Investment Benchmarking Analysis

Annual Report 2018

Introduction

The purpose of this report is to set the performance of the risk capital market in Scotland in the context of other UK regions and countries, and the Republic of Ireland for the calendar year 2018. The performance of the Scottish risk capital market itself is the subject of a separate report, published annually by Scottish Enterprise.

This report summarises and analyses data on risk capital equity investment during 2018, in companies based in the UK and the Republic of Ireland which are independent (not subsidiaries or branches of larger companies). Deals below £100k are excluded, to make the volume of deals more manageable to analyse. Due to rounding, some totals in the tables throughout this report may not correspond with the sum of the separate figures.

The publicly available information about risk capital investments in the UK is often inconsistent and incomplete. Some investors or investee companies make announcements about deals, but many more do not.

Deals are included whether or not they have been announced in press releases or trade articles; information about deals not announced in this way is taken from Companies House records, which are in the public domain.

It is not always evident whether the announced amount is the total committed deal size (the 'headline' amount), which will typically be divided into separate tranches payable after the investee reaches agreed milestones, or whether it is one of these separate tranches. In addition, there is often a difficulty in establishing whether an announced investment includes grants or loans as well as equity.

This report aims to include the separate tranche amounts of equity capital rather than the full 'headline' figures, since the total announced amount might not be paid in full if the investee fails to meet milestones. It is not always possible to make this distinction, for example in the case of investments by overseas VCs, late filings of forms to Companies House, or the use of convertible instruments which are not straight equity and are therefore not covered by new share issues.

Full details of the methodology used for data collection are given in Appendix 3.

Since 2003, Scottish Enterprise has commissioned and published market research into the operation and performance of the Scottish risk capital market. This report is the second in the series that looks at Scottish performance in a wider geographical context.

This report improves understanding of the scale and characteristics of the early stage risk capital market in Scotland in comparison with other UK countries and regions and the Republic of Ireland. This evidence base and accompanying analysis will help to inform the development and evaluation of policies to stimulate the equity risk capital market in Scotland.

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Highlights

The growth of the UK market fell back slightly

Total investment was £10.3bn, compared with the high in 2017 of £10.9bn

But was still close to record levels

Although total investment declined by 5% from the 2017 peak, deal numbers increased by 8%; this should be seen in the context of investment almost doubling in size when compared with 2016.

The golden triangle retained its dominant position

These three regions – London, East of England, and South East – secured 72% of all deals and 79% of all investment, unchanged from 2017

VC activity slowed in London

A decline of 40% of VC investments in London from 2017 to 2018 may reflect uncertainty about economic conditions

Angel investment and crowdfunding also declined

But by smaller amounts – 14% decline for business angels, and 8% for crowdfunding platforms. There was however a big increase (43%) in crowdfunding campaigns raising over £2m

Most investors made fewer than two deals each in 2018

The market is dominated by a large number of investors of different types focusing on the early stage investment market, but there is a 'long tail' of investors completing a single deal in the year

The digital & IT and fintech sectors comprise half the market

In terms of both deal numbers and amount invested. But average deal values were much higher in fintech companies than digital & IT (£5.4m versus £2.1m)

The life sciences sector saw investment increase by 52%

86% of investment in this sector was in the golden triangle regions

There were increases in both IPO and trade sale exits

From eight IPOs in 2017 to 15 in 2018, and from 135 trade sales to 181. The median time to reach IPO was 11.5 years, and to a trade sale 8.0 years

1. Key findings

This section looks at deal numbers and total amounts invested, region by region[1]. It also examines deal sizes to differentiate between regions in terms of deal sizes and the effect these have on overall investment levels.

1.1 What happened in 2018

A total of £10.3 billion was invested in 3,868 deals in 2018, which is a high level of activity by any standard, although down 5% from 2017's total investment. Deal numbers increased by 8% from 2017.

This total includes deals whether or not they have been announced publicly, and is almost half as much again as the £7bn which Beauhurst gives for announced deals in 2018[2], and almost double the £5.6bn for 2016 (which may partly be explained by recent improvements in data capture).

Risk capital investment in the UK is highly concentrated in the south east of England, in the three regions which throughout this report we refer to as the 'golden triangle' – London, the South East (where the University of Oxford has a major influence in this market), and the East of England (where the University of Cambridge has a similar influence). In 2018 the golden triangle regions accounted for 72% of all deals, and 79% of all investment – almost unchanged from 2017 (72% and 80% respectively).

There has been a global trend for deal sizes to increase in recent years, with new records for high value deals being set with increasing frequency. This trend has been accelerated by private equity and venture capital investors in the USA raising ever larger funds and making ever larger investments. However, in the UK average deal size declined in 2018 to £2.80m from £3.04m in 2017, and the number of very large deals (over £100m) decreased from 15 in 2017 to ten in 2018.

The year saw four UK companies (Revolut, Darktrace, Monzo, Graphcore) reach unicorn status - a valuation of $1 billion or over[3]; this is in stark contrast to the USA, where according to a list compiled by PitchBook[4] there were 54 US companies that passed the $1 billion valuation mark in 2018. China saw 21 unicorns emerge last year, but the UK compares favourably with other areas of the globe; five new unicorns in India, five elsewhere in Europe, and seven in other locations.

PitchBook also observes that the US unicorns are achieving very large exits; there were 33 exits over $1 billion in the USA in 2018[5]. By contrast Funding Circle, the most recent UK unicorn to achieve an exit (in January 2017) raised £300m in its IPO.

The differences in performance of the US and UK markets are long standing. Both markets have seen unprecedented growth since 2016, but the US market continues to be materially different in terms of the scale, amounts raised, time to raise, and size of exits achieved. The examples given

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[1] *This report follows the NUTS classification (Nomenclature of Territorial Units for Statistics), a hierarchical system for dividing up the economic territory of the EU for statistical purposes.*

[2] *Beauhurst: The Deal 2018*

[3] *Beauhurst: UK Startup Unicorns: The complete List, December 2018*

[4] *pitchbook.com/news/articles/unicorn-class-of-2018*

[5] *PitchBook: Inside the boom in $1B+ VC exits, April 2019*

above illustrate the extent of this difference, and suggest that direct comparisons between the US and the UK do not always help in the development of policies to strengthen the market in the UK.

1.2 Regional comparisons (2016 to 2018)

While the UK market stayed steady from 2017 to 2018, with an 8% increase in deal numbers and 5% decline in investment, this pattern was not true of all the UK's regions, as demonstrated in Figure 1 below.

Figure 1: Total deals and amount invested across the regions of the UK & RoI, 2016 to 2018

	Number of deals				Amount invested £m		
	2016	**2017**	**2018**		**2016**	**2017**	**2018**
North East	60	43	70		£60	£148	£283
North West	123	186	188		£199	£602	£348
Yorks & Humber	65	79	105		£141	£110	£222
East Midlands	52	54	62		£88	£70	£83
West Midlands	62	102	106		£61	£140	£338
East of England	185	243	288		£611	£1,301	£1,078
South East	309	455	483		£731	£784	£1,232
South West	118	183	180		£143	£428	£408
London	1,281	1,883	2,002		£3,139	£6,662	£5,877
Scotland	160	236	253		£303	£509	£312
N Ireland	48	40	43		£57	£32	£33
Wales	72	75	88		£59	£98	£105
UK TOTAL	**2,535**	**3,579**	**3,868**		**£5,592**	**£10,883**	**£10,319**
Republic of Ireland	181	163	165		£692	£553	£837

All figures in this report exclude deals under £100k

The pattern of change differed from region to region, with the North East, Yorkshire & Humberside, and West Midlands seeing large increases in investment; 91%, 102%, and 141% respectively. These increases are influenced by the largest deals in each region; in the North East a £149m investment in digital bank Atom, and in the West Midlands a £100m investment in CAD CAM Automotive helped boost the totals in 2018. There were no megadeals in Yorkshire & Humberside, so the increase in investment there was more general.

Across the UK, in 2018 deals over £10m accounted for 5% of all deals by number, but well over half (57%) of all deals by value. In some regions, such as West Midlands and the North East, a larger proportion of investment was in deals over £10m (71% and 68% respectively), but this was due to a small number of exceptional deals. The South East, where deals over £10m amounted to 56% of all investment (close to the UK average), deals across all size bands contributed to the large increase in investment from 2017.

There were some large drops in investment, too. The North West and Scotland were the regions with the greatest decline in investment (-42% and -39% respectively) despite an increase in the number of deals. Deal numbers in the Republic of Ireland stayed static (up by 1%), but there was an increase in investment of just over a half (51%).

