of around £250m in 2001 and has since fallen back to around £100m from 2002 onwards.

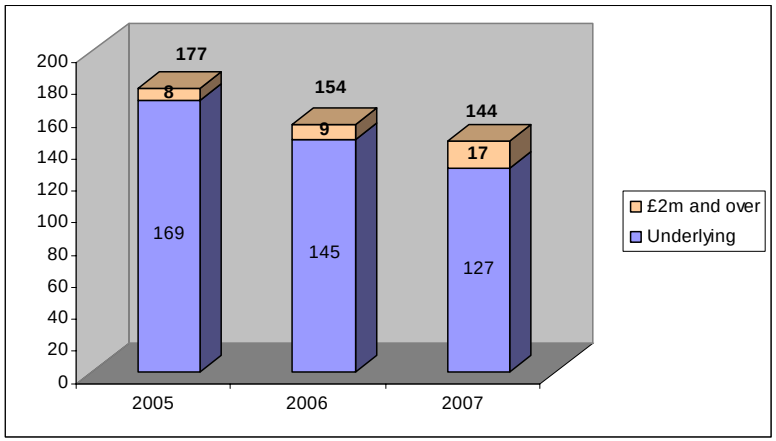
E.4 A large amount of early stage risk capital investment in any year is made up of a few large investments of £2m or more. These totalled £70m in 2007. The remaining 'underlying investment' in 2007 is £44 million, slightly less than the figures for 2005 and 2006.



E.5 Despite a rise in investment value, the total number of investments has fallen, from 177 in 2005 to 144 in 2007, indicating an increase in investment size.

E.6 In 2007, unlike in previous years, no investments dominate – there is a healthy spread of high value investments. There were 17 investments valued at £2m and over in 2007, up from 8 in 2005 and 9 in 2007.

Number of Investments, 2005-2007



E.7 The median investment size for all investments rose in 2007 at £265k, compared with £200k in 2006 and £165k in 2005.

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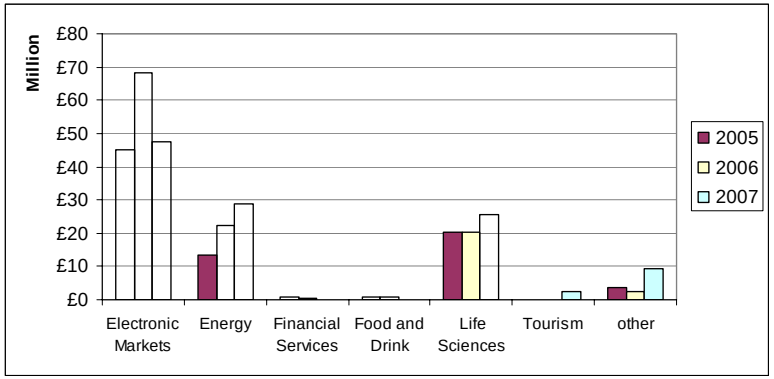


E.10 Excluding one atypical investment, the largest median investment was in Energy, which increased from £530k in 2005 to £840k in 2007.

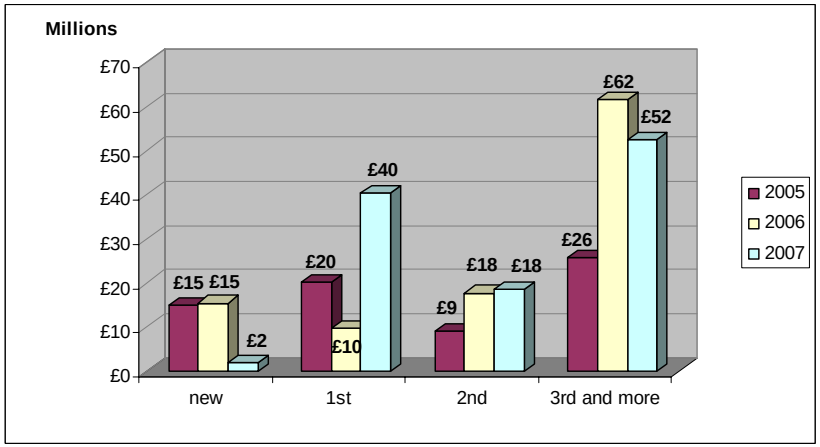
The Stage of Development

E.11 We have data on funding rounds for most of the companies, worth: £70m (82% of total) in 2005; £105m (92% of total) in 2006; and £112m (98% of total) in 2007.

E.12 The number of investments in new (start-up) companies fell from 45 in 2005 to 10 in 2007. In contrast, the number of first and post-second round investments increased during 2007.

E.13 Similar analysis of investment value shows that the value of start-up investment also fell significantly during 2007. In contrast the value of first-round investment rose rapidly in 2007.

Investment Value by Funding Round, 2005-07.



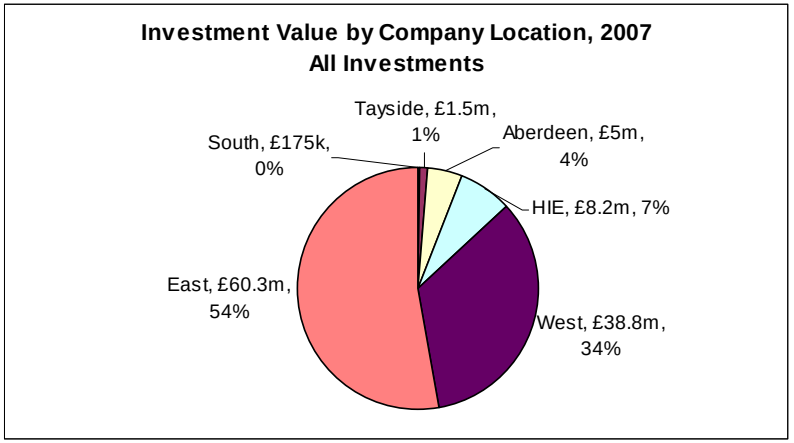
The Role of University Spin-outs

E.14 The number of investments made in spinout companies each year appears to be fairly constant. In 2007 this was 32 investments (29% of total). The total value invested annually in spinouts fell from £34m in 2005 and 2006 to £30m in 2007.

The Location of Companies Invested in

E.15 Companies located in the Regional Operations East area received the most investment by value in 2007, followed by the West.

E.16 We found a similar distribution for 2005 and 2006, with the East and West dominating. In 2005 there was also substantial investment in companies located in Tayside.



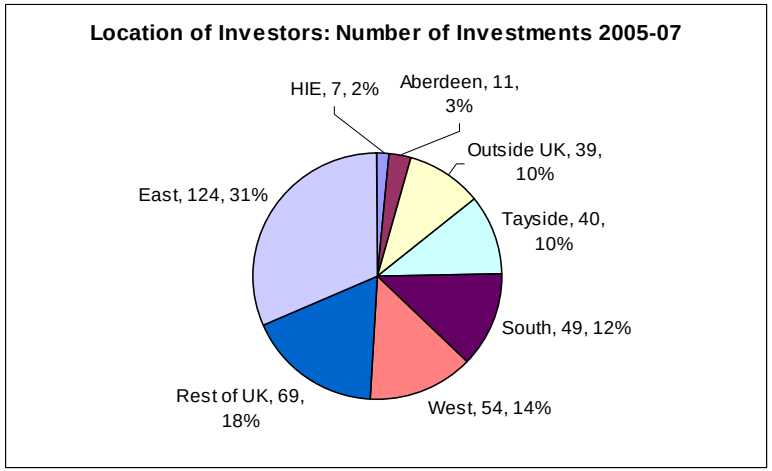
E.17 Investors made most investments in DMET. Aberdeen-based investors are an exception, making more investments in Energy companies.

The Location of Investors

E.18 The largest number of investments overall were made by investors based in the East, followed by the rest of the UK and the West .

E.19 Investors from Aberdeen, the East, HIE and the West all make more investments in their home areas than in any other region, while investors from the South and Tayside make most of their investments in companies in the East.

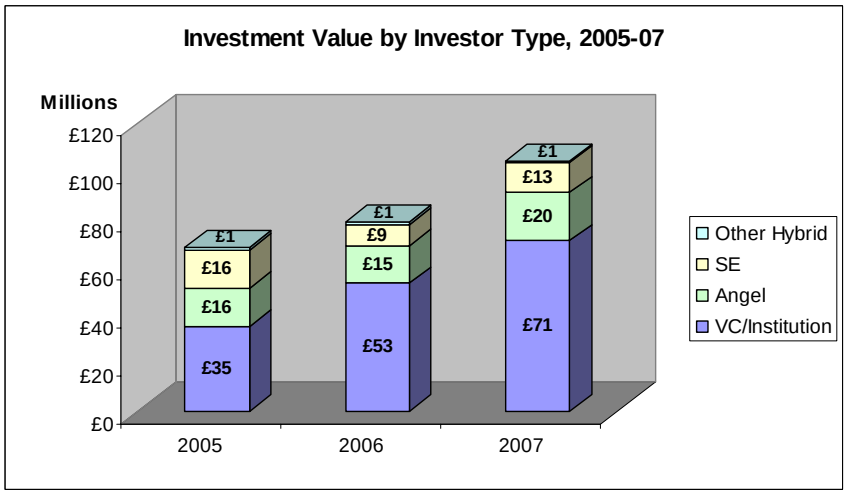
E.20 The majority of investments from outside Scotland come from investors in London and South East England.



The Type of Investors Making Investments

E.21 In 2007 there were relatively more investments involving Angels, who were involved in some way in the majority of all but the largest investments.

E.22 The largest proportion of investment by value in all three years was made by VCs and other institutions, reflecting the larger investments that VCs undertake. In contrast, business angels made more, but smaller, investments.



1.2 Nationally, SE/HIE had an involvement in 43% of investments. SE/HIE investment was worth 12% of total investment value.

1.3 SE contributed to the highest proportion of investments in Aberdeen and in the South.

1.4 The contribution of SE investment by value was proportionally highest in the South (36%) and lowest in the East (8%)

Interpretation of Findings

E.23 A significant increase in the number of investments over £2m recorded in 2007 suggests that there is a growing demand for funding large investments in the £2m and above range.

E.24 In contrast, the underlying level of investment has remained relatively stable between 2005 and 2007, at around £50m for sub-£2m deals. However, if only the three largest deals reported in each year are excluded from the analysis, there has been a marked increase in underlying investment activity (to £90m) between 2005 and 2007.

Table 7: Top 3 Investments

	Top 3 Deals		Rest of Market	
	£m	%	£m	%
2005	18.2	20.6	70	79.4
2006	45.6	39.9	68.7	60.1
2007	27.5	23.4	90	76.6

E.25 Fluctuation is also the result of cyclical deal flow determined by the time taken to exit, and demand for capital at any point in time: investors may be aware of an investment requirement in their existing portfolio, and be reluctant to fund new ventures during this time. Further research is required into the causes of this.

E.26 There is little evidence in the figures to suggest that there is any systematic east-west bias in the pattern of investment.

E.27 There remain concerns about the longer term growth potential of many spin-outs, reflecting limited access to capital and limited management and marketing expertise.

E.28 Further research into growth dynamics and constraints on spinout companies, specifically into the role of equity finance in supporting growth, is required.

E.29 Evidence suggests there is a progressive segmentation of the risk capital market taking place - an expansion capital market characterised by VC investment and a start-up and expansion market dominated by angel and hybrid investment.

E.30 The 'new deal' market in Scotland remains dominated by angel investors. There are constraints on the supply of start-up investment as angel investors move towards investment in revenue-positive or near-revenue positive ventures.

E.31 Angel activity is now almost completely represented by angel syndicates. The evolution of the organisation of the angel market may be leading to the re-emergence of an equity gap at the lower end of the scale.

E.32 Angel investors, in particular syndicates, are increasingly investing in follow-on rounds in their existing portfolio companies rather than in new deals. This will reduce the flow of capital into investment ready new ventures.

E.33 The type of company angels fund is determined by the total amount of capital they are able to commit - typically £250k to £2.5m in the case of syndicates. This may constrain new high-growth ventures that require total investment in excess of £2.5m.

E.34 This analysis suggests that there is a need to re-examine the structure of the early stage risk capital market as an integrated system that supports new venture creation, development, expansion and maturity to ensure that the Scottish entrepreneurial system functions as effectively as possible and underpins the development of a vibrant, dynamic and sustainable economy.

GLOSSARY OF KEY TERMS

Term	Definition
Investment	A discreet purchase of share capital in a company by one or more investors at a given time.
Deal	The transaction between an individual investor and a company, which may be standalone or part of an investment involving other investors. A single investment may involve deals with many investors.
Underlying investment	The combined value of investments each worth less than £2 million.
Angels	Private individuals who invest their own capital either alone or part of a syndicate, and who personally own the equity they purchase.
Institutional Investors	Organisations who invest on behalf of others and offer advice and guidance on investment. These include Venture Capital companies, partnerships, corporations, banks and investment trusts.
Hybrid Investors	An investor with all or part public, voluntary, academic or (occasionally) private sector investors with a policy objective in addition to financial return.
Mean	The arithmetic average value calculated by dividing the sum total by the number of cases.
Median	The mid-point average. Using the median, rather than mean average deal size removes the effect of outlying very large values, such as one-off multi-million pound investments.
Start up investment	New equity investment used to get a company up and running.
First round investment	The first full round of funding following start-up finance.
Second/third round investment	Later stage investment typically for expansion.
Spin-out	An organisation that started life within an academic or other research institution and is now an independent trading company, typically with a university shareholding. A spin-out company can take assets, intellectual property, technology, and/or existing products from the parent organisation.

Angel Syndicates	A network of business angel investors, who combine their investments in a company. This often takes the form of one or more core or 'inner circle' investors leading the investment, followed by others in the 'outer circle', who provide investment capital to back up the lead investors. Angel syndicates are becoming more common as a method of sharing risk and investing larger sums.
Venture Capitalists (VCs)	Venture Capitalists are specialist investors who invest on behalf of others and offer advice and guidance on investment. Unlike other institutional investors, VCs specialise in companies at an early stage in their development often with little or no track record.

1. INTRODUCTION

Why Measure Investment?

1.1 A strong emerging business sector is an important part of achieving the Government's objective of promoting sustainable economic growth. Some of Scotland's most successful businesses have received their early stage finance from early stage risk capital.

1.2 The rate and value of investment in this market allows us to assess the health of the new and expanding business sector. It also provides us with signals on the health of entrepreneurship, and the availability of finance, both of which also have wider implications for growth and are barometers of the economy.

1.3 The Government Economic Strategy (GES) holds Scotland up for scrutiny alongside the 'Arc of Prosperity' nations: the small but relatively wealthy group of countries stretching from Ireland to Denmark. It uses international comparisons of entrepreneurial activity provided by the Global Entrepreneurship Monitor's (GEM) Total Early-Stage Entrepreneurial Activity (TEA).

1.4 In 2006, TEA in Scotland was 4.2 per cent of the working age population, below the rates found in the Arc of Prosperity countries, such as Norway (9.1 per cent) and Iceland (11.3 per cent). Scotland's TEA was also the second lowest in the UK. There is a challenge to Scotland's policy decision makers to ensure that there is an adequate supply of private equity available to meet the expansion demands of young high growth companies.

"Enhancing the quality and focus of support for business and innovation will have a direct impact on business competitiveness and growth. Responsive, accessible business support services will allow all areas of Scotland to contribute to and benefit from a shared approach to economic growth."[1]

1.5 The role of Scottish Enterprise is key in helping to provide a business environment conducive to the financing and growth of successful new businesses with high growth potential.

1.6 However, the role of government is not to make investment decisions that are best left to the investment market, but to ensure that this market operates in a way that allows an efficient flow of finance from investors to high-growth companies.

"The Strategy should not be to pick individual companies as winners - the market does that. Rather, the job of government should be to facilitate and accelerate the growth sectors and to provide the necessary environment to make sure that it happens in Scotland."[1]

What is Included?

1.7 This analysis examined investment in the early stage risk capital market over the period 2005-2007 inclusive. It also uses headline figures from 2000-2004 based on the previous comparable study of Scottish risk capital investment[2].

[1] Scottish Government (2007) *Government Economic Strategy*

[2] *The Equity Risk Capital Market for Young Companies in Scotland 2000-2004*, Gavin Don and Richard Harrison, January 2006 (Scottish Enterprise)

1.8 The period of analysis covers investment up to the end of calendar year 2007. Therefore most of the data on investment relates to the period prior to the current economic downturn, and should be viewed in this context. In particular, the current 'credit crunch' is likely to have restricted the supply of non-equity finance.

1.9 Despite this, early stage equity finance is relatively immune to macroeconomic fluctuations. The supply of this finance serves a market of around 3% of start-up businesses. These are often 'high risk high reward' companies, hence their attractiveness to investors, mainly high net worth individuals who are relatively immune from the effects of economic downturns. These companies are also generally too risky a proposition to attract mainstream bank lending, hence the need to raise equity. ,

1.10 In summary, this report looked at:

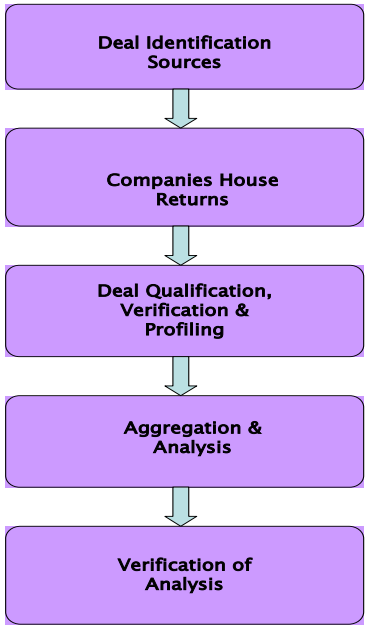
- The number of investments and value;
- Investment by industry sector;
- Investment at each stage of company growth;
- The location of companies receiving and investors providing finance;
- The types of investors (angel, VC, hybrid).

Methodology

1.11 In conducting this research we were aware of the need to ensure that figures on the size of investment and deal flows were robust and accurate.

1.12 This has been achieved through the use of multiple data sources and a multi-stage screening process to verify results. The stages involved in our approach are detailed in Figure 1.

Figure 1: Outline of Methodology



1.13 In summary, we used the following methodology.

- We examined a number of sources to identify reported investments, and the value of these where data was available.
- The value of these investments, and the contribution of each investor, was obtained/verified through analysing over 400 form 88(2) records from Companies House.
- Company accounts were analysed with the aid of a chartered accountant to check investment values.
- Investments in companies identified in previous years, but not reported in the year in question were checked using 88(2) data. This revealed a number of unreported 'follow-on' deals.

1.14 As noted in the 2000-04 report it can sometimes be difficult to distinguish founder finance from external angel finance, as both are recorded as individuals. Where founder finance was suspected we have performed an online check on the investor name against current and historical directors of the company and excluded investment where appropriate.

1.15 The key stages of our methodology are outlined in more detail in Appendix 2.

How Should the Figures be Viewed?

1.16 We believe the investment figures we have calculated to be the most accurate produced to date for Scotland. The methodology of supplementing reported investments with analysis of 88(2) returns from Companies House means that most investments, particularly larger investments, will have been covered.

1.17 However, we do not claim to have included all investments that have taken place each year in Scotland. While this report will undoubtedly represent a very high proportion of risk capital activity at transaction level in Scotland, the only way to be assured that all available transactions are sourced is to obtain all 30,000 88(2)s submitted annually to Companies House, which is beyond the scope of this analysis.

1.18 Additionally, although companies are legally obliged to deliver a return of allotment within one month of the allotment of shares, in practice this is seldom enforced. Therefore we cannot be sure that all equity investment for the period will have been filed with Companies House.

1.19 The analysis we undertook covered the years 2005-07. In some cases we have compared these with data from previous studies. After discussions with the authors of the previous studies we have replicated the methodology as closely as possible, and made a number of improvements about the level of detail for each investment deal.

1.20 Investment values are quoted in nominal prices, in other words the price at the time of reporting. We have not converted investment into real prices, for example by adjusting all values to 2007 prices. Inflation measured by the CPI has been modest, growing between 1.6-2.3% per annum[3] over the period 2000 to 2007.

Chapter 1 Summary

- Measuring the level of investment is an important indicator of economic health.
- The investment figures presented here relate to 2005 to 2007 and should be taken in that context.
- The value of these investments, and the contribution of each investor, was verified through analysing over 400 88(2) records from Companies House.
- Investments in companies identified in previous years, but not reported in the year in question were also checked using 88(2) data.
- This methodology ensures that most investments, particularly larger investments, will have been covered. However, we do not claim to have included all investments that have taken place each year in Scotland.

[3] National Statistics figures. CPI is the Consumer Price Index, used by the Government to set inflation targets.

2. KEY FINDINGS

Introduction

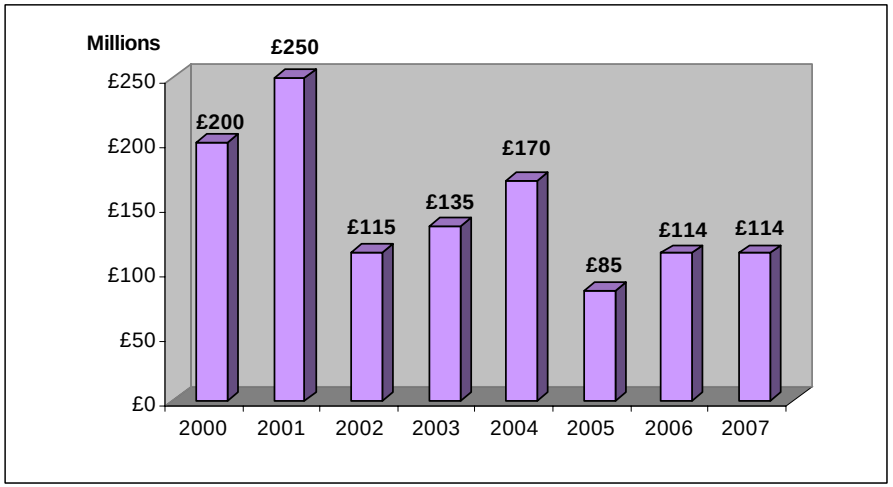
2.1 In this chapter the key findings from our analysis of investment data are presented. This chapter presents the facts and figures, while the reasons for and implications of our findings are discussed in Chapter 3.

Headline Investment Figures

2.2 The long-term trend in annual early stage risk capital investment value in Scotland is shown in Figure 2 below. This shows a total investment of £114m in 2007. Investment reached a peak of around £250m in 2001 and has since fallen back to around £100m from 2002 onwards.

2.3 Although a substantial sum, to put this into perspective £114m is only 0.1% of Scottish annual GDP. That said, early stage risk capital can provide the opportunity to kick-start high growth companies, and progress them through key growth stages to become regionally or nationally significant.

Figure 2: Trend in Investment Value 2000-2007



2.4 A large amount of early stage risk capital investment in any year is made up of a few large investments of £2m or more. Figure 3 shows that these totalled £70m in 2007.

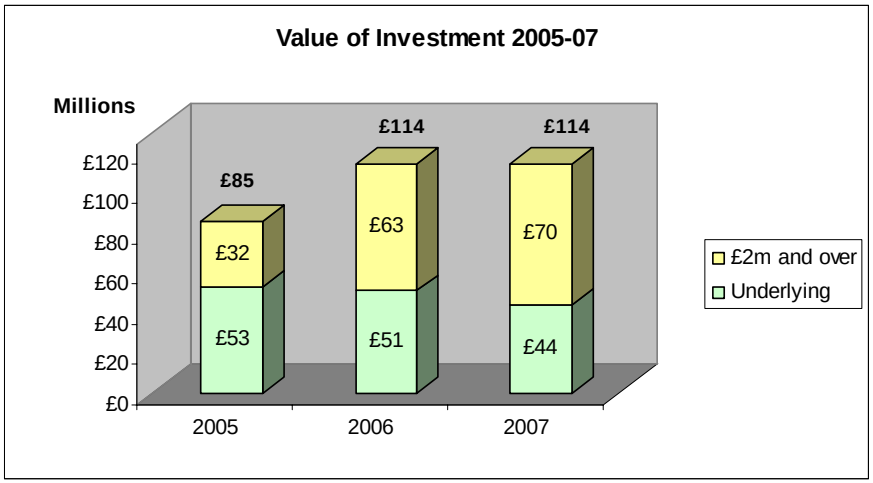
2.5 The remaining investment value is made up of a large number of smaller deals that we have termed 'underlying investment'. When investments worth £2m or more are excluded, the underlying value of investment in 2007 is £44 million, slightly less than the figures for 2005 and 2006. In later analysis the top 3 deals by value are excluded.

2.6 This underlying investment made up a relatively smaller proportion of total investment value in 2007 than in previous years, highlighting the increased contribution of investments worth £2m or more in 2007.

2.7 As would be expected, the value of these few large investments is variable each year. This highlights the exposure of the market in any year to a small number of large investments. The presence of absence of a few key investment deals could dramatically change the total market value from year to year.