Here and elsewhere in this report we are taking two regions – North West, and South West – as comparators for Scotland for special comment, as the investment market in their regions is of a similar scale and understanding the structure of the market in these regions helps to see Scotland's performance in context. The golden triangle regions also provide a necessary comparison, but at a scale which makes direct comparisons less helpful. The Republic of Ireland has a very different market, in terms of company sectors, types of investor, and deal sizes, but these differences also help to appreciate the strengths and weaknesses of the market in Scotland.

The North West and South West regions both saw fewer deals in 2018 than Scotland – 188 and 180 respectively, compared with Scotland's 253 – but had higher overall investment levels - £348m and £408m compared with £312m in Scotland. Investment in the South West was greatly boosted by the £158m Graphcore deal, while the North West, with no deals over £100m, still had investments of £50m (Recycling Lives) and £40m (The Hut Group) to bolster the totals. The largest investment in Scotland was £26m in BrewDog.

1.3 The largest deals

In 2018 there were ten deals of £100m and over across the UK, listed in Figure 2 below. This contrasts with only four for 2016 followed by 15 deals at this level in 2017, and partly explains the slight drop in investment from 2017 to 2018.

Figure 2: Deals of £100m and over

company name	Region	currency	£m	Investors
Greensill	London	\$250	£189	General Atlantic
Supply chain financial services				
Revolut	London	\$250	£180	Draper Esprit, DST Global, Index Ventures, Ribbit Capital, others
Challenger bank				
Graphcore	South West	\$200	£158	Draper Esprit, Amadeus Capital Partners , Atomico, BMW, i Ventures, others
A processor optimised for machine-learning tasks				
Atom	North East	£149	£149	BBVA, Toscafund, others
Digital retail banking service				
Nested	London	£120	£120	Balderton Capital, Northzone Ventures, others
Online estate agency				
Orchard Therapeutics	London	\$150	£118	Agent Capital, ArrowMark Partners, Baillie Gifford, Cormorant Asset Management, others
Gene therapy treatments				
Moonbug	London	\$145	£115	Felix Capital, Fertitta Capital, The Raine Group, others
Entertainment content for children				
Oxford Nanopore	South East	£100	£100	China Construction Bank, Government of Singapore Investment Corporation (GIC), Hostplus, others
Portable DNA and RNA sequencing devices				
CAD CAM Automotive	West Midlands	£100	£100	Red Sun Group
Designs and manufactures vehicle prototypes				
Ezbob	London	£100	£100	Honeycomb Investment Trust
Online business loans				

Six of these ten deals were investments in London companies, with just one elsewhere in the golden triangle. The remaining three deals illustrate the fact that exceptional businesses anywhere in the UK can attract this level of investment but do so only infrequently. Last year, out of the 15 companies which secured investment of £100m or more, there were nine in London, and a further two elsewhere in the golden triangle; the other four companies were in the North West (two companies), North East (Atom, as again in 2018), and Scotland (BrewDog).

Four of the ten companies in the 2018 list were in the fintech sector, a slightly greater proportion than the five out of 15 in the previous year.

As in 2017, most of the £100m+ deals in 2018 had a number of institutional co-investors, but three had a single investor; General Atlantic is a US venture capital firm, Honeycomb Investment Trust is a UK quoted investment vehicle, and corporate investor Red Sun Group is a major manufacturing company in China. Across the two years, the only pattern to be observed is the likelihood that further investments at this level in the future will be made by investors or organisations acting alone, in unforeseeable sectors.

1.4 Deal sizes by region

The following table shows the pattern of investment in different bands of deal sizes and shows the balance in each region between those which have a relatively high number of investments in the lower bands, usually into earlier stage businesses, and those which cover a wide range of ventures, from start-up to scale-up. The figures reflect the fact that only a relatively small number of companies are able to secure larger amounts of investment.

Figure 3: Deal sizes by region & amount invested

	£100k<£0.5m	£0.5m<£1m	£1m<£2m	£2m<£5m	£5m<£10m	£10m<£50m	£50m<£100m	=>£100m	**TOTALS**
North East	32	15	5	9	6	2		1	**70**
North West	82	37	30	22	10	6	1		**188**
Yorks & Humber	48	23	18	5	5	6			**105**
East Midlands	32	8	9	9	3	1			**62**
West Midlands	59	17	11	7	5	6		1	**106**
East	118	44	49	32	20	20	5		**288**
South East	244	72	57	60	25	22	2	1	**483**
South West	107	29	15	17	7	4		1	**180**
London	834	381	282	276	114	98	11	6	**2,002**
Scotland	129	50	32	31	7	4			**253**
N Ireland	23	10	7	3					**43**
Wales	49	18	9	8	1	3			**88**
TOTALS	**1,757**	**704**	**524**	**479**	**203**	**172**	**19**	**10**	**3,868**
Republic of Ireland	47	39	27	28	7	14	3		**165**

Figure 3a: Deal sizes by region & amount invested

	£100k<£0.5m	£0.5m<£1m	£1m<£2m	£2m<£5m	£5m<£10m	£10m<£50m	£50m<£100m	=>£100m	**TOTALS**
North East	£8.6	£10.2	£7.1	£25.7	£38.9	£43.3		£149.0	**£283**
North West	£16.6	£23.7	£38.7	£63.0	£57.9	£98.4	£50.0		**£348**
Yorks & Humber	£11.4	£14.7	£25.4	£15.7	£36.3	£118.3			**£222**
East Midlands	£7.2	£4.8	£11.6	£26.7	£16.6	£16.0			**£83**
West Midlands	£13.4	£12.0	£14.8	£20.2	£36.9	£140.4		£100.0	**£338**
East	£30.5	£30.7	£69.7	£101.7	£134.6	£360.8	£350.1		**£1,078**
South East	£55.6	£50.2	£76.5	£183.1	£172.8	£486.4	£107.1	£100.0	**£1,232**
South West	£25.5	£19.5	£19.0	£55.1	£44.1	£86.4		£158.4	**£408**
London	£197.7	£257.3	£379.1	£827.2	£780.8	£1,901.5	£712.8	£820.9	**£5,877**
Scotland	£32.9	£32.5	£44.6	£85.7	£46.6	£70.1			**£312**
N Ireland	£5.8	£6.5	£9.1	£11.8	£0.0	£0.0			**£33**
Wales	£12.2	£11.6	£11.4	£23.8	£7.5	£38.6			**£105**
TOTALS	**£417**	**£474**	**£707**	**£1,440**	**£1,373**	**£3,360**	**£1,220**	**£1,328**	**£10,319**
Republic of Ireland	£14.9	£29.7	£38.9	£83.4	£53.0	£364.3	£252.9		**£837**

In terms of deal numbers, only London and the South East cover all bands, although the megadeals noted earlier in the North East, West Midlands, and South West extend the range of investment in these regions.

Looking at the bands which account for over half of all investment, in Northern Ireland it is the lowest three bands (£100k - £2m, 65%), in Scotland the next three bands (£2m - £50m, 65%), and in all three golden triangle regions is it the top three bands (£10m - £100m+). Despite not having any deals over £100m, 66% of investment in the East of England was in deals of £10m or more, a greater proportion than the South East (56%) or London (58%).

The comparator regions of North West and South West show a similar pattern, except for the £158m megadeal in Graphcore in the South West, which comprised 39% of investment in the region. Without Graphcore, in both regions more than half the investment was in deals over £5m. In Scotland, 37% of deals were of £5m or more.

In the Republic of Ireland, there are a number of deals in the bands £10m - £50m (74% of total investment) and £50m - £100m (30%). Even without any deals over £100m, this weighting towards higher value deals differentiates the Republic from most of the UK regions, and is likely driven by the presence of US based investors.

1.5 Average and median deal sizes

Differences between regions are highlighted by the variation in average deal sizes. These however are highly affected by the presence or absence of megadeals, so in Figure 4 below we also give the median investment values for each region (the midpoint of the range).

Figure 4: Average and median deal sizes

	number of deals	investment £m	average £m	median £m
North East	70	£283	£4.0	£0.50
North West	188	£348	£1.9	£0.54
Yorks & Humber	105	£222	£2.1	£0.50
East Midlands	62	£83	£1.3	£0.46
West Midlands	106	£338	£3.2	£0.37
East	288	£1,078	£3.7	£0.73
South East	483	£1,232	£2.6	£0.47
South West	180	£408	£2.3	£0.38
London	2,002	£5,877	£2.9	£0.62
Scotland	253	£312	£1.2	£0.46
N Ireland	43	£33	£0.8	£0.41
Wales	88	£105	£1.2	£0.40
UK TOTAL	**3,868**	**£10,319**	**£2.8**	**£0.54**
Republic of Ireland	165	£837	£5.1	£0.95

The effect of megadeals is seen in the North East and West Midlands, and to a lesser extent in the North West, where a high average value is offset by a much lower median. London and the East of England had the highest median investments, even though both regions have large numbers of deals in the lower investment bands, which might have been expected to keep the median figure low.