2.8 In contrast, there appears to be a relatively stable underlying investment of around £40-50m per annum each year.

Figure 3: Investment £2m and Over



2.9 In Chapter 3 we have also analysed investment excluding the top 3 deals. If only the three largest deals reported in each year are excluded from the analysis, there has been a marked increase in underlying investment activity (to £90m) in 2007:

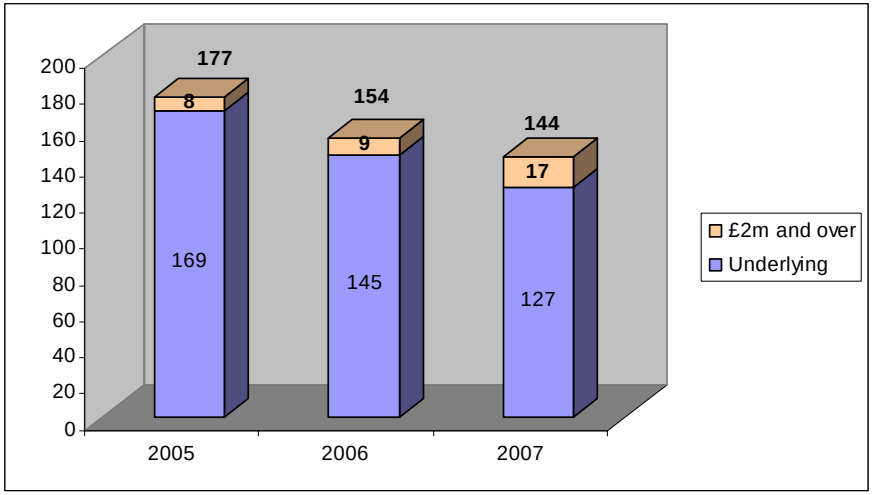
2.10 The total number of investments is shown in Figure 4 below. Despite a rise in investment value over 2005-07, the number of investments has fallen to 144, indicating an increase in investment size.

2.11 The increased value of investments over £2m in 2007 shown in Figure 3 above is reflected in the increased number of investments over £2m. There were 17 investments valued at £2m and over in 2007, up from 8 in 2005 and 9 in 2007.

2.12 The rise in the number of these large investments is a positive trend, as it indicates a reduced exposure to a small number of these investments.

2.13 As well as increasing by number, the relative share of investments over £2m has also risen in 2007 reinforcing the increased importance of larger investments to the overall market.

Figure 4: Number of Investments, 2005-2007



2.14 Individual investments over £2m are detailed in Tables 1-3 below. In 2007, unlike in previous years, no investments dominate - there is a healthy spread of high value investments.

2.15 Investments involving SE are highlighted. The number of investments supported by the SCF has increased each year. Likewise the SVF has made an impact in 2007, particularly with larger £2m plus investments.

Scottish Coinvestment Fund (SCF) supported investments

Scottish Venture Fund (SVF) supported investments

Table 1: Blockbuster Investments over £2m, 2007

Company	Location	Date	sector/activity	Value
Aquamarine Power	Edinburgh	01-Oct-07	renewable energy	£11,500,000
Gigle Semiconductor	Edinburgh	27-Nov-07	microelectronics	£9,720,000
Ocean Power Delivery	Edinburgh	21-Jun-07	energy	£6,265,000
EnvironCom	Linwood	14-Aug-07	environmental	£5,760,045
Intense	Glasgow	27-Feb-07	optoelectronics	£5,000,000
Proven Energy	Stewarton	02-Feb-07	energy	£4,500,000
AquaPharm BioDiscove	Oban	24-Jul-07	biotechnology	£4,000,000
Picsel	Glasgow	27-Sep-07	microelectronics	£3,044,000
BioFilm	Glasgow	12-Dec-07	medical devices	£3,000,000
Red Spider Technology	Aberdeen	28-Nov-07	offshore oil & gas	£2,500,000
Skyscanner	Edinburgh	01-Nov-07	nternet travel data	£2,500,000
Nallatech	Cumbernauld	16-Jan-07	microelectronics	£2,273,000
Point 35 Microstructure	Livingston	07-Jun-07	microelectronics	£2,100,000
CriticalBlue	Edinburgh	17-Dec-07	microelectronics	£2,041,000
DEM Solutions	Edinburgh	08-May-07	software	£2,000,000
EctoPharma	Edinburgh	03-Apr-07	biotechnology	£2,000,000
Pyreos	Edinburgh	21-Dec-07	infrared sensors	£2,000,000
All £2m and over				**£70,203,045**
Others				*£43,878,308*
Total				**£114,081,353**

2.16 In comparison, there were only 9 investments over £2m in 2006, dominated by Picsel, and only 8 in 2005. These are detailed below.

Table 2: Blockbuster Investments over £2m, 2006

Company	Location	Date	sector/activity	Value
Picsel	Glasgow	25-Sep-06	electronics	£24,380,000
Ocean Power Delivery	Falkirk	14-Mar-06	energy	£13,000,000
WeeWorld (was SawYou.com)	Dundee	9-May-06	digital entertainment	£8,370,000
Microsulis	Glasgow	15-Aug-06	electronics	£5,276,667
Keypoint Technologies (UK)	Hampshire	21-Apr-06	medical devices	£3,000,000
CriticalBlue	Glasgow	16-Mar-06	mobile software	£2,817,576
Cascade Technologies	Edinburgh	12-Jul-06	energy	£2,500,000
Daysoft	Hampshire	10-Aug-06	medical devices	£2,141,000
AWS Ocean Energy	Dunfermline	24-Apr-06	software	£2,000,000
All £2m and over				**£63,485,243**
Others				*£50,767,460*
Total				**£114,252,703**

Table 3: Blockbuster Investments over £2m, 2005

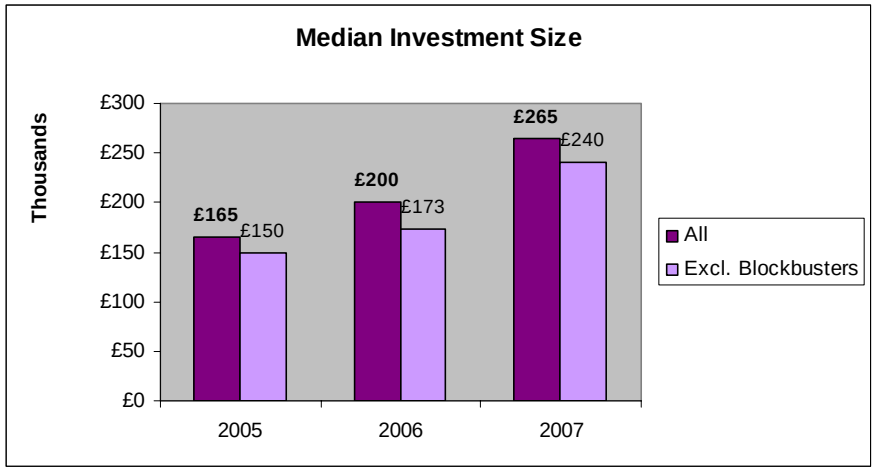
Company	Location	Date	sector/activity	Value
Intense	Glasgow	4-Nov-05	electronics	£8,000,000
Vibtech	Falkirk	15-Sep-05	energy	£5,237,787
Cyclacel	Dundee	10-Oct-05	life sciences	£5,000,000
Picsel	Glasgow	15-Nov-05	electronics	£4,783,000
Microsulis	Hampshire	21-Jul-05	medical devices	£2,735,977
Saw-You.com (now WeeWorld)	Glasgow	30-Mar-05	digital entertainment	£2,385,000
MTEM	Edinburgh	15-Jun-05	energy	£2,034,000
Level Four Software	Dunfermline	8-Jul-05	software	£2,000,000
All £2m and over				**£32,175,764**
Others				*£53,066,449*
Total				**£85,242,213**

2.17 From this, we would expect the average deal size in 2007 to be larger. To test this, Figure 5 below shows the median (mid-point) investment size for 2005-07, including deals over £2m. Taking a median value adjusts for extreme large or small values.

2.18 This shows that the median investment size for all investments is higher in 2007, at around £265k, indicating that investments were generally larger in 2007.

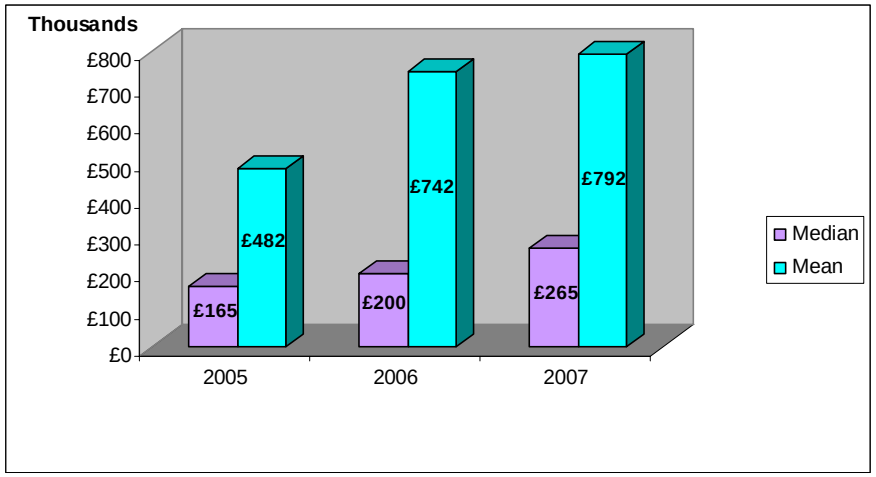
2.19 When investments over £2m are removed, the median size of underlying investment is of course smaller, but the trend remains upward. Median underlying investment is £150k in 2005, £173k in 2006 and £240k in 2007.

Figure 5: Median Investment Size



2.20 By way of comparison, the mean value for all investments is much higher, reflecting the influence of a few large investments. Comparing the mean and median values, Figure 6 shows that the mean value is around three to four times larger than the median.

Figure 6: Mean and Median Investment Value Compared



Investment by Industry Sector

2.21 Investment was analysed in the first instance by Scottish Enterprise National and Regional Priority Industry. The National Priority Industries are:

- Financial Services;
- Tourism;
- Life Sciences;
- Digital Markets and Enabling Technologies (DMET)[4];
- Energy;
- Food and Drink.

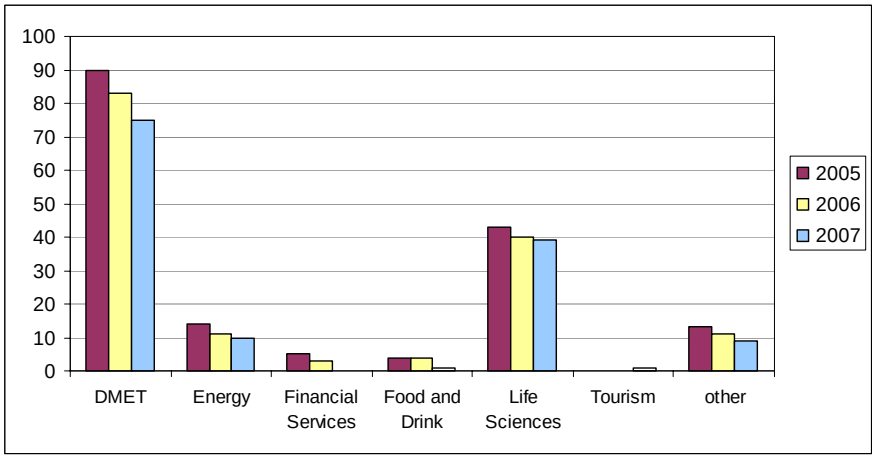
2.22 Investment in SE Regional Priority Industries was also analysed, although the amount invested in these was relatively small. The Regional Priority Industries are:

- Chemicals;
- Textiles;
- Forestry;
- Aerospace, Marine and Defence;
- Construction.

2.23 The trend in number of investments in the National Priority Industries is shown in Figure 7 below. This highlights the dominance of DMET (including software). It also shows a fall in the number of investments in all industries.

[4] Please see Appendix 1 for a full definition of this sector.

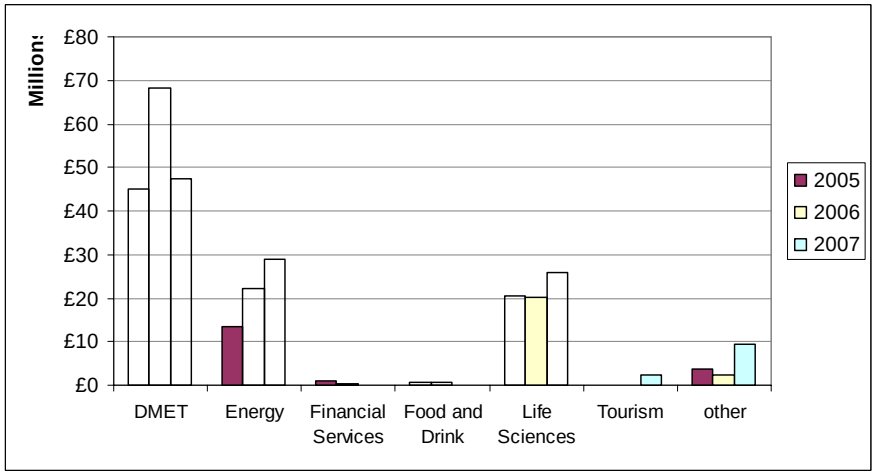
Figure 7: Number of Investments in SE National Priority Industries, 2005-07



2.24 Analysis of the trend in the value of investment in each industry is shown in Figure 8 below. This reveals that DMET continues to dominate but the value of investment has increased in a number of key sectors, in particular:

- Investment in Energy companies has risen from £13.4m in 2005 to £29.0m in 2007 – driven largely by renewables companies such as Aquamarine Power and Pelamis (formerly Ocean Power Delivery);
- Investment in Life Science companies has risen from £20.3m in 2005 to £25.7m in 2007. This is not solely due to a few large investments, but reflects an increase in the median size of life science investments across the board – detailed in Figure 9.

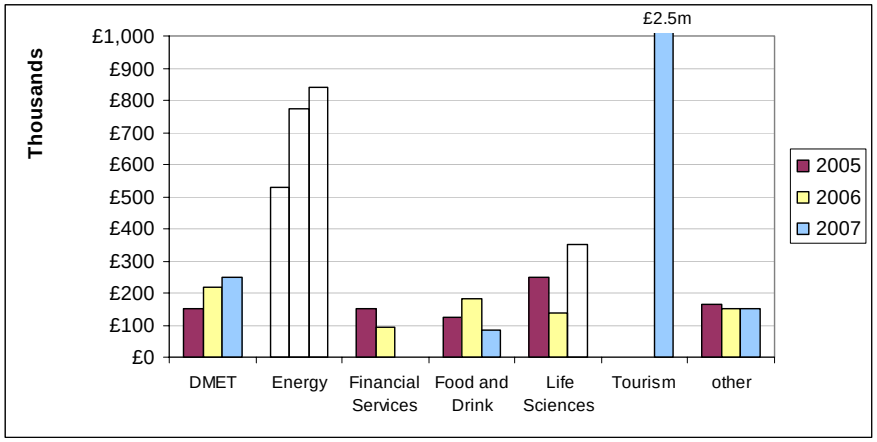
Figure 8: Investment Value in SE National Priority Industries, 2005-07



2.25 Looking at the average investment size by industry, analysis of median investment size shows:

- The largest investment size was in Tourism, although this reflects only one investment in 2007 (£2.5m in Skyscanner) and so may not be typical of the sector;
- Excluding the above investment, the largest median investment was in Energy, which increased from £530k in 2005 to £840k in 2007;
- Median investment size in Life Sciences also increased from £250k in 2005 to £350k in 2007. This is due partly to an increased number of deals over £2m in 2007, and also as the average (mean) size of investments less than £2m in this sector increased from £335,000 in 2006 to £440,000 in 2007. This implies an increase in investment size across the board;
- An increase in investment size, compiled with a reduced number of investments in some industries may reflect changing patterns of demand or may indicate a shift in supply of investment capital in favour of larger investments – typically later stage rounds.

Figure 9: Median Investment Size National Priority Industries, 2005-07



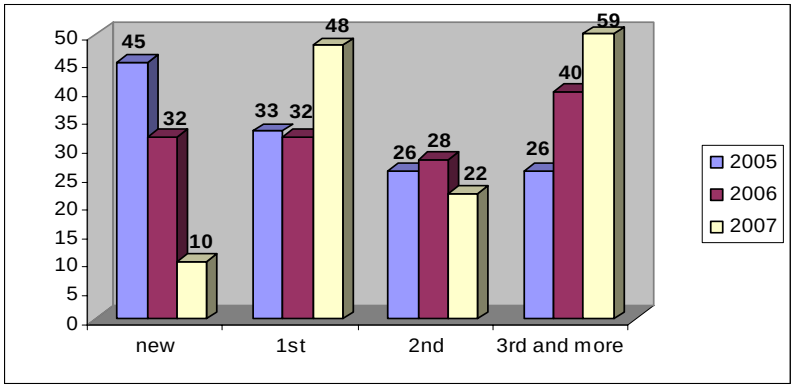
Investment Stage Analysis

2.26 Figure 10 below summarises the number of investments by investment round. We have information on funding rounds for 130 investments in 2005, 132 in 2006 and 139 in 2007.

2.27 New investments refer to start-up finance required to get a company off the ground. First round finance refers to the first full round of funding after start-up. Second round and subsequent funding is follow-up finance. In summary:

- The number of investments made in new (start-up) companies fell from 45 in 2005 to 10 in 2007;
- The number of first round investments has increased from 33 in 2005 to 48 in 2007. Likewise post-second round investments increased from 26 in 2005 to 59 in 2007.

Figure 10: Number of Investments by Funding Round, 2005-07



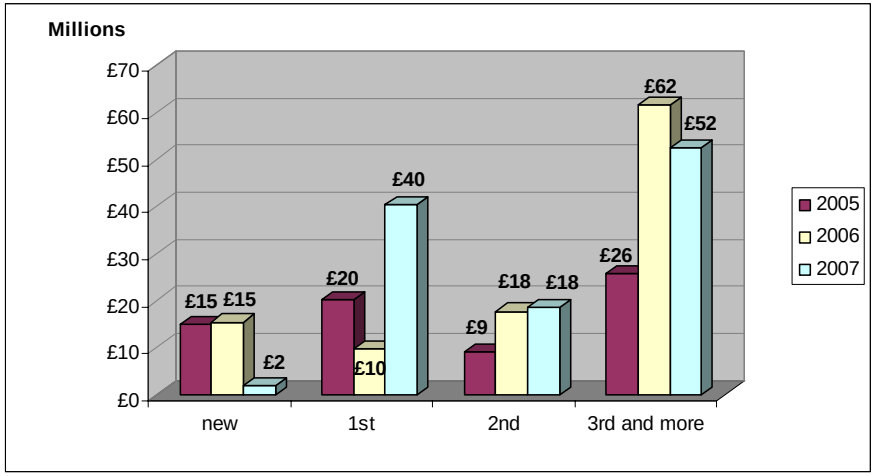
2.28 A similar analysis can be made of investment value by funding round. We have funding round data for 80% of investment value made in 2005, 91% of investment made in 2006 and 99% of investment made in 2007[5]. The figures for 2007 will therefore be most accurate.

2.29 The analysis is summarised in Figure 11 and shows:

- Start-up investment fell significantly during 2007;
- In contrast first-round investment rose rapidly in 2007;
- Post-second round investment increased rapidly in 2006 and fell slightly in 2007.

[5] Figures for each year will therefore be slightly short of the total number of investments given in Figure 3.

Figure 11: Investment Value by Funding Round, 2005-07



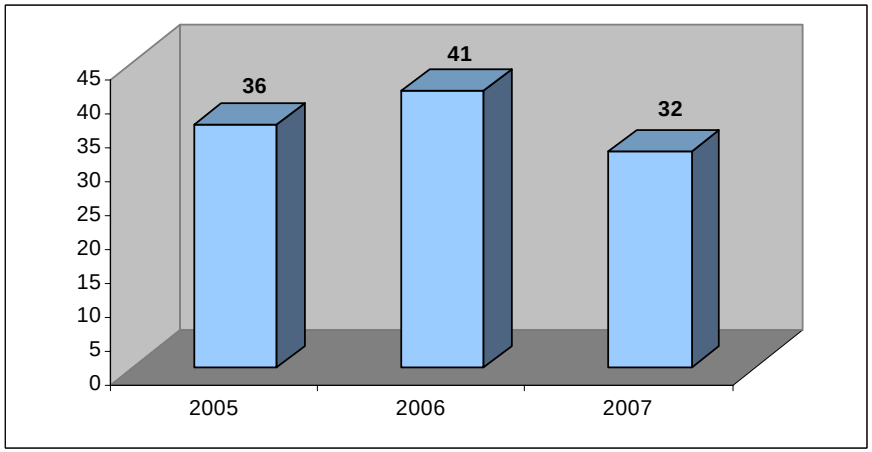
University Spin-outs

2.30 A proportion of early stage risk capital investment each year is made in companies that are spin-outs of academic or other research institutions.

2.31 We have information on spinout status of 106 out of the 136 investments identified in 2007, these 106 investments are worth a total of £106m. Likewise we have information on 118 out of 154 investments in 2006, and 129 out of 177 in 2005.

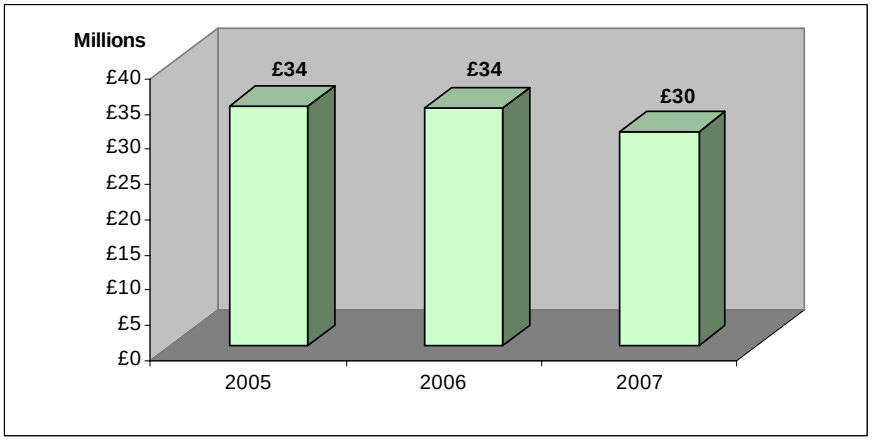
2.32 Figure 12 below shows that the number of investments made in spinout companies in any one year appears to be fairly constant, peaking at 41 (35% of total investments) in 2006. In 2007 this had fallen to 32 investments (29% of total).

Figure 12: Number of Spinout Investments 2005-07



2.33 A similar analysis of total value invested in spinout institutions in Figure 13 reveals a slight drop from £34m to £30m in 2007 (29% of total investment value in 2007).

Figure 13: Spinout Investment Value 2005-07

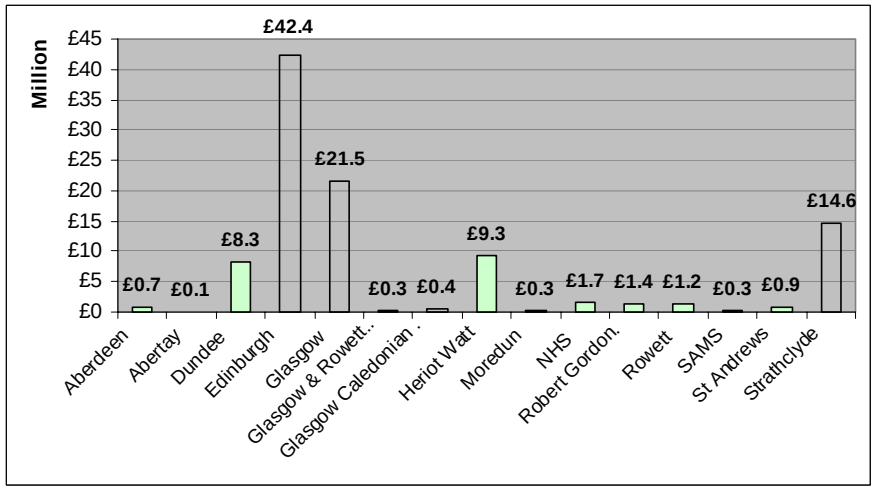


2.34 All the spinout companies identified originated from publicly funded institutions. A full breakdown of investment value by parent institution is given in Figure 14.

Spinouts from specific institutions

2.35 Analysing the value of investment in companies spun-out from specific institutions over 2005-07, Figure 14 shows that the largest amount was invested in companies spun-out from the University of Edinburgh. Edinburgh spinouts received £42.4m of investment, followed by University of Glasgow spinouts with £21.5m over the three years.

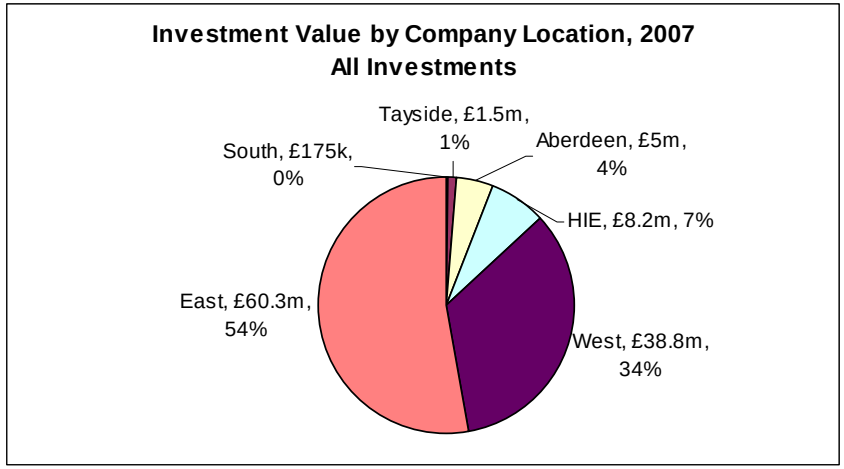
Figure 14: Value of Investment in Spinout Companies by Institution, 2005-07



Where are the companies located?