The effect of high value deals in the comparator regions North West and South West have been mentioned in section 1.2 above. The North West had a median investment value equal to that of all UK regions taken together, whereas in the South West and Scotland the median value was below that level.

1.6 Conclusion

Although the UK risk capital market in 2018 has almost doubled in value since 2016, it saw a slight decrease from the high in 2017. Since 2016 there is more money in the system, concentrated in the golden triangle regions of London, East of England, and South East, but this appears to be counterbalanced by a degree of economic uncertainty.

The golden triangle regions continue to take the lion's share of investment, but within this group, London, partly from the sheer volume of deals, has a wider and more varied spread of investments. Outside the golden triangle, the development of the market is more inconsistent, with increases or decreases in investment heavily influenced by megadeals.

Megadeals have been getting bigger, with the number of deals over £50 million trebling from nine in 2016 to 29 in 2018, although the highest value UK deal over the past three years remains the £389m investment in Improbable in 2017.

The trend towards bigger deals reflects developments in the USA, but at a lesser scale and without the same direct drivers. There are no VC or private equity firms in the UK raising funds of the same size as those in the USA, and consequently not the same competition and availability of capital to make bigger deals. Although there have been investments in UK companies by US VCs and PE firms (and by Japan's Softbank), these are not frequent, but the visibility of the investors and the scale of their funds may have an effect on the aspirations of companies seeking funding and on the outlook of local investors.

In the Republic of Ireland, which is more influenced by the economic environment in USA where many Irish companies have their main marketing operations, investment grew by 51%, coupled with a doubling in average deal size. Scotland by contrast saw decreases in both total investment and average deal sizes; this was also true of the comparator regions, North West and South West.

2. Investors

The reasons for the regional differences in investment are illustrated by differences in the type of investor active in each region, and the range of sectors which generate innovative companies. However, it should be noted that often different types of investor combine to co-invest in a single deal. In this section we look at types of investor, which can be considered under three main divisions: institutional investors, individual investors, and public sector investors.

Institutional investors are fund managers investing from funds raised from third parties, and are broken down into Venture Capital (VC) and Private Equity (PE) firms, corporations and corporate VC funds, and others.

Individual investors, investing in their own name, are divided into angel groups, individual business angels, undisclosed investors (assumed to be individuals), and crowdfunding.

Public sector investors include funds set up by central government, devolved governments, and local and regional government.

Definitions of each category of investor included under these headings are given in Appendix 2.

2.1 Investors by region

Figure 5 below shows the number of deals in which each type of investor participated; the numbers are greater than the numbers of separate deals shown in Figure 1 in section 1 above due to co-investment in the same deals by different types of investor. In the following discussion, and elsewhere in this report, we have where necessary used the term ‘‘participation’ to indicate an investment in a deal whether or not there were co-investors, and limited the term ‘deal’ to indicate the total investment by all investors that participated.

Figure 5: Types of investor, participations by region

	VC & PE	corporate	other private	angel groups	angel	undisclosed	crowdfunding	public sector	**TOTAL**
North East	19	5	6	3	6	23	6	19	**87**
North West	42	3	5	4	8	109	10	30	**211**
Yorks & Humber	23		5	1	1	63	6	8	**107**
East Midlands	12		2		2	40	4	8	**68**
West Midlands	17	4	4	3	3	69	8	7	**115**
East	54	12	36	8	17	180	29	10	**346**
South East	62	17	30	6	10	363	36	12	**536**
South West	19	4	12	4	5	122	29	4	**199**
London	311	84	115	35	139	1,357	198	26	**2,265**
Scotland	62	17	33	60	21	182	17	107	**499**
N Ireland	7		3		4	30	3	7	**54**
Wales	12	1	6	4	11	38	6	34	**112**
TOTALS	**640**	**147**	**257**	**128**	**227**	**2,576**	**352**	**272**	**4,599**
Republic of Ireland	79	5	21	22		57	2	104	**290**

It is not possible to give figures in the same way for the amounts invested by each type of investor, because although the deal totals are known, the amounts contributed by each separate investor in a deal are not usually disclosed, and cannot be easily determined from later records submitted to Companies House.

The ‘undisclosed’ category indicates investments where neither the identity nor the type of investor can be determined, and includes only those deals where no other investor type is known to have co-invested. Although this category accounts for 57% of all investments in 2018 (a little higher than the 50% of investments in 2017), because most of the regular institutional investors and angel groups are tracked separately it is likely that in most cases where the investors are undisclosed they were individuals.

Institutional investors

VC & PE firms invested in all regions, and as a proportion of all participations were particularly active in the North East, North West, and Yorkshire & Humberside.

There were 1,044 participations by institutional investors in 2018, a decrease of 12% from 2017. Most of this decrease can be attributed to a decline from 908 to 640 (29%) in investments by VC & PE firms, whereas the lower level of participations by corporates increased, from 127 to 147 (16%).

The largest decrease in VC & PE activity was in London, where participations fell from 527 in 2017 to 311 in 2018, a drop of 40%. The golden triangle regions as a whole saw a drop of 35%, heavily influenced by London which accounted for 49% of total VC & PE participations in 2018. The other comparator regions, North West and South West, also saw declines in VC & PE participations, of 25% and 53% respectively. In Scotland, VC & PE activity remained constant (68 participations in 2017, 62 in 2018); Scotland had more VC & PE participations than any other UK region outside the golden triangle.

Countering this trend were the North East and Yorkshire & Humber, where participations in the two regions taken together increased by a factor of 1.5 from a low base of 17 participations in 2017 to 42 in 2018.

The highest proportion of deals by VC & PE firms was seen in the North East, where the 19 investments comprised 22% of all investor participations. Six of these deals had investment from the NE Venture Fund (managed by Mercia), part of the £120m North East Fund backed by the ERDF and EIF. This, and the deals from the Northern Powerhouse Investment Fund, seems to have had the effect of attracting investment from VCs in more deals. These included two substantial deals in IT companies – NBS, £32m from LDC, and SalesCycle, £11.5m from BGF Growth Capital – but the remaining deals had a low average value of £1.4m.

In the North West, of the 42 participations by VC & PE investors there were 11 from VC funds focused specifically on the region, including five from the Northern Powerhouse Investment Fund. In Yorkshire & Humberside, with 23 VC & PE participations, there were no investments by locally focused funds, but regular early stage investors were more active here than elsewhere – Mercia in six deals, BGF in five.

Although specialist early stage investors (BGF, Foresight, Maven, Mercia) were prominent in most regions which saw strong VC/PE investment activity, in all cases there were investments from a range of other VC/PE firms, suggesting that more opportunities are becoming available for companies in all regions to secure this form of investment.

Investment by corporates and corporate venture funds were concentrated in the golden triangle regions (77% of all corporate participations). In London, corporate participations increased by a third from 2017 (63 participations in 2017 to 84 in 2018), a contrary trend to the decline in VC & PE activity. There were more investments by corporates in Scotland than in any other region outside the golden triangle.

Although investments by corporates accounted for just 3% of all UK participations in 2018, they were usually of a high value. Eleven of these deals had more than one corporate investor, including a $200m (£158m) investment in Bristol based AI processor developer Graphcore, in which BMW, Microsoft (M12), and Robert Bosch Ventures co-invested with seven VC firms, and a $84m (£65m) investment in Cambridge based therapeutics company Artios Pharma, where four corporates including Novartis and Pfizer joined four VC firms. The 93 deals in which corporates invested had an average value of just over £13m, and in just under three quarters of these deals (72%) they co-invested alongside other types of investor, usually VCs.

The institutional investors group also includes categories such as accelerators, and university funds, but each of these comprised only around 1% of all deals in 2018.

There were 27 participations (0.7% of all) by accelerators in 2018, a small decline from the 31 participations in 2018, and 19 of these were in London. The most active accelerator investors were Entrepreneur First (eight deals), and Pi Labs, Founders Factory, and The Grocery Accelerator (three deals each), all in London, and SeedHaus (six deals) in Scotland. The list also includes three companies which participated in accelerator programmes in the USA. Although accelerators such as SeedHaus provide small amounts of funding while the company works through the accelerator programme (in the case of SeedHaus, £30k per company), most of the deals we have recorded with accelerator participation in 2018 are the amounts secured when the company leaves the accelerator; the average for all the deals in which accelerators invested is £2.7m, but the median is just £600k.

University funds made 44 investments in 2018, a large increase from the 26 in 2017 although accounting for only 1.1% of all participations. The most active of these funds was the University of Cambridge Enterprise Fund (16 participations), with UCL and other London universities involved in nine, Scottish universities in ten (Edinburgh seven, Strathclyde three), and the University of Bristol in four deals. The large investment funds in Oxford and Cambridge (Oxford Sciences Innovation and Cambridge Innovation Capital respectively) are not included in this category, as they are venture capital funds independent of the universities.