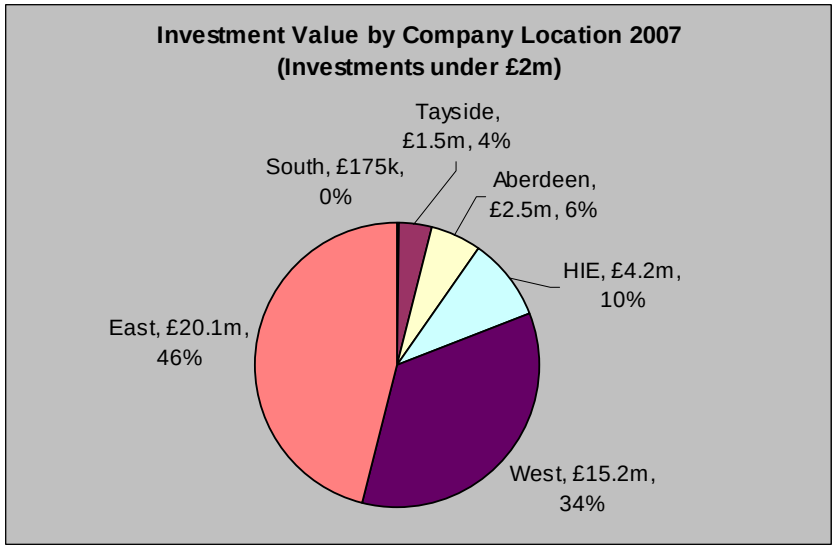
2.36 Investment value by the SE Regional operations areas was analysed. Figure 15 illustrates that the vast majority of investment in 2007 was in companies located in the Regional Operations East area, followed by the West. There was some investment in the South but this accounted for less than 1% of the total value.

Figure 15



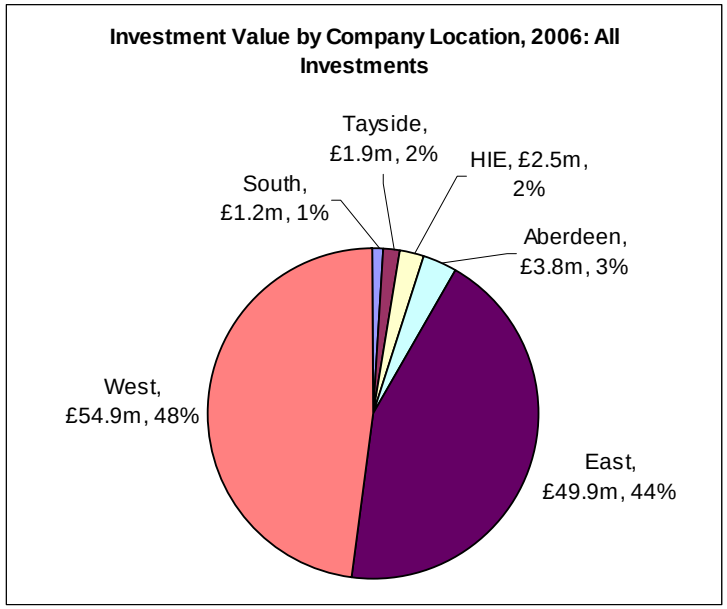
2.37 When underlying investment is analysed with investments over £2m stripped out, Figure 16 shows the share of investment in the East and West is reduced and the percentage share of Tayside, Aberdeen and HIE rises.

Figure 16



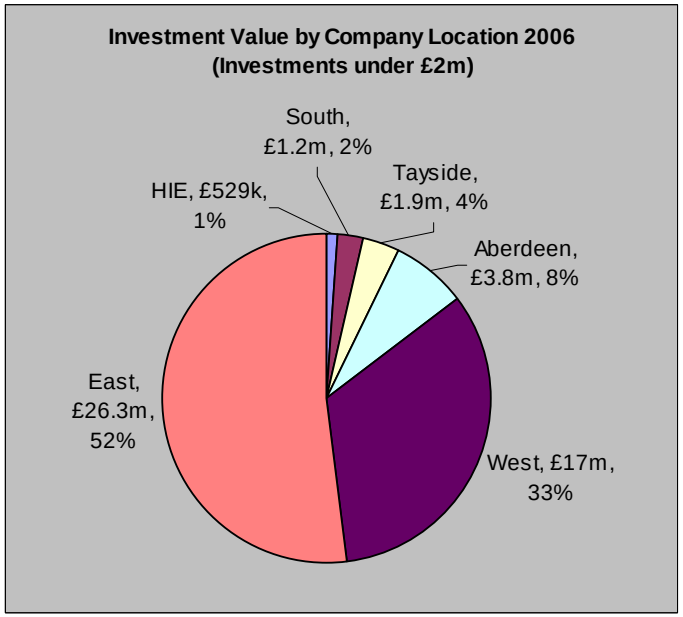
2.38 We found a similar distribution for 2005 and 2006, with the East and West dominating. Figure 17 shows in 2006 investment in companies in the West outstripped investment in the East. This is due to the large £24.4m investment in Picsel, based in Glasgow.

Figure 17



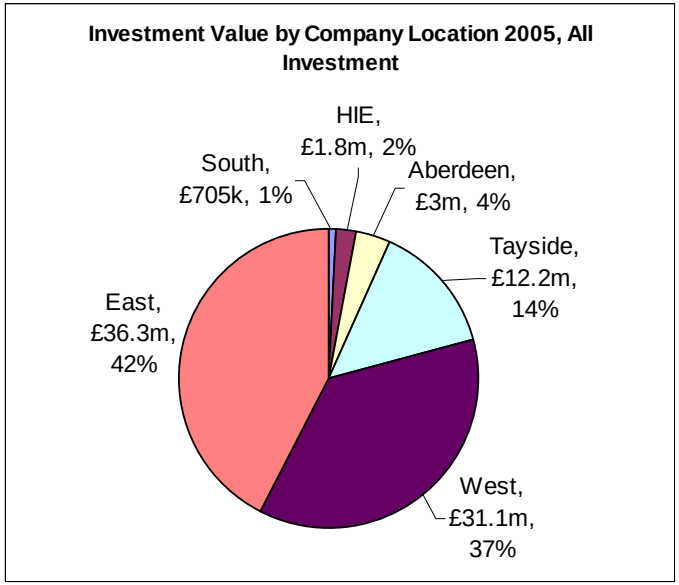
2.39 When investments over £2m are removed in 2006 Figure 18 shows that the regional distribution of underlying investment favours the East, although the West still accounts for a substantial 33%.

Figure 18



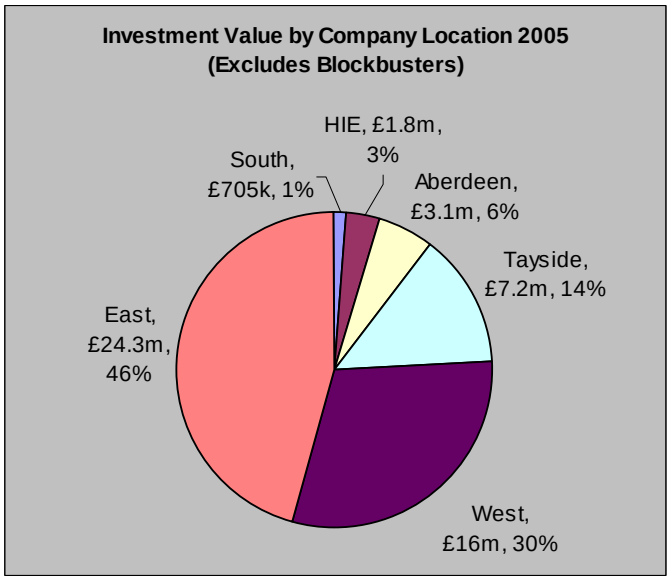
2.40 In 2005, while the East and West still dominate, there was substantial investment in companies located in Tayside – in part due to the £5m investment in Cyclacel, based in Dundee.

Figure 19



2.41 Even when investments over £2m are removed in 2005, Figure 20 highlights that Tayside still accounts for 14% of the (smaller) total due to healthy life science and DMET sectors.

Figure 20

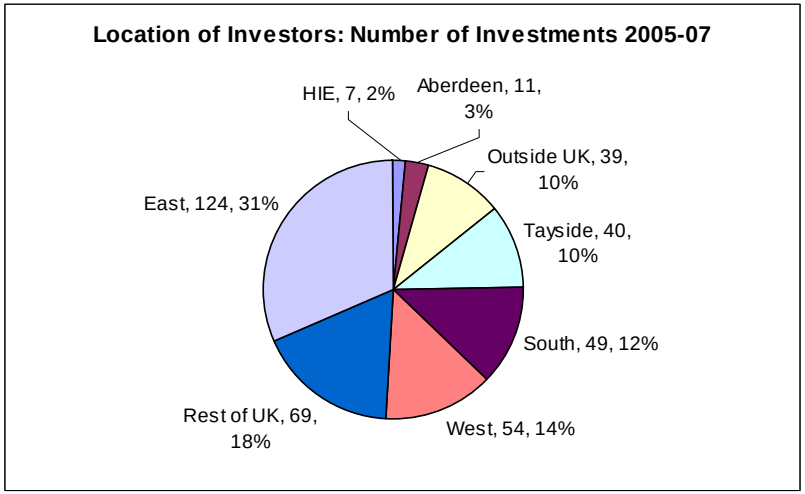


Where does the money come from?

2.42 The geographic origin of investments (excluding SE investments) was examined, broken down by SE region. This was calculated per *deal*, which provided detailed information on around 400 deals per year.

2.43 Figure 21 shows that the largest number of investments were made by investors in the East (124 investments or 31% of the total), followed by the rest of the UK (mainly London and the South East) and the West.

Figure 21



Matching Investment origin and destination

2.44 The location of companies and the location of investors in these companies are linked. Investors located in a given SE Region tend to make more investments in companies in their home region than in comparable regions. The bulk of investment regardless of investor location is in companies located in the East followed by the West.

2.45 Table 4 below shows the number of investments made by investors in companies in each SE Region. This was also calculated per deal, which provided detailed information on 329 deals done with multiple investors within each investment. Investment by SE from these figures has been excluded to ensure that only private equity is shown, and investment by individuals where only their home address is known is also excluded.

- Investors from Aberdeen, the East, HIE and the West all make more investments in their home areas than in any other region;
- Investors from the South and Tayside make most of their investments in companies in the East;
- The relatively high number of investments made by investors based in the South reflects a few key Angel syndicates (such as Ashleybank, Pentland, TRICap, WL ventures) based there;
- Investors from the rest of the UK favoured companies in the West, while those from outside the UK invested more in the East.

Table 4: Private Investment Origin-Destination Correlation Matrix 2005-2007

	Company Location						
Investor Location	Aberdn	East	HIE	South	Tays	West	Total
Aberdeen	**7**	1	1	0	0	1	10
East	10	**77**	0	2	12	12	113
HIE	0	1	**2**	1	0	1	5
South	1	25	0	**6**	0	9	41
Tayside	1	22	0	0	**6**	10	39
West	2	14	2	2	2	**17**	39
Rest of UK	1	20	3	0	1	30	55
Outside UK	1	15	1	0	1	9	27
Total	23	175	9	11	22	89	329

2.46 Analysis of the location of investors and the industry sectors they invest in provides some useful findings, shown in Table 5. Again, this information is based on the number of deals transacted between investors and companies, some forming part of an investment involving multiple companies. As before the data excludes SE investments and individual investors where only the home address is known. We had location-sector information for 359 deals.

2.47 Table 5 highlights some interesting points regarding investors:

- Investors based in most locations make more investments in DMET than in any other industry, in line with the overall dominance of this industry;
- Aberdeen-based investors are an exception, making more investments in Energy companies than in other industries;
- HIE-based investors make the most investments in Life Science companies - although the sample is relatively small;
- West-based investors make almost as many investments in Life Science companies as DMET companies;
- Investors from the rest of the UK and outside the UK make a substantial number of investments in energy companies, probably reflecting the large average size of investment required. These investors are mainly larger VCs rather than angels.

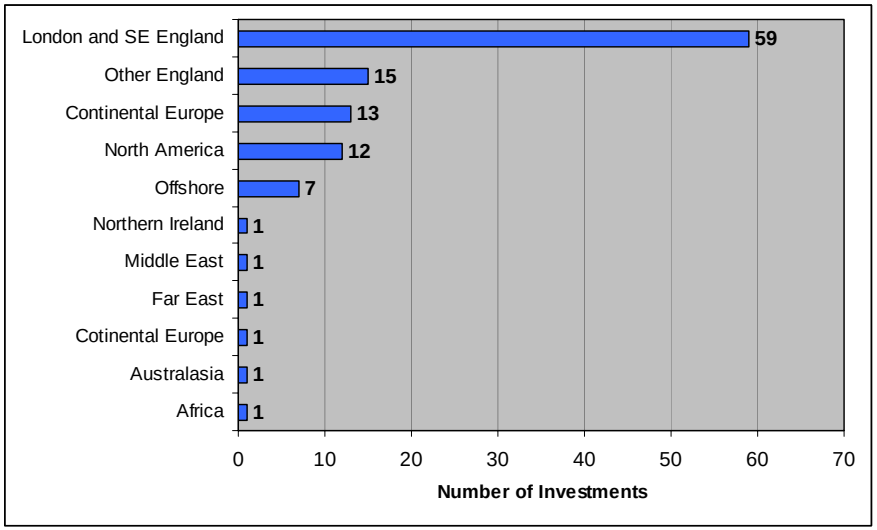
Table 5: Private Investment Origin-Industry Correlation Matrix 2005-2007

	SE Priority Industry					
Investor Location	DMET	Energy	Financial Services	Life Sciences	Tourism	**Total**
Aberdn	3	**6**	0	2	0	11
East	**71**	10	2	29	0	112
HIE	3	0	0	**4**	0	7
South	**32**	1	0	10	0	43
Tayside	**32**	3	0	5	0	40
West	**24**	0	0	22	1	47
Rest UK	**40**	14	0	8	0	62
Outside UK	**19**	11	0	7	0	37
Total	224	45	2	87	1	359

Where does investment outside Scotland come from?

2.48 A number of investments are made by investors located outside Scotland, particularly in larger and later stage investments. Figure 22 provides a breakdown of the number of investments made by investors located outside Scotland and shows that the majority came from investors in London and South East England, with substantial numbers in the rest of England, Continental Europe and North America.

Figure 22: Location of non-Scottish Investors, 2005-07



Note: Offshore includes the Channel Islands, British Virgin Islands and Cayman Islands

Who is investing?

2.49 The number of investments and investment value by type of investor was analysed, split into the following categories:

- Angels: private individuals who invest their own capital, either personally or through syndicates, and who personally own the equity they purchase. Angels make their own decisions to invest, and when investing through a syndicate they receive no formal advice or guidance. Angels exclude investment by the founding principal.
- Institutions: Institutional investors include Venture Capital companies, partnerships, corporations, banks and investment trusts. These include both BVCA members and non-members. Institutions, as defined here, invest on behalf of others and offer advice and guidance on investment.
- Hybrids: defined as an investor with all or part public, voluntary, academic or (occasionally) private sector investors with a policy objective in addition to financial return. The most common of these are investment funds run by Scottish Enterprise with an economic development objective, such as the SCF and SVF. In order to examine the impact of Scottish Enterprise support, we have separated:

- Scottish Enterprise and HIE investment[6], and,
- Other Hybrid investment, such as those involving national government, research institution or university finance.

2.50 Accurate information to disaggregate investment by type of investor is not available for all investments, primarily as 88(2) forms are not available. We have full information on types of investor for:

- 2005 – 121 investments (68% of total), worth £68m (80% of investment value);
- 2006 – 96 investments (62% of total), worth £78m (68% of investment value);
- 2007 – 136 investments (94% of total), worth approx. £105m (92% of investment value).

[6] SE Figures include investment by HIE , although the vast majority is SE.

2.51 A breakdown of the number of deals by investor type is given in Figure 23. This reveals that for 2005 and 2006 the number of Angel deals is matched approximately by the number of Scottish Enterprise deals, with the number of deals with institutions slightly lower. Hybrid investors other than Scottish Enterprise were involved in relatively few investments.

2.52 The main difference in 2007 was that there were relatively more Angel deals. Business Angels were involved in some way in the majority of all but the largest early stage risk capital investments.

2.53 Specifically in 2005:

- VCs/institutions made 60 investment deals (27% of deals);
- Angels made 73 investment deals (32% of deals);
- SE made 74 investment deals (33% of deals);
- other hybrids made 19 investment deals (8% of deals).

2.54 In 2006:

- VCs/institutions made 49 investment deals (28% of deals);
- Angels made 57 investment deals (32% of deals);
- SE made 58 investment deals (33% of deals);
- other hybrids made 13 investment deals (7% of deals).

2.55 In 2007:

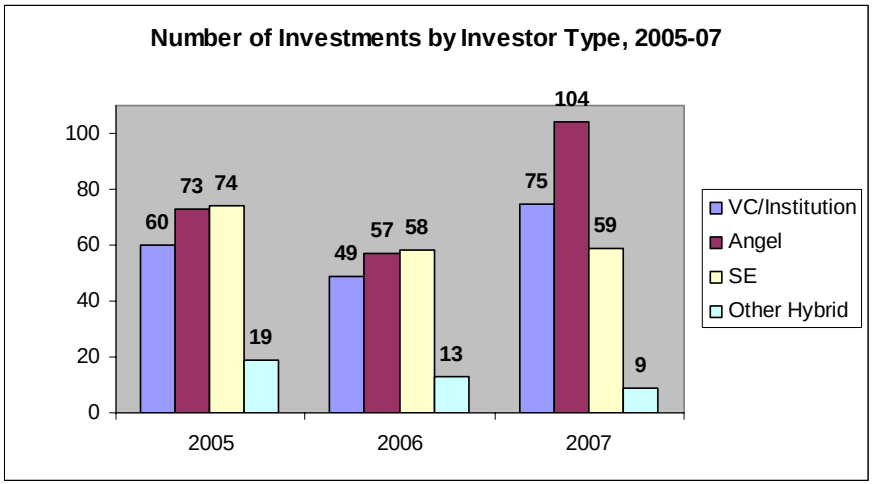
- VCs/institutions made 75 investment deals (30% of deals);
- Angels made 104 investment deals (42% of deals);
- SE made 59 investment deals (24% of deals);
- other hybrids made 9 investment deals (4% of deals).

2.56 Looking at Figure 23 and Figure 10 (Number of Investments by funding round) reveals two key trends:

- an increase in the number of investments involving Angels;
- a movement away from start-up investment to first round and later investment.

2.57 This strengthens the argument that an increasing proportion of Angel investors are adopting a 'cradle to grave' investment strategy: investing in a company from inception right through to successful exit. This in turn may be limiting the amount of Angel finance available for new start-up companies.

Figure 23: Number of Investment Deals by Investor Type



2.58 Analysis of investment *value* by type of investor is summarised in Figure 24. The largest proportion of investment by value in all three years was made by VC and other institutions, reflecting the larger investments that VCs undertake. In contrast, business angels made more, but smaller, investments.

2.59 In 2005:

- VCs/institutions invested £35m (51% of total);
- Angels invested £16m (24% of total);
- SE invested £16m (24% of total) and;
- other hybrids invested just over £1m (2% of total)

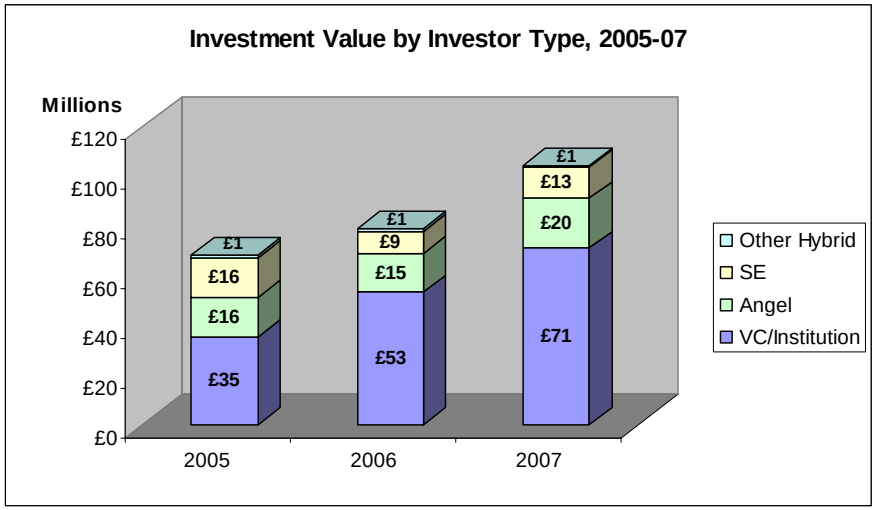
2.60 In 2006:

- VCs/institutions invested £53m (68% of total);
- Angels invested £15m (19% of total);
- SE invested £9m (11% of total) and;
- other hybrids invested under £1m (1% of total).

2.61 In 2007:

- VCs/institutions invested £71m (62% of total);
- Angels invested £20m (18% of total);
- SE invested £13m (12% of total) and;
- other hybrids invested £0.6m (1% of total).

Figure 24: Value Invested by Investor Type



Scottish Enterprise Investment in Detail

2.62 We have analysed SE and HIE contribution to investment by area. Table 6 gives a breakdown of the SE and HIE involvement in total (public and private) investments in 2007

- Nationally, SE/HIE contributed to 43% of investments;
- In the West SE contributed to 45% of investments, and in the East 43% of investments
- SE contributed to the highest proportion of investments in Aberdeen and in the South.

Table 6: Number of SE/HIE Investments by Geography, 2007

Region	SE/HIE Involved	All Investments	SE/HIE percent
South	1	2	50%
HIE	5	13	38%
Aberdeen	3	6	50%
Tayside	3	8	38%
West	18	40	45%
East	29	67	43%
Total	**59**	**136**	**43%**

2.63 A breakdown of the SE and HIE investment contribution to total (public and private) investment by value in 2007 is shown in Table 7.

- Nationally, SE/HIE contributed to 12% of investment capital by value;
- In the West SE contributed 19% and in the East, SE contributed 8% of investment capital by value;
- The contribution of SE investment was proportionally highest in the South and lowest in the East.

Table 7: Value of SE/HIE Investment by Geography, 2007

Region	SE/HIE Investment	All Investment	SE/HIE percent
South	£100,000	£275,000	36%
HIE	£891,500	£5,741,680	16%
Aberdeen	£497,000	£4,833,938	10%
Tayside	£375,000	£1,353,968	28%
West	£5,898,986	£30,986,919	19%
East	£5,055,224	£61,643,992	8%
Total	**£12,817,710**	**£104,835,497**	**12%**

Ch 2 Summary

The Value of Early Stage Risk Capital Investment in Scotland

- Total early stage risk capital investment in Scotland was £114m in 2007. Investment reached a peak of around £250m in 2001 and has since fallen back to around £100m from 2002 onwards.
- A large amount of early stage risk capital investment in any year is made up of a few large investments of £2m or more. These totalled £70m in 2007.
- The remaining 'underlying investment' in 2007 is £44 million, slightly less than the figures for 2005 and 2006.
- The value of these few £2m plus investments is very variable year to year.

The Number of Early Stage Risk Capital Investments Made

- Despite a rise in investment value, the number of investments has fallen, from 177 in 2005 to 144 in 2007, indicating an increase in investment size.
- There were 17 investments valued at £2m and over in 2007, up from 8 in 2005 and 9 in 2007.
- In 2007, unlike in previous years, no investments dominate – there is a healthy spread of high value investments.
- The median investment size for all investments is highest in 2007, at £265k, compared with £200k in 2006.

Industry Sectors Receiving this Investment

- Looking at the number of investments made highlights the dominance of DMET (see Appendix 1).
- Analysis of the value of investment reveals that DMET continues to dominate but investment value has also increased in Energy and Life Sciences.
- Excluding one atypical investment, the largest median investment was in Energy, which increased from £530k in 2005 to £840k in 2007.

The Stage of Development of Companies Receiving Investment

- The number of investments in new (start-up) companies fell from 45 in 2005 to 10 in 2007.
- In contrast, the number of first and post-second round investments increased during 2007.
- Similar analysis of investment value shows that the value of start-up investment also fell significantly during 2007.
- In contrast the value of first-round investment rose rapidly in 2007.

The Role of University Spin-outs

- The number of investments made in spinout companies in any one year appears to be fairly constant. In 2007 this was 32 investments (29% of total).
- The total value invested annually in spinout institutions fell slightly from £34m in 2005 and 2006 to £30m in 2007.
- Spinouts from the University of Edinburgh dominated, receiving £42.4m (40% of total) spin-out investment over the three years.

The Location of Companies Invested in

- Companies located in the Regional Operations East area received the most investment by value in 2007, followed by the West.
- We found a similar distribution for 2005 and 2006, with the East and West dominating.
- In 2005 there was also substantial investment in companies located in Tayside, in part due to the investment in Cyclacel.

The Location of Investors

- The largest number of investments overall were made by investors based in the East, followed by the rest of the UK and the West .
- Investors from Aberdeen, the East, HIE and the West all make more investments in their home areas than in any other region

- Investors from the South and Tayside make most of their investments in companies in the East
- Investors from the rest of the UK favoured companies in the West, while those from outside the UK invested more in the East.
- Investors made most investments in DMET. Aberdeen-based investors are an exception, making more investments in Energy companies.
- The majority of investments from outside Scotland come from investors in London and South East England.

The Type of Investors Making Investments

- In 2005 and 2006 the number of deals with Angels is matched approximately by the number of Scottish Enterprise deals, whereas fewer investments involved VCs and other institutions.
- In 2007 there were relatively more deals with Angels, who were involved in some way in the majority of all but the largest investments.