Individual investors

Transactions by individual investors (excluding the 'undisclosed' category) fell by 14% from 2017. In this year's report we have introduced a new category, 'angel', to count deals by individual business angels who are not members of groups (see Appendix 2 for further details). This means that many transactions which would otherwise have been shown as 'others', as in our 2017 report are now categorised as 'angels'. Because crowdfunding transactions increased by 9% (from 324 to 352), the overall drop in numbers of transactions by individual investors indicates lower activity by business angels.

This is true of investments (participations) by business angel groups, which dropped by 13%, from 150 to 130. Business angel groups are prominent in Scotland, where they made 60 investments equalling 12% of all participations, and in London, but here the 35 angel group investments comprised fewer than 2% of all participations; no other region came close. Angel groups co-invested with each other in 19 of the 119 deals which had angel group participation. In two cases four angel groups came together in a deal – the £1.5m investment in Glasgow ultrasound sensor company Novosound, and the £1m investment in Rovco, an underwater surveying company based in Bristol in which angel groups Bristol Private Equity, Oxford Investment Opportunity Network (OION), Cambridge Angels, and Green Angel Syndicate co-invested. Angel groups investing in companies in Scotland had public sector co-investment in 47 (85%) out of 55 deals.

Deals involving crowdfunding platforms were seen in all regions. Three quarters of these were in the golden triangle regions of East, South East, and London. However, because of the large volume of investments in these regions, crowdfunding was not the category with largest proportion of participations - VC & PE firms take this place – but account for 8%, 7%, and 9% of all participations respectively. The region with the greatest proportion of crowdfunding participations was the South West, where 29 participations accounted for 15% of all and raised a total of £22.8m; six of these were in deals over £1m, with the largest being a £4.4m deal in Micrima, involving the crowdfunding platform VentureFounders together with the Angel Co-Fund and a VC investor.

Public sector investors

Public sector funds were particularly active in the North East (in 21% of participations), Scotland (23%), and Wales (29%). In the North East, the NE Development Capital Fund (managed by Maven), and NE Innovation Fund (managed by Northstar), are categorised as local government funds, as well as smaller funds such as Finance Durham.

In Scotland, public sector investment came from funds managed by the Scottish Investment Bank, mainly the Scottish Co-investment Fund and Scottish Venture Fund.

In Wales, public sector investment was from funds managed by the Development Bank of Wales, chiefly the Startup & Early Stage Capital Fund and the Wales Business Fund. The Bank invested alone in 18 of the 34 investments which it made, with an average deal size of £410k. The average was much greater - £2.2m - when it co-invested with others, including early stage VCs Maven, Mercia, and Downing, and crowdfunding platform Seedrs. Eight of the 16 deals in which the Bank co-invested were for over £1m, including the largest, a £5m investment in banking software company Vizolution alongside HSBC and Santander amongst others, and the £3.8m investment in mobility specialist manufacturer Middeltons, alongside members of Bristol's Wealth Club investment platform.

2.2 Investors by deal size

This section looks at the size of deals in which each type of investor most usually invests. A region with a strong eco-system is characterised by deals from a range of investors covering smaller investments in start-up companies through to much larger investments as the companies need resources to scale up. Many of the comments in the previous section are reflected in the analysis of types of investor by deal sizes, in Figure 6 below.

Figure 6: Types of investor. participations by deal size

	VC & PE	corporate	other private		angel groups	angel	undisclosed	crowdfunding		public sector		**TOTAL**
=>£100m	8	2	5									**15**
£50m<£100m	14	4	8				4					**30**
£10m<£50m	106	45	45		1	15	33	4		5		**254**
£5m<£10m	105	29	39		2	26	70	6		8		**285**
£2m<£5m	182	23	56		27	60	223	23		35		**629**
£1m<£2m	93	18	40		23	45	309	53		53		**634**
£0.5m<£1m	65	11	21		26	46	478	94		66		**807**
£100k<£0.5m	67	15	43		51	35	1,459	172		105		**1,947**
TOTALS	**640**	**147**	**257**		**130**	**227**	**2,576**	**352**		**272**		**4,601**

As might be expected, institutional investors – VC & PE, corporates, and other private - were involved in more high value deals, compared with individual investors – angel groups, undisclosed, and crowdfunding - where deals are weighted to the lower value bands. However, there are several exceptions to this broad description.

As mentioned above, VC & PE investment was significantly down in 2018 from the previous year; there were declines at all deal sizes, but the largest drop was 60% reduction in VC & PE participation in deals between £50m and £100m, where even a small number of deals make a big difference to overall investment totals.

There was a distinct trend towards larger deal sizes where crowdfunding platforms participated; in 2017 there were 23 crowdfunding participations in deals of over £2m, and this increased to 33 in 2018 (a 43% increase). There was no similar shift in deal sizes for either corporate or public sector investors.

While the majority of successful crowdfunding campaigns secured less than £1 million (not counting those which secured under £100k, omitted from this report), it is clear from these figures that crowdfunding is not restricted to small investments in B2C businesses; these campaigns covered most market sectors except for life sciences (where there were just a handful of deals), with a preponderance of food & drink and fintech companies. The top four campaigns, which each raised over £10 million, were:

- BrewDog, £26m via Equity for Punks, Scotland, food & drink
- Monzo, £20m on Crowdcube, London, fintech
- TransferGo, £14m on Seedrs (with one VC co-investor), London, fintech
- Duedil, £10m via VentureFounders (with three VC co-investors), London, IT

2.3 Most active investors

The following list (Figure 7) shows the most active investors in the golden triangle regions, Scotland, and the two comparator regions closest in scale of activity to Scotland (North West and South West), with the Republic of Ireland completing the analysis. As in Figures 5 and 6 above, the totals are the number of deals in which each investor participated; in many cases there were co-investors, and deals are counted against more than one investor. This is the case for example with angel groups in Scotland, whose deals often have co-investment from a Scottish Investment Bank fund.

As elsewhere in this report, the data is restricted to deals of £100k and over; some categories of investor, particularly angel groups, crowdfunding platforms, and public sector funds, frequently participate in deals under £100k, and the figures in the list therefore understate their overall activity.

Figure 7: Most active investors by selected regions

Manager	fund	investor type	deals
East of England			
Parkwalk Advisors	U of Cambridge Enterprise Fund	other private/university	10
Cambridge Enterprise	U of Cambridge Seed Funds	other private/university	9
Crowdcube		crowdfunding	8
Seedrs		crowdfunding	8
SyndicateRoom		crowdfunding	7
Cambridge Innovation Capital		other private/commercialisation	5
Parkwalk Advisors	Parkwalk Opportunities EIS Fund	VC	5
Amadeus Capital Partners		VC	4
Calculus Capital		VC	4
IQ Capital Fund		VC	4
all others 3 or fewer			
London			
Seedrs		crowdfunding	98
Crowdcube		crowdfunding	87
Localglobe		VC	22
Octopus Ventures		VC	19
Albion Capital		VC	12
Funding London	London Co-investment Fund	public sector/local & regional government	11
Downing Ventures		VC	10
Forward Partners		VC	10
Anthemis		VC	9
Balderton Capital		VC	9
BGF	BGF Growth Capital	VC	9
Seedcamp		VC	9
all others 8 or fewer			
South East			
Crowdcube		crowdfunding	17
Seedrs		crowdfunding	15
Oxford Sciences Innovation		other private/commercialisation	12
Parkwalk Advisors	U of Oxford Innovation Fund	VC	8
SyndicateRoom		crowdfunding	7
IP Group		other private/commercialisation	5
Mobeus Equity Partners		VC	4
Parkwalk Advisors	Parkwalk Opportunities EIS Fund	VC	4
all others 3 or fewer			

Scotland			
Scottish Investment Bank	SCF, SVF, direct	public sector	92
Equity Gap		angel group	18
Par Equity		VC	12
Archangels		angel group	11
Crowdcube		crowdfunding	7
Kelvin Capital		angel group	7
Old College Capital		other private/university fund	7
TRI Capital		angel group	6
Barwell		other private/family office	5
Highland VC		angel group	5
Mercia Technologies		VC	5
Par Equity	Par Syndicate	angel group	5
all others 4 or fewer			
North West			
Maven Capital Partners	NPIF Equity Finance	VC	11
Mercia Technologies	NPIF Equity	VC	8
BGF	BGF Growth Capital	VC	5
Crowdcube		crowdfunding	5
Catapult Venture Managers	GM&C Life Sciences Fund	VC	5
Deepbridge Venture Capital		VC	3
Maven Capital Partners		VC	3
Seedrs		crowdfunding	3
all others 2 or fewer			
South West			
Crowdcube		crowdfunding	20
BGF Growth Capital		VC	6
Seedrs		crowdfunding	6
Parkwalk Advisors	U of Bristol Enterprise Fund	other private/university fund	4
Bristol Private Equity Club		angel group	3
Balderton Capital		VC	2
Draper Esprit		VC	2
IP Group		VC	2
Development Bank of Wales	Startup & Early Stage Capital	public sector	2
Syndicate Room		crowdfunding	2
all others 1 deal only			
Republic of Ireland			
Enterprise Ireland		public sector	103
Atlantic Bridge		VC (USA)	19
Delta Partners		VC	12
ACT Venture Capital		VC	8
Frontline Ventures		VC	6
Halo Business Angel Network (HBAN)		angel group	5
Wesleyan Investment Foundation (WIF)		other private/ charitable foundation	5
Growing Capital		VC	4
Investec		VC (UK)	4
NDRC		VC	4
all others 3 or fewer			

It is apparent that the majority of investors only make one or two investments per year. Crowdfunding platforms are shown amongst the most active investors, but are vehicles for investment rather than investors in their own names. Removing the crowdfunding platforms from the above lists would leave a small number of specialist early stage VCs, commercialisation companies and university funds, and in Scotland the angel groups.

The strength of the crowdfunding platforms in the golden triangle regions is perhaps surprising given the range of other forms of investment available, but can be ascribed to vigorous entrepreneurial ecosystems, which in the case of Oxford (South East) and Cambridge (East of England) have also seen the creation and strong growth of funds dedicated to supporting companies emerging from these universities, including independent investors Oxford Sciences Innovation and Cambridge Innovation Capital (both included in the above lists) as well as the universities' own funds. This has formed the basis of an ecosystem where commercialisation investors such as IP Group and its subsidiary Parkwalk Advisors can put together large investments including these funds, and draw in a range of other institutional investors, especially in the life sciences sector with corporate funds such as Syncona, Pfizer, and Novartis.

By contrast with Scotland and the Republic of Ireland, the North West and South West regions have few investors making more than a couple of deals per year. In the North West the Northern Powerhouse Investment Fund set up by the British Business Bank, is again the most active investor in the region as in 2017.

Scotland stands apart from the other selected regions in the high level of activity of its angel groups, and in the large number of deals in which Scottish Investment Bank co-invested with partners (or, less frequently, invested alone).

Crowdfunding fills a gap in investment activity in the North West and South West, which is covered in Scotland by angel groups and in the Republic of Ireland by local VC investors.

Specialist early stage VC investors such as BGF, IP Group, Maven, and Mercia make multiple appearances in the list (Mercia appears twice in the North West list, once as manager of the NPIF Equity fund, and once investing from its own balance sheet). Of these four, only Mercia appears in the Scotland list of investors completing over four deals for the year, although the others are active in Scotland as in other regions, but in fewer deals.

In the Republic of Ireland, the public sector agency Enterprise Ireland participates in a majority of the deals. Much of the investment activity in the country is led by VC firms. The Republic has a number of indigenous VC firms and has also been successful in attracting VCs from elsewhere, notably the USA (24 VCs in deals in 2018), UK (6), elsewhere in Europe (9), and even China (2). This is a significant advance on 2017 and helps account for the large number of deals over £10m, which comprised over 75% of all investment in 2018.

2.4 Focus on Scotland

Investments by institutional investors stayed steady from 2017 to 2018. There were 68 investments by VC & PE firms in deals in 2017, and 62 in 2018; 18 investments by corporate investors in 2017, and 17 in 2018. Other institutional investors were much more active, from 15 investments in 2017, to 33 in 2018; these were mainly universities (10 investments), and private investment vehicles such as Barwell, ChimaeraBio, and AeroDen (8 investments).

Angel groups remain a major factor in the market in Scotland. In the 55 deals in Scottish companies in which angel groups were the lead investor, 12 (22%) had VC or corporate co-investors, and angel groups co-invested with public sector funds in 85% of deals in 2018.

VC & PE investors were also present in 46 deals which had no angel investors, and came from a range of different locations and sectors; there were some 20 different VC & PE firms making investments in Scottish companies in 2018.

With crowdfunding platforms participating in just 15 deals over £100k in Scotland in 2018, this type of funding is less prevalent than in other regions. There does appear to be a divide: From Midlands North there is relatively low crowdfunding activity and in this respect Scotland fares very well in comparison. It is in regions south of the Midlands where crowdfunding appears to have taken off. While we have explained the relative lack of crowdfunding deals in Scotland as angel groups taking up these opportunities, we cannot use the same explanation for North West, North East, Yorkshire & Humberside, East and West Midlands. Appreciate there are multi-faceted reasons at play from sectors to platforms to ambitions and dominant funding routes. Excluding the BrewDog Equity for Punks campaign which raised £26m, the remaining campaigns had an average value of £690k. The largest of these was the £3.2m raised on the Seedrs platform by Lockerbie 'plastic road' company MacRebur.

2.5 Summary

- For analysis purposes we have divided investors into three main groups – institutional investors, individual investors, and public sector investors.
- Of the institutional investors, Venture Capital & Private Equity firms made investments in all regions of the UK, and in the Republic of Ireland; particularly in the four North of England regions, the deals in which they invested outnumbered those from other types of investor.
- In the North of England, funds with public sector backing (Northern Powerhouse Investment Fund, North East Venture Fund) appear to be having a catalytic effect, with other VC/PE firms coming to the area.
- There is a small number of specialist early stage investors, such as BGF, Maven, and Mercia, which invest across several sectors and UK regions.
- Investments in which corporates and corporate venture funds participate account for only 3% of all deals, and are concentrated in the golden triangle regions.
- Corporates co-invest with VCs in 75% of their deals, which have a high average value of £13m.
- There are more investments by business angel groups in Scotland and London than in other regions; in Scotland these investments comprise 13% of all participations, but in London just 2%.
- Angel groups in Scotland have co-investment from public sector funds in 85% of deals.
- Deals involving crowdfunding platforms were seen in all regions, but are heavily concentrated (75% of all campaigns) in the golden triangle.
- Institutional investors have more high value deals than individual investors, but due to the influence of small, specialist, and local funds are present at all levels of investment.
- Conversely, deals in which individual investors participate are weighted to the lower value bands, but there are also many high value deals with individual investors – 30 angel group deals and 33 crowdfunding campaigns secured over £2 million.
- Crowdfunding platforms are amongst the most active investors in many regions, together with specialist early stage VCs and locally targeted funds. In Scotland, angel groups are among the most active investors.
- The Republic of Ireland has attracted investment from locally based and international VCs around the world. Of some dozen VCs in the Republic, five were particularly active, making a total of 34 investments between them. 2018 also saw investments by over 40 VCs from across the USA, Europe, and China.

3. Companies and sectors

3.1 Sectors by region in 2018

Regions can be characterised by the different market sectors on which they focus, often a consequence of the industrial or economic history of the area. In this section we break down investments by the sectors to which investee companies belong.

There is no single way of allocating companies to market sectors which paints the whole picture, because companies usually have multiple activities and multiple target markets for their sales. We can differentiate between what the company does – manufacture, write software, assemble, research, distribute, test, consult, and many others – and the markets into which it sells, and many companies are difficult to assign to a single sector because of this range of attributes.

In this report we have allocated each company to a single sector on a 'best fit' basis. The sectors chosen for analysis are a combination of those representing an activity (fintech, business services) or a target market (food & drink, oil & gas). Further details of the selected sectors, and the criteria used to assign companies to different sectors, are given in Appendix 2.