- The largest proportion of investment by value in all three years was made by VCs and other institutions, reflecting the larger investments that these organisations undertake.
- Institutions and VCs were responsible for around 30% of investment deals in each year. They made around 50% of investments by value on 2005, 70% in 2006 and 60% in 2007.
- In contrast, business angels made more, but smaller, investments. They made around one third of investment deals in 2005 and 2006, rising to 40% in 2007. The value of angel investment dropped from around 25% in 2005 to less than 20% in 2006 and 2007.
- Nationally, SE/HIE had an involvement in 43% of investments. SE/HIE investment was worth 12% of total investment value.
- SE contributed to the highest proportion of investments in Aberdeen and in the South.
- The contribution of SE investment by value was proportionally highest in the South (36%) and lowest in the East (8%)

3. INTERPRETATION OF FINDINGS

The Early Stage Risk Capital Market in Scotland

3.1 The early stage risk capital market continues to be significant in Scotland. Over the period 2005-2007, £313m has been invested in new and developing companies in 475 identifiable transactions - an average of £104m in 158 investments annually over the three years. This compares with an average of £166m in 146 transactions annually in the period 2000-2004[7].

3.2 In terms of value, the early stage risk capital market in Scotland has remained relatively stable in 2007 in terms of the overall level of investment, following a dip in investment in 2005. However, investment levels (£114m in 2007) remain below the levels recorded in 2004 (c£175m) and are well below the peak levels of investment recorded in 2001 (£250m).

Investment Value

3.3 First, there have been important changes in the composition of the early stage risk capital market. In 2000-2004, investment values were dominated by a small number of very large investments: typically the three largest investments accounted for over a third (and up to 40%) of all early stage risk capital investment recorded (equivalent to around £50m investment value annually).

[7] *The Equity Risk Capital Market for Young Companies in Scotland 2000-2004*, Gavin Don and Richard Harrison, January 2006 (Scottish Enterprise)

3.4 Since 2004, the relative importance of the very largest investments has diminished as a proportion of total investment: there were only three investments in the period over £10m (in Picsel, Ocean Power Delivery and Aquamarine Power), and the three largest investments in each year have accounted for less than one quarter of all investment in the period under review (with the exception of 2006):

- 2005 – £18.2m (20.6%);
- 2006 – £45.6m (39.9%);
- 2007 – £27.5m (23.4%).

3.5 Much of the fluctuation in overall levels of investment activity, therefore, in the 2005-2007 period compared with the period since 2000 is accounted for by the reduced relative importance of the very largest deals. As much of the investment in these very largest deals (over 90%) comes from outwith Scotland, this reduction is not a reflection of any reduction in the supply of risk capital in Scotland.

3.6 Second, the underlying level of investment has remained relatively stable between 2005 and 2007, at around £50m for sub-£2m deals. However, if only the three largest deals reported in each year are excluded from the analysis, there has been a marked increase in underlying investment activity (to £90m) in 2007:

Table 7: Top 3 Investments

	Top 3 Deals		Rest of Market	
	£m	%	£m	%
2005	18.2	20.6	70	79.4
2006	45.6	39.9	68.7	60.1
2007	27.5	23.4	90	76.6

3.7 This suggests that there has been a significant increase (almost 30%) in the flow of funds into the market compared with previous years, to a level comparable with that experienced in 2003 and 2004 (£95m per annum). Most of this capital has been committed by investors located in Scotland, and this suggests that the appetite of such investors has not been exhausted.

3.8 Fluctuation is also the result of cyclical deal flow determined by the length of time taken to exit, and the demand for capital at any point in time. For example, investors may be aware of an impending investment requirement in their existing portfolio, and may be reluctant to fund new ventures during this time. Further research is required into the causes of this.

Investment Numbers

3.9 Third, there has been a significant increase in the number of investments over £2m recorded in 2007, up from 8 (£32m) in 2005 and 9 (£63m) in 2006 to 18 (£75m) in 2007. As a result, median deal size has increased significantly, from £165k in 2005 to £265k in 2007. This trend does not appear to reflect changes in the relative importance of different types of investor in the Scottish market over the three years, as the proportions of deals involving VC, angel and hybrid (mainly SE) investors has remained relatively stable (Figure 14 above).

3.10 These figures suggest that there is a growing demand for funding in the £2m and above range. A significant proportion of this is expansion capital in companies with a considerable appetite for capital: in the period under review, for example:

- Picsel raised £32.2m in 3 deals (having also raised significant sums in the 2000-2004 period);
- Ocean Power Delivery raised £19.3m in 2 deals;
- Intense raised £18.3m in 3 deals;
- WeeWorld raised £10.8m in 2 deals;
- Microsulis raised £8m in 2 deals (having raised significant sums in the 2000-2004 period);
- CriticalBlue raised £4.8m in 2 deals.

3.11 In the period under review, these six companies received over £93m in new investment, accounted for 14 of the 35 over-£2m deals and represented 55% of investments over £2m over the past three years.

3.12 Fourth, there has been a drop in the number of investments reported, which has fallen from 177 in 2005 to 144 in 2007, although average investment size has increased. However, there is no evidence that this represents a drop in the demand for early stage risk capital.

3.13 This drop in investment numbers is most pronounced in the analysis of investment stage (Figures 10 and 11 above): only 10 new (start-up) investments were recorded in 2007, worth £2m, compared with 45 investments worth £15m in 2005.

3.14 There has been a corresponding increase in first round investments (the first full round of funding after start-up) and, more importantly, in funding for the third and subsequent rounds. These figures point to a number of key features in the evolution of the risk capital market in Scotland, which we address in the following section.

Location of Investors and Investments

3.15 There is a relative concentration of investment in the East of Scotland Regional Operations Area, which accounted for 54% of identifiable investment in 2007. A further 34% of investment was made in projects in the West, a figure boosted by the location in that region of a number of the larger (>£2m investment) deals. By contrast, there is less investment in projects in the South and Tayside, and less than might be expected in Aberdeen given the technology focus of industrial development there.

3.16 This geographical concentration of investment reflects a number of factors. First, there will always be an uneven distribution of investable opportunities (attractive potential deals) which reflects the relative dynamism of sub-regional economies. As a result, it would be expected that there will be an east-west difference in investment, reflecting an underlying east-west difference in new business venture creation rates. It would also be expected that there will be a marked urban/rural difference, reflecting both the difference in the scale of these economies (which influences the total number of possible investment opportunities) and differences in the dynamism of these economies, which will be reflected in greater investment in urban economies.

3.17 Second, as access to finance is generally a local matter (early stage investors are predominantly interested in investments no more that one hour travel time from their home or office), the location of investors can shape the location of the investment. Accordingly, the dominance of Edinburgh and the Lothians as an investor location will underpin, at least in part, the concentration of investments in the East. This is not a complete explanation, however.

3.18 For example, there are significant investor pools in regions such as Tayside that invest largely outside the immediate region, reflecting their assessment of the distribution of investment-ready opportunities, and there are significant numbers of high net worth investors and potential investors in the South, Tayside and Grampian who are not investing in their immediate locality either because they cannot find investable opportunities or because they use membership of other, non locally-based, networks and syndicates to source deals.

3.19 As more angel syndicates are formed across Scotland, and as the identifiable supply of risk capital itself encourages the emergence of additional investment opportunities, this pattern is likely to change.

3.20 Third, although the East region dominates in the location of investments, as it has done since market report data was first analysed in 2001, there is little evidence in the figures to suggest that there is any systematic east-west bias in the pattern of investment. As the private investment origin-destination correlation (Table 4) suggests, investors located in a region are most likely to invest in companies located in the same region. More detailed examination of the figures suggests:

- in terms of the flow of capital between regions in Scotland, there are 12 investors in the East who have invested in companies in the West, and 14 investors in the West who have invested in companies in the East, illustrating the two-way flow of investment activity across the Central Belt;
- furthermore, in relative terms, companies receiving investment are more heavily concentrated in the West than are investors, and both the West and East regions account for a higher share of companies than investors - in this sense both regions appear to be importers of investment capital:
  - the West accounts for 34% of companies receiving investment in 2007, but for only 14% of investors;
  - the East accounts for 54% of companies and 32% of investors.
- both the West and East regions are the base for companies receiving investment from two further significant groups of investors:
  - investors located in the South and Tayside - 82% of active investors in these regions in 2007 made investments in companies located in the East or West regions, indicating that the issue over the flow of investment capital is not an East-West issue but an urban-rural issue;
  - investors located in the rest of the UK or overseas - there are 82 companies (25% of the total for which data are available) that received investment from investors outside Scotland, much of which will be second and sub sequent stage investment in growing companies;

- slightly more of these companies were located in the West, implying that once established, companies in the West have the capability to continue to grow as attractive investment opportunities.
- the ability of Scotland to generate early stage investment opportunities that are attractive to outside investors and to effectively market and present these to those investors is an important element in maintaining and developing the dynamism of this market and enhancing its contribution to the emergence of an entrepreneurial Scottish economy.

University Spin-outs

3.21 Overall, around one third of investment activity (by both number and value of investments) is in university spin-outs. The figures are dominated by investment in spin-outs from a small number of research-intensive universities: Edinburgh (£42m), Glasgow (£21m) and Strathclyde (£14m) dominate the figures.

3.22 However, there remain concerns about the longer term growth potential of many of these spin-outs. National statistics suggest that the majority of university spin-outs start and remain small (with employment under 10 and annual turnover less than £1m), and a recent report on Scotland[8] suggests that only 1% of spinouts established during 2000-04 currently employ more than 50 people. In addition, around 30% of spin-outs are no longer trading: on a par with businesses as a whole, but less than might be expected given the level of expertise and support[8].

3.23 This reflects a number of factors, including the pursuit of 'technology-push' rather than 'market-pull' business models for spin-out development by the Universities, access to long-term patient risk capital to support businesses through the research, development and innovation cycle, and the shortage of managerial and leadership talent with experience in the development and growth of early stage commercialisation ventures.

[8] *Scottish University Spin-Out Study,* Targeting Innovation, June 08.

3.24 If the contribution of these ventures to the restructuring of the Scottish economy is to be fully realised, further research into their growth dynamics and constraints on this, and specifically into the role of equity finance in supporting growth, is required.

Segmentation of the Risk Capital Market

3.25 Based on discussions with a number of actors in the market, it does appear that there is a progressive segmentation of the risk capital market taking place.

3.26 Previous analyses have suggested that there are two emerging and separate risk capital markets in Scotland (excluding the very largest transactions): an expansion capital market characterised by VC investment in existing portfolio companies, rather than investment in new ventures, with transaction values in the £1m-£7m range; and a start-up and expansion risk capital market characterised to a larger extent by angel and hybrid investment in new and expanding companies.

3.27 Our analysis suggests that these markets continue to separate, with a number of implications for entrepreneurial ventures seeking to raise capital.

3.28 The 'new deal' market in Scotland remains dominated by angel investors, who are disproportionately involved in providing start-up and first round finance to new ventures. These investors remain the first port of call for growth-oriented and growth-capable early stage ventures seeking equity finance and are the bedrock of funding in an entrepreneurial economy: between 2005 and 2007 angel investment has remained constant at around £15m-£20m annually, and has been more or less matched by drawdown from SE coinvestment funds and by other hybrid investment activity.

3.29 It is clear from the figures, that there are constraints on the supply of start-up investment as investors of all categories move further towards investment in revenue-positive or near-revenue ventures rather than in pre-revenue start-ups. We recommend that a full mapping analysis of the supply of capital for new and expanding ventures in Scotland is undertaken as a precursor to the development of additional support mechanisms.

3.30 Angel activity is now almost completely represented by angel syndicates, the larger of which are organised at two levels: an inner core of active investors and an outer group of more passive investors. As new syndicates form (there are now 18 identified syndicates operating in Scotland) previously active individual investors are now more likely to be investing through syndicates. As a result, although individual angel investments are still being made, these are less common than in the past. Individual angel investments will generally be smaller than angel syndicate investments (typically in the range £50k to £250k rather than £250k to £2.5m).

3.31 Given this, the evolution of the organisation of the angel market may be leading to the re-emergence of an equity gap at the lower end of the scale. This is creating problems for those ventures that require equity investment, probably in a single round, to allow them to develop their product and market position. Given the distribution of wealth and income in Scotland, it is unlikely that this emerging gap will be filled by family and friends.

3.32 Furthermore, there is emerging evidence that angel investors, and in particular angel syndicates, are increasingly investing in follow-on rounds in their existing portfolio companies rather than in wholly new deals.

3.33 This reflects both the desire to maintain control of the investment to secure returns in due course and the absence, or perceived absence, of VC investors willing to provide follow-on finance in deals where they do not already have a seat at the table. This will have the consequence that the flow of capital into investment ready new ventures will be reduced: in part at least, the progressive reduction in the number of investments recorded reflects this trend, and increased deal sizes in reinvestment rounds reduces the capital available for investment in new companies.

3.34 There remains limited evidence of the return to complementarities in the risk capital market, as angel investors make the first round investments and hand over to VC investors for subsequent and larger rounds of investment in the classic 'funding pipeline' model of new venture funding. Instead, we see accumulating evidence of a clearer segmentation between the angel and VC markets. There are a number of reasons for this separation:

- VC investors are reluctant to invest to provide angels with an exit opportunity;
- angel investors are reluctant to accept follow-on VC investment at a flat valuation or in a down round;
- and are unwilling to accept the loss of control and dilution that accepting VC investment represents in the current investment climate.