Figure 8: Sectors by region, deal numbers

	digital & IT	fintech	technology & engineering	life sciences	other energy	oil & gas	renewables	food & drink	business services	other	**TOTAL**
Deal numbers											
North East	25	1	10	9	6		5	8	3	3	**70**
North West	75	7	11	33	2		7	8	19	26	**188**
Yorks & Humber	35	1	19	12			4	8	15	11	**105**
East Midlands	14	1	10	8			2	13	3	11	**62**
West Midlands	43	4	11	8	1		6	9	10	14	**106**
East	101	13	27	73	2	1	9	26	12	24	**288**
South East	153	19	49	75		8	21	47	50	61	**483**
South West	55	9	17	10	2	1	9	32	19	26	**180**
London	980	267	57	67	12	7	31	180	169	232	**2,002**
Scotland	82	7	26	44	2	7	15	35	17	18	**253**
N Ireland	24		5	6				3	4	1	**43**
Wales	25	7	11	15			8	2	10	10	**89**
TOTALS	**1,612**	**336**	**253**	**360**	**27**	**24**	**117**	**371**	**331**	**437**	**3,868**
Republic of Ireland	54	25	11	52	11					12	**165**

Figure 9: Sectors by region, amounts invested

Amounts invested, £m	digital & IT	fintech	technology & engineering	life sciences	other energy	oil & gas	renewables	food & drink	business services	other	**TOTAL**
North East	£71.0	£149.0	£4.1	£25.4	£7.5		£12.5	£6.3	£6.1	£0.9	**£283**
North West	£137.9	£7.3	£19.4	£54.1	£1.5		£52.7	£22.3	£21.8	£31.1	**£348**
Yorks & Humber	£29.0	£0.6	£37.5	£16.4			£9.6	£3.4	£92.0	£33.4	**£222**
East Midlands	£18.4	£6.2	£27.0	£9.8			£1.3	£11.0	£0.6	£8.4	**£83**
West Midlands	£39.4	£12.9	£105.4	£39.4	£9.5		£4.0	£55.3	£51.1	£20.7	**£338**
East	£153.8	£18.8	£139.6	£650.7	£0.7	£0.6	£20.8	£32.4	£14.8	£45.8	**£1,078**
South East	£275.3	£19.0	£187.9	£447.7		£50.3	£85.8	£32.2	£60.8	£72.8	**£1,232**
South West	£59.6	£24.7	£233.1	£8.0	£0.3	£0.2	£9.4	£19.9	£16.8	£36.1	**£408**
London	£2,446.5	£1,521.9	£154.9	£400.9	£88.4	£5.0	£44.0	£255.3	£516.3	£444.1	**£5,877**
Scotland	£79.4	£7.0	£29.4	£68.4	£0.4	£11.7	£28.2	£47.6	£30.3	£10.1	**£312**
N Ireland	£13.6		£3.8	£9.6				£0.6	£5.3	£0.4	**£33**
Wales	£21.0	£34.9	£12.5	£14.9			£8.0	£0.6	£7.5	£5.8	**£105**
TOTALS	**£3,345**	**£1,802**	**£955**	**£1,745**	**£108**	**£68**	**£276**	**£487**	**£823**	**£710**	**£10,319**
Republic of Ireland	£160.7	£140.8	£25.6	£336.6	£145.9					£27.3	**£837**

Half of all deals and half of all investment in 2018 were in the **digital & IT** and **fintech** sectors taken together. However, the fintech sector had a much higher average value (£5.4m) than digital & IT (£2.1m), due to the number of high value deals – in the fintech sector, 12% of deals were over £10m, compared with 4% for the digital & IT sector.

London dominates these sectors, and its share of the market has increased. In 2017, London accounted for 63% of all deals across the UK in the digital and IT sector, and 60% of investment. In 2018 London's share of digital & IT deal numbers stayed much the same (61%), but its share of total investment in the sector had increased to 73%. This amounted to six times the number of deals as the next ranking region (South East), and nine times the investment. London captured investment in fintech even more dramatically, with 14 times as many deals as in the South East, and 10 times the value of the North East, the next ranking region with its Atom deal.

Outside London, digital & IT deals counted for 40% of the total in the North West and West Midlands, and for 56% in Northern Ireland, although shares of total investment in each region were affected by large deals across the board; in the North West digital & IT took 40% of investment in the region, in the West Midlands only 12%, and in Northern Ireland 41%. In Scotland the number of digital & IT deals was 32% of the total, and they secured 25% of the investment.

The **life sciences** sector increased by 10% in deal numbers from 2017 to 2018, and by 52% in total investment, with an increase in average deal values from £3.5m to £4.9m. In 2018 the golden triangle regions took 86% of all investment in the sector. Reflecting the strength of research at the University of Cambridge, 16 of the 73 deals in the East of England had values over £10m, making this sector by far the largest contributor to total investment in the region (60%). London had eight life sciences deals out of 67 over £10m, making the sector still a significant presence, but at 7% of total investment in the region proportionately less so than other sectors. The South East (with the

University of Oxford) lagged the East of England, with 10 of its 75 life sciences deals being over £10m.

In 2018 the number of deals in the **technology & engineering** sector stayed the same as in the previous year, but investment increased by 82%, with the average value of £2.1m in 2017 increasing to £3.8. As might be expected, regions with a strong manufacturing history are host to companies which have been able to secure investment in the sector; technology & engineering accounted for 33% of investment in the East Midlands in 2018, 31% in West Midlands, and 57% in the South West. In the West Midlands the £100m investment in CAD CAM Automotive was a major contributor to the total, as was the £158m investment in Graphcore in the South West. In Scotland companies in the technology & engineering sector secured 10% of all deals in the region, and 9% of all investment.

The **energy** and **oil & gas** sectors saw relatively few deals – only 2% of all, by both number and value – but there was a little more investment in **renewables** companies – 3% of all. Two deals in the South East, in electric vehicle company YASA Motors and fusion energy pioneer Tokamak Energy, accounted for £50m of the £85m renewables investment in the region. The largest deal in the sector was a £50m investment in a North West waste management and recycling business, Recycling Lives. In Scotland, deals in the energy and oil & gas sectors taken together accounted for just 4% of the total, raising 4% of all investment in the region; the renewables sector did better, with 6% of deals and 9% of investment, thanks to four deals over £2m, headed by the £7.6m investment in Faraday Grid and £6m investment in 3F Bio.

Another sector dominated by companies in London is **food & drink**, which had 51% of the deals and 52% of the investment. Five of the ten deals over £10m in the sector were in London companies, with one each in the East of England, Scotland (BrewDog), and West Midlands, and two in the North West. Of these ten deals, five involved food processors of different descriptions, from brewing to meal replacement powder, and five were in restaurants and bars, and food outlets.

Companies in the **business services** sector which secured investment in 2018 were distributed across the regions, with a slightly large concentration – approximately 10% of total deal numbers – in Yorkshire & Humberside, South East, South West, and Wales. Three large deals in Yorkshire & Humberside made this the largest sector by value – brand reputation management company Crisp (£19m), estate agency Linley & Simpson (£10m), and gym chain Xercise4Less (£42m). In Scotland, companies in the business services sector took 7% of all deals and 10% of all investment, with the £15m investment in opthalmologists Duncan and Todd a long way ahead of the rest.

The **others** sector includes all companies which cannot be assigned to any of the sectors described above, and includes business in fields such as entertainment, film, TV, clothing, agriculture, packaging, and many more. Although this had the second largest number of deals in 2018 after digital & IT, it was only sixth in terms of amounts invested with a low average value of £1.6m, compared with £2.7m for all deals in the year.

3.2 Republic of Ireland

TechIreland produces data on investment in the Republic of Ireland, and uses its own sectors for market analysis. Figure 9 below gives the TechIreland sectors, and the equivalents for the sectors used in this report. Deals in the Republic of Ireland are converted from euros to sterling for the month in which the deal was completed, and as elsewhere in this report deals under £100k are omitted.

Figure 10: Main sectors by deal numbers and amounts invested, Republic of Ireland

TechIreland	***equivalent***	**deals**	**% of all**	**investment**	**% of all**	***average***
Agri/ food	life sciences	7	*4%*	£18.1	*2%*	*£2.6*
Consumer/ ecommerce	digital & IT	10	*6%*	£15.2	*2%*	*£1.5*
Education	digital & IT	2	*1%*	£0.9	*<1%*	*£0.4*
Enterprise solutions	digital & IT	29	*18%*	£137.7	*16%*	*£4.7*
Entertainment/ sport	other	8	*5%*	£18.1	*2%*	*£2.3*
Fintech	fintech	25	*15%*	£140.8	*17%*	*£5.6*
Green/ energy	energy	11	*7%*	£145.9	*17%*	*£13.3*
Health/ medical	life sciences	45	*27%*	£318.8	*38%*	*£7.10*
Industrial technologies	technology & engineering	8	*5%*	£20.5	*2%*	*£2.6*
Security/ safety	technology & engineering	3	*2%*	£5.2	*1%*	*£1.7*
Social media/ advertising	digital & IT	6	*4%*	£2.2	*<1%*	*£0.4*
Telecomtech	digital & IT	7	*4%*	£4.7	*1%*	*£0.7*
Travel	other	4	*2%*	£9.2	*1%*	*£2.3*
TOTALS		**165**	*100%*	**£8.7.0**	*100%*	***£5.1***

The market in the Republic of Ireland is concentrated on the digital & IT and life sciences sectors. Taken together, these accounted for approximately 64% of all deals and 59% of all investment in 2018. The fintech sector, in effect a subgroup of digital & IT, was also strong, although with a lower average investment than the main TechIreland categories of enterprise solutions and health/medical.

The largest deal in the Republic of Ireland in 2018 was an investment of €101m (£89m) in Intercom, a developer of customer acquisition software (digital & IT sector). This was closely followed by a €100m (£89m) investment in AMCS Group, which develops software for the waste and recycling industry (energy sector).

The largest deal in the life sciences sector was a €85m (£75m) investment in medical device company GC Aesthetics.

3.3 Focus on Scotland

The sector analysis in Figure 8 enables us to look at Scotland's strengths and weaknesses in investment totals, compared with other regions of the UK. Two sectors, life sciences and food & drink, accounted for a larger share of investment in Scotland than elsewhere; life sciences investment was 22% of the total in Scotland, compared with 17% for all UK regions, and the corresponding figures for food & drink are 15% of investment in Scotland versus 5% for all of the UK. Of the 35 deals in the food & drink sector in Scotland in 2018, approximately half were in brewers or distillers, and totalled £37m, 77% of all investment in the sector. A single deal - BrewDog's £26m crowdfunding campaign – comprised more than half the food & drink sector total, and 8% of all investment in Scottish companies in 2018.

Scottish companies were less prominent in a couple of other sectors. As mentioned above, London dominates the fintech sector, but five other regions had more deals than in Scotland, and seven had more investment in this sector. There were only four Scottish companies in the fintech sector securing funding in 2018 - Qikserve (2 deals), LendingCrowd, Mark to Market, and PaymentCentric.

3.4 Summary

- The digital & IT sector was the largest sector in most regions.
- London dominated the digital & IT sector, with 9x the investment in the next ranking region (South East); it was even more dominant in fintech, with 10x the next ranked total (North East, with a single deal).
- The golden triangle regions took 86% of all investment in life sciences.
- Regions with a history of manufacturing activity - East and West Midlands, and South West - had a greater proportion of investment in technology & engineering than other regions.
- The conventional energy and oil & gas sectors saw relatively few deals; there was a little more investment in renewables companies, but taken together these sectors secured only 5% of total investment across the UK.
- Over half the investment (53%) in the food & drink sector went to companies in London.
- Investment in the business services sector was distributed across the regions, with a slightly larger concentration in Yorkshire & Humberside (where three large deals of £10 and above made a difference), South East, South West, and Wales.
- Investment in the Republic of Ireland focused on the digital & IT and life sciences sectors, which together accounted for 59% of all investment.
- In Scotland two sectors, life sciences and food & drink, accounted for a larger share of investment than elsewhere. Two other sectors, fintech and energy, did not attract significant investment.

4. Exits

One of the risks facing investors in early stage private companies is lack of liquidity – their capital is tied in to the investee company, because their shares cannot usually be sold to a third party until there is an exit event such as a trade sale or initial public offering (IPO). There are exceptions when shares can be sold to other shareholders in the same company, or to institutions in the secondary market, but these transactions do not add new investment to the business. As a general rule the private equity / venture capital asset class is intended to be a long-term investment for buy and hold investors, who can meet the requirement for follow-on investment in portfolio companies, and can only generate a return on investment when a portfolio company is acquired or admitted to a public stock exchange. The same applies to business angel investors.

As its name implies, the risk capital market is hazardous, and many investee companies fail to fulfil their promise. Investors typically support portfolios of companies, hoping that a small number of exits will more than counterbalance the failures, and these investors would no doubt leave the market unless convinced of this possibility.

This section focuses on IPOs and trade sales as exits for investors.

4.1 Key trends in the market

Globally in the risk capital market, 2018 was characterised by declines in deal numbers but big increases in deal sizes, for all types of transaction including investments, IPOs, and M&A (mergers & acquisitions, ie trade sales). This trend has been driven by the large amounts of money going into big PE (private equity) firms in the USA, which in turn make very large investments and look to make returns from very large IPOs. Much of this activity has been in deals over $100m, giving unicorn valuations of $1bn and over. Deals and valuations at this level are exceptional outside the USA, although some investors, including sovereign wealth funds and Japan's Vision Fund, also operate at this exceptional scale.

The result has been that, in the USA at least, companies have been able to secure larger investments and delay or avoid an exit by means of an IPO. CB Insights[6] describes this trend:

"Across industries, mega-rounds have emerged as a legitimate alternative to going public to raise money. With more and more late-stage capital coming into startups, companies don't need to submit themselves to public scrutiny and markets in order to fund their operations."

These mega-rounds of $100m or more reached records levels in 2018, mainly in the USA and China. Crunchbase reports[7] that US companies raised 127 'supergiant venture funding rounds' ($100m and over) in the second half of 2018, and Chinese companies raised 95 such rounds, after a decline towards the end of the year. Elsewhere in the world, the second half of 2018 saw 68 such supergiant rounds. These deals now comprise a large part of the market; according to Crunchbase, in all of 2018 more than 56% of the reported capital raised by private tech companies was closed in these supergiant venture funding rounds.

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[6] *CB Insights: Why Aren't Fintech Companies Going Public?*

[7] *Crunchbase News Q4+2018 VC Report*

Stock exchanges in the USA and UK had different fortunes in 2018. The figures for the London Stock Exchange's AIM exchange[8], the most likely destination for early stage companies with risk capital investment, show that 2018 was down on recent years. In 2018 there were 52 new listings of UK companies, raising a total of £1,563m; the figures fluctuate from year to year rather than follow an identifiable annual trend, but the 2018 figures can be compared with a five year average of 63 new listings per year, raising an average of £1,619m per year. Although overall totals were down in 2018, individual deals were considerably higher in value; the average amount raised in 2018 was £30m, compared with an average over the five period of £25m.

In the USA, the stock exchanges were buoyant in 2018. According to Renaissance Capital[9], the IPO count rose to 190 deals in 2018, an increase of 19%, with proceeds up by 32%. Ten of these IPOs raised $1 billion or more, in a different league from those in the UK or Europe.

Turning to trade sales, PitchBook notes[10] that "2018 marked the sixth straight year that the total value of European M&A activity surpassed $1 trillion, but it was also the third straight year in which total deal count fell", and did so precipitously (a 30% decline). PitchBook goes on to note that "the median EV/EBITDA multiple [a measure used by investors to compare companies' valuations] on the continent rose to 9.6x, the highest level on record, reflecting the competition for assets", and more than double what they were eight years ago – in other words, large amounts of money looking for revenue generating investment opportunities. PitchBook ascribes this increase in valuations to the increasing role of private equity in trade sales (as opposed to equity investments): "from 2010 to 2015, PE's share of M&A activity hovered between 25% and 26%, before beginning a steady rise; by 2018, PE firms were responsible for more than a third of all takeovers".

4.2 IPOs

The following list of 2018 IPOs focuses on companies in the UK with high growth potential, and omits those which were more than 25 years old at the time of flotation, and those which as far as we can tell had no previous equity investment from independent investors.

[8] *LSE AIM Primary & Secondary Markets Factsheet*

[9] *US IPO Review, Renaissance Capital*

[10] *PitchBook 2018 Annual M&A Report*

Figure 11: IPOs in 2018

company	region	sector	admission date	raised £m	exchange & symbol	age in yrs
Acacia Pharma	East of England	life sciences	05-Mar-18	£35.6	Euronext:ACPH	11.5
Ranplan	East of England	digital & IT	28-Jun-18	£5.3	NASDAQ:RPLAN	11.5
MeiraGTx	London	life sciences	08-Jun-18	£75.0	NASDAQ:MGTX	3.2
Autolus	London	life sciences	22-Jun-18	£113.1	NASDAQ:AUTL	4.0
FarFetch	London	digital & IT	21-Sep-18	£514.2	NYSE:FTCH	10.9
Funding Circle	London	fintech	28-Sep-18	£300.1	LSE:FCH	8.7
Orchard Therapeutics	London	life sciences	31-Oct-18	£177.4	NASDAQ:ORTX	3.2
The Panoply	London	digital & IT	04-Dec-18	£5.0	AIM:TPX	2.0
FinnCap	London	business services	05-Dec-18	£3.7	AIM:FCAP	11.7
Immotion Group	North West	digital & IT	12-Jul-18	£5.8	AIM:IMMO	0.8
AJ Bell	North West	business services	07-Dec-18	£169.3	LSE:AJB	16.4
Nucleus	Scotland	fintech	26-Jul-18	£32.1	AIM:NUC	12.3
Trackwise	South West	technology & engineering	31-Jul-18	£5.5	AIM:TWD	18.4
i-nexus	West Midlands	digital & IT	21-Jun-18	£10.0	AIM:INX	16.7
SimplyBiz Group	Yorks & Humber	business services	04-Apr-18	£30.0	AIM:SBIZ	15.3

These companies took on average just under ten years from incorporation to reach IPO (the median value is 11.5 years), although the list excludes companies over 25 years old which are not characteristic of the risk capital market, which is more the province of companies at the start-up and scale-up stages.

The fifteen IPOs above have a median value of £32 million, but an average of £99m thanks to the two exceptional instances, FarFetch and Funding Circle. Prior to IPO, these fifteen companies had raised very different aggregate amounts of equity investment, from £0.5m in the case of Nucleus to £516m in the case of FarFetch. Three of the companies which had secured the most investment before IPO failed to match this investment with the proceeds of the IPO (Orchard Therapeutics, Autolus, and MeiraGTx, all in life sciences); this is partly explained by the fact that all three issued new shares on NASDAQ, and continue to have existing unquoted shares held by previous investors. Most of the IPOs on NASDAQ raised more than those on AIM, which averaged £13m.

Half the companies in the list are based in London; elsewhere in the golden triangle regions there were just two IPOs in 2018 in the East of England, Acacia Pharma and Ranplan. This is a similar pattern to 2017, when half the 12 companies completing IPOs were based in London, including Keystone Law which raised the largest amount, £90 million.

The only Scottish company in this list is Nucleus, a fintech company which has developed a wrap platform (a means of consolidating and managing an investor's investment portfolio and financial plans).

4.3 Trade sales

IPOs remain few in number, and the main exit route for investors is by way of a trade sale. The following table shows the number of companies known to have raised £100k or more in equity which were acquired in 2018, and which were under 25 years old at the date of the acquisition.

Figure 12: Trade sales in 2018

	count	average age	with values	total value £m	average value £m
North East	4	11.0	1	£22.4	£22.4
North West	10	10.1	2	£176.0	£88.0
Yorks & Humber	4	14.6	1	£16.9	£16.9
East Midlands	6	9.0	0		
West Midlands	6	11.6	0		
East	11	8.4	2	£215.0	£107.5
South East	27	13.4	4	£707.7	£176.9
South West	11	9.2	2	£641.0	£320.5
London	83	8.0	7	£292.0	£41.7
Scotland	10	10.4	0		
N Ireland	1	7.9	0		
Wales	8	13.7	1	£13.4	£13.4
TOTALS	**181**	**9.8**	**20**	**£2,084.4**	**£104.2**

As shown in the table, the price of the acquisition is announced in only a small proportion of trade sales, although the age of the companies is known for all. The average age of 9.8 years is affected by heavy weightings of older companies in Yorkshire & Humber, Wales, and the South East – the median age for all 181 companies at the time they changed hands was 8.0 years, a little lower than the average.

The data about these transactions indicates the identity of the acquirer and differentiates between corporates (companies trading usually in the same sector as the acquired business) and PE investment funds making acquisitions which they can help to grow towards a further exit. PE equity funds account for only 15% of acquisitions, and the companies they acquired are concentrated in London (50%).

The largest trade sale in 2018 included in these figures was the acquisition of Bristol University spinout Ziylo, which is developing a new version of insulin, able to adapt to glucose levels in the blood. Ziylo was bought by global healthcare company Novo Nordisk for a reported $800m (£623m). Of the 20 transactions where we have details of the sale price, six were for over £100m, and the average value (shown above, and influenced by the Ziylo deal in particular) was £104m, but the median was just £25m. Owing to the large proportion of deals for which we have no information about value, these figures cannot be taken as representative of the whole set.

Companies in the golden triangle regions accounted for two thirds (67%) of all trade sales in 2018; London alone accounted for almost half (46%).

On a like for like basis (omitting companies which had not previously raised equity investment, or were over 25 years old), there was a big increase in trade sales from 2017 to 2018 – from 135 deals to 181, a 34% jump. The majority of regions however saw little change in trade sale numbers, and the increases were concentrated in London, which saw 35 more transactions than in the previous year (a 73% increase), the South West, increasing from 3 to 11 deals, and Scotland, doubling the count from 5 to 10 trade sales.

There are no values for any of the ten trade sales in Scotland in 2018, even for the most reported deals – Edesix, a developer of body-worn cameras, acquired by AI and data analytics company Vigilant Solutions in California, and cyber-security company ZoneFox, acquired by Fortinet, another cyber-security company also based in California.

Few of the companies making acquisitions in 2018 were well-known names, the majority being medium sized companies buying businesses in their own sector. Large companies in the UK making acquisitions included BP, Shell, and the John Lewis Partnership, each making one acquisition. Of the 17 immediately recognisable US acquirers, some were traditional businesses in the IT and related sectors (Apple, Amex, Oracle, HP) and others include Facebook and Google (two deals), as well as unicorn Lyft before its IPO last month, acquiring AR animation company Blue Vision Labs. All the acquisitions by these US companies were in the golden triangle regions, except for the purchase by Charles River of KWS BioTest, based in Wales, for £18m.

Besides Google, a small number of other companies made two acquisitions in the year – online estate agency eMoov, JLT Employee Benefits, and Scottish PE fund Inverleith, which acquired Good Hemp and Planet Organic. Some other companies in Scotland purchased other businesses; BrewDog (The Draft House, London), Calnex Solutions (JAR Technologies, Northern Ireland), Exscientia (Kinetic Discovery, Scotland), and Subsea 7 (Xodus Group, Scotland).

Apart from the focus by large US firms on companies in the London and adjoining regions, there are no patterns to guide young companies whose investors are looking for an exit. The overall trend is for companies to be acquired by other businesses in their own markets, and it is likely to be more productive for them to focus on raising their profile in these markets, and getting to know well the larger businesses which are potential acquirers.

4.3 Regional comparisons

To a large extent, the pattern of exits in 2018 mirrors the pattern of investment.

The golden triangle regions saw the most IPOs and trade sales, although London was pre-eminent with half of both types of exit. Companies in the South East accounted for 15% of trade sales, but no companies from this region went to IPO.

Elsewhere, no regions saw trade sales in double figures except for the three we have used in other parts of this report for direct comparison – North West, South West, and Scotland. These three regions all appeared in the list of IPOs in 2018, the North West with two companies as in the previous year.

It must be stressed that the number of transactions covered in this section is small, and can fluctuate widely from year to year. Consequently, it is not possible to identify trends or make extrapolations from these figures with a high level of confidence.

5. Summary

5.1 Market observations

After rapid growth from 2016 to 2017, 2018 saw an increase in deal numbers but a small decline in total investment. Average deal sizes decreased across the UK as a whole, although this trend was absent in some regions, and the global trend towards larger deal sizes was certainly evident in the increased number of deals over £50 million.

The 'underlying' market – in deals under £10m – accounted for 95% of all deals across the UK, and 43% of all investment. This part of the market has held up well, with an increase of 7% from 2017 to 2018 in deal numbers, and an increase in funds raised of 12%. As always in the early stage investment field, it is the 'megadeals' which mask the overall trends in the sector.

The UK has not yet been greatly affected by developments in the US risk capital market, where more private equity and venture capital funds are entering the market, many are raising very large funds, and deal sizes are increasing for growth companies at the expense of investment at the seed capital stage. This may change, if overseas investors find that company valuations in the UK make them more attractive than their own local companies, and this is something that we will continue to monitor.

At the top end of the market a few US investors in particular, and others such as Japan's SoftBank and its Vision Fund, seem to prefer a strategy of increasing investment in selected companies which they believe can dominate their market niches. These investors prefer to give such companies the firepower to make acquisitions, rather than investing directly in companies which do not seem likely to reach a dominant position. Most investors of all types tend to invest in businesses in their own countries or regions; this is true even of the large US investors looking for companies which can take a commanding share in a global market, such as the ride sharing and other unicorn companies which have recently completed an IPO, or aim to do so. It is even more true of the smaller VC & PE firms, and there have to be large incentives, such as a major difference in company valuations in different territories, for them to invest beyond their own horizons. These incentives do not appear to be strong enough at present to have this effect; this is also true in the UK, where most investors are based in London and few invest in the regions.

5.2 Investors

The risk capital market in the UK depends substantially on the activities of VC investors. Other types of investor play a more or less important part in different regions, but the market as a whole is affected by the number and amounts of investment by VCs. This is why the drop of 40% in VC investing in London from 2017 to 2018 is so significant, as it indicates a change of outlook by professional investors on a large scale. The fact that VC investment increased in some other regions is partly the effect of new regional funds such as the North East Fund and the Northern Powerhouse Investment Fund, and possibly also a result of VCs investing in very specific opportunities regardless of geography.

Corporate investment increased by a third in London from 2017 to 2018, but it comprises just 3% of the total market, and again, trends in London are not mirrored across the UK. Corporates do not have the same necessity to invest as do VCs, who have to deploy the money in each fund within a limited timescale; instead, corporates can watch their own market sectors, and pick and choose deals that fit within their own strategic requirements. When they do invest, they not only bring market knowledge and expertise