3.35 As a result, in order to secure adequate returns to their investments, angel investors are increasingly committing to providing follow-on investments to their portfolio companies to the point where an exit through a trade sale (or, much more rarely, a market listing) is possible.

3.36 This has a further consequence for the operation and development of the risk capital market: as angel investors, even when operating in syndicates, as the angel market in Scotland now does, commit to a 'cradle-to-exit' model of investment, the type of company they seek to fund is determined by the amount of capital they are able to commit. Angel syndicates are now prepared to commit to projects requiring overall funding in the range of £1m to £2.5m, and may occasionally go above this, in the case of the larger syndicates with more resources to draw on.

3.37 However, they will not for the most part commit to investing in projects where the identifiable capital needed to develop technology and market position is significantly greater than this. This in turn raises two difficulties:

- first, for such high potential ventures there is an increased barrier to start-up and early stage development as angels do not provide the initial investment and the VCs have withdrawn from the seed and start-up market. The development of high growth potential ventures in Scotland may be constrained as a result;
- second, as entrepreneurial activity is conditioned by perceptions of the level of support available, new ventures with high potential are positioning themselves and modifying their aspirations and business plans to match the sources of funding available. Accordingly, while such ventures may start-up and receive funding, they may deliberately limit their up-side potential to fit the portfolio expectations and investment capacity of their primary investors.

3.38 Unless the structure of the early stage risk capital market in Scotland is addressed, this separation of the angel and VC markets will significantly limit the realisation of the growth potential of high-potential start-ups, and will reduce their contribution to the emergence of a dynamic entrepreneurial economy in the region.

3.39 It is particularly important that the £2-10m funding space is adequately served by supply of finance, given the increasing number of expansion-oriented companies engaging in larger than average deals in 2007. If the pipeline of company development necessary to attract high-end institutional and international capital is to continue, it is critical that deals in this funding space are fuelled by sufficient availability of capital. In future reports it will be interesting to observe the impact of the Scottish Venture Fund in helping to meet this objective.

Market Structure Implications

3.40 Based on the analysis in this report, there appear to be three key areas where the early stage risk capital market in Scotland is not functioning as efficiently or effectively as it could.

3.41 First, although there is significant investment in technology-based companies and in university spin-out companies in particular, this is not associated with significant growth across this set of companies as a whole (although there are significant individual exceptions). There is, accordingly, a need to examine in more detail the funding requirements of these companies to ensure that an appropriate funding pipeline, including both private and public sector sources of equity and quasi-equity finance, is in place to support this critical element of the entrepreneurial Scottish economy and fully capture the benefits of significant expenditure on support for technology development and exploitation.

3.42 Second, the evidence in this report on the distribution of funding by stage of business and size of funding round suggests that there is a constraint on the availability of funding for post-start-up/early stage business development, to support the growth of new ventures into nationally and internationally competitive growth ventures capable of making a significant contribution to the Scottish economy.

3.43 The evidence that the Scottish early stage risk capital market is increasingly characterised as a segmented market, with investors selecting investment targets that they can fund throughout their funding and growth cycle rather than 'hand' them over to other financiers (including regional, national and international venture capital investors), reduces the funding opportunities open to high potential ventures and constrains their ability to develop. A fully-functioning early stage risk capital market in Scotland should be built on the development of greater complementarity between institutional investors and business angel investors to ensure that no entrepreneurial growth opportunity is missed or constrained by the emerging segmentation of the market.

3.44 Third, although not a specific focus of the detailed analysis in this report, there is little evidence that there is emerging in Scotland an effective capital market to support the entrepreneurial exit process, both in terms of the exit of initial investors in the business to be replaced by investors with deeper pockets and the appetite and expertise to further the development of the venture and in terms of the exit of the founder entrepreneur(s), who in many cases will need to (and desire to) make way for a new generation of management to take the business through its next stage of development.

3.45 It is clear that the 'anvil'[2] of previous reports was created by the presence of 'blockbuster' companies active in the first half of the decade, which have yet to be replaced by a new generation of companies. Given the strengthening pipeline of expansion-oriented companies seeking larger deals in 2007; the conclusion in previous reports that the £2-10m funding space is a key area of concern, is amplified in this analysis. The next generation of 'blockbusters' is likely to emerge from companies currently active in this funding space.

3.46 Together these issues point to the need to re-examine the structure of the early stage risk capital market as an integrated system that supports new venture creation, development, expansion and maturity to ensure that the Scottish entrepreneurial system functions as effectively as possible and underpins the development of a vibrant, dynamic and sustainable economy.

Chapter 3 Summary

Geography

- There is a concentration of investment in the SE Regional Operations East area, reflecting the relative dynamism of the East, and urban economies in general;
- The dominance of the East as an investor location will underpin, at least in part, this concentration of investments;

Spinout Companies

- Overall, around one third of investment activity (by both number and value of investments) is in university spin-outs;
- There remain concerns about the longer term growth potential of many of these spin-outs, reflecting limited access to capital and limited management and marketing expertise;
- Further research into growth dynamics and constraints on spinout companies, specifically into the role of equity finance in supporting growth, is required.

Market Segmentation

- A significant increase in the number of investments over £2m recorded in 2007 suggests that there is a growing demand for funding large investments in the £2m and above range;
- Evidence suggests there is a progressive segmentation of the risk capital market taking place - an expansion capital market characterised by VC investment and a start-up and expansion market dominated by angel and hybrid investment;
- This could significantly limit growth potential of high-potential start-ups;
- The 'new deal' market in Scotland remains dominated by angel investors. There are constraints on the supply of start-up investment as angel investors move towards investment in revenue-positive or near-revenue ventures;
- Increased deal sizes in reinvestment rounds reduces the capital available for investment in new companies;
- Angel activity is now almost completely represented by angel syndicates. Although individual angel investments are still being made, these are less common than in the past;
- The evolution of the organisation of the angel market may be leading to the re-emergence of an equity gap at the lower end of the scale;

- The combination of the current squeeze on bank credit, the absence of deep-pocket family and friends investors and the reduced role played by individual angel investors reduces access to capital for mid-growth companies;
- Angel investors, in particular syndicates, are increasingly investing in follow-on rounds in their existing portfolio companies rather than in new deals. This will reduce the flow of capital into investment ready new ventures;
- The type of company angels fund is determined by the total amount of capital they are able to commit - typically £250k to 2.5m in the case of syndicates. This may constrain new high-growth ventures that require total investment in excess of £2.5m.

Market Structure Implications

- This analysis suggests that there is a need to re-examine the structure of the early stage risk capital market as an integrated system that supports new venture creation, development, expansion and maturity to ensure that the Scottish entrepreneurial system functions as effectively as possible and underpins the development of a vibrant, dynamic and sustainable economy.

APPENDIX 1: DEFINITION OF INDUSTRY SECTORS

Digital Markets and Enabling Technologies (DMET)

3.47 DMET is a relatively new classification and requires further description.

3.48 We have based our definition broadly in line with the BVCA definition of 'technology firm', this definition includes the bulk of firms classified under the FTSE sector codes 97 (software and computer services) and 93 (information technology hardware) and the EVCA[9] sectors of 'computers' and 'electronics related'.

3.49 Our definition excludes 'biotechnology' and 'medical' which are included in the BVCA 'technology firm'. Our definition also includes industries enabled by technology such as sustainable transport.

[9] European Private Equity & Venture Capital Association www.evca.com

3.50 The following table lists the specific industries that we have included under DMET.

Table A1: Industries included under DMET
Audio
Digital advertising
Digital display systems
Digital entertainment & games
E-business
Electronics
GPS systems
Infrared sensors
Internet security & services
IT services
IT support
Microelectronics
Mobile software
Optoelectronics
Smartcard manufacturing
Software
Telecoms
web design

APPENDIX 2: METHODOLOGY DETAIL

Stage 1 Collection of Reported Investment Data

3.51 Reported data on early stage risk capital investments in young Scottish companies taking place during 2005, 2006 and 2007 were obtained from a number of authoritative sources including:

- Venture Source – particularly useful to identify investments in larger companies, breakdown investment by stage and identify IPOs;
- Young Company Finance – useful for listing reported deals and reported value of these;
- IDOX – identification of reported deals from a variety of sources;
- Newspaper articles and search engines – particularly larger investments are reported on sites such as www.scotsman.com, although these need to be verified;
- BVCA data and reports – to provide checks on total levels of investment in early stage private equity in Scotland;
- Scottish Enterprise – data on SE investments including BGF, SCF, SVF and SSF funding.

3.52 A key authoritative source of data on early stage investment in Scotland is Young Company Finance, who provided us with a detailed spreadsheet of reported investments.

3.53 YCF provided us with a spreadsheet listing investments reported to have taken place during 2005, 2006 and 2007, giving details of company name, total reported amount invested and the names of institutions or syndicates involved in the deal.

3.54 As a rule, data excluded grant finance, founder finance and financial engineering transactions such as MBO and MBIs.

3.55 The key advantage of this data was to provide us with more detailed investment data than is commonly in the public domain.

Stage 2: Collection of Detailed Investment Data

3.56 The baseline list of investments collated from the sources listed above was a useful starting point. However, the data within this was based largely on reported deals, and therefore transaction values and deal dates were only approximate.

3.57 Thorough analysis required us to identify any investments that had slipped the net, and also required a more detailed breakdown of the exact amount invested by each investor in each company.

3.58 We are in a unique position in the UK, in that detailed records of share allocation and investment are collected by Companies House. This allowed us to acquire data on investment actually drawn down in each company in a given year.

3.59 Obtaining this level of detailed information required us to analyse data on the Return on Allotment of Shares, provided by companies to Companies House on form 88(2), which details allotment of new shares. We analysed over 400 88(2) forms, which provided information on:

- Every equity investment made in each company – exact value of actual flows rather than commitments;
- Details of each investor;
- The number of shares allocated to each investor and the amount paid for these;
- The date or period during which shares were allotted.

3.60 This highlighted a number of unidentified investments and revised investment values.

3.61 The 88(2) records for follow-on deals were also searched. For example, a company receiving investment in 2006 may receive investment in 2007 for expansion that is not reported. The presence of follow-on investments was checked by obtaining 88(2)s for all companies who have already sourced investment since the year 2000.

3.62 For example, in 2007 28 follow-on investments from companies listed for 2005 and 2006 were identified, none of which were in the public domain and could only be sourced from 88(2) returns.

3.63 This was a substantial undertaking - in total 88(2) forms covering over 400 investments were reviewed. This provided us with information on the exact amount invested, by who, and when. It also allowed us to rigorously strip out details of grant and founder finance, and of later stage financial transactions such as MBO/MBIs.

3.64 In line with previous risk capital reports, data from company accounts, sourced from Companies House, was analysed in order to ascertain debt finance that could be regarded as risk capital, i.e. convertible loans. Debt converted to equity was included at the time of conversion rather than at the time of debt issue.

3.65 In addition to the analysis of 88(2) information our compilation of life science investments, previously conducted for Scottish Enterprise was drawn upon.

Stage 3: Analysis of Investments

3.66 With a database of comprehensive and detailed information in investments, we were able to conduct in-depth analysis.

3.67 Initial scoping revealed that large deals over £2m contributed a significant proportion of investment value in both years. For this reason, much of the analysis was performed separately for: all investments; and for all investments excluding these larger deals.

3.68 In summary analysis was conducted to obtain the following information:

- Total investment value and number of deals;
- Median deal size, and interquartile and decile ranges;
- Frequency of investment sizes to provide an indication of the spread of deals by size;
- Geography of deals including origins, destinations and a correlation of both in an origin/destination matrix;
- Types of investor, split broadly into: Angel (syndicates and individuals, but excluding founders); institutions (including Venture Capital firms, banks and other companies); and hybrids (where a share of public sector investment is involved);
- Age of company and stage of development.

3.69 These analyses provided us with investment figures that were then taken for verification as described below.

Stage 4: Verification of Findings and Consultation with Investors

3.70 The aim of this stage was to verify the accuracy of our findings from the analysis as described above, and to consult with investors regarding their investment decisions relating to Scottish companies.

3.71 Specific issues covered during consultations were:

- Verification and feedback on our investment statistics – are they realistic?;
- whether or not they invest in the early stage risk capital market in Scotland;
- the size and nature of this investment – sub-sector, size of company, stage/age of company, geographic location;
- rates of return expected, and how previous investments have satisfied these;
- whether the investors have other knowledge that makes certain investments more favourable, for example personal contacts or recommendations;
- other barriers to investment, for example regulation, high risk, perception of low market growth;
- where barriers exist, what interventions would help attract them to invest in early stage companies?

3.72 In the verification process, the findings on the scale and nature of investment were run past a number of key investment professionals. These people were selected to be able to comment on the scale of our findings, and to suggest useful further analysis and topics for research.

3.73 Those consulted included:

- Business angel syndicates covering the central belt and Highlands and Islands;
- institutional investors, including banks;
- hybrid investors, including Scottish Enterprise and HIE;
- The LINC network;
- A Consultative Group made up of investment professionals and researchers with first hand specialist knowledge of the risk capital market in Scotland.

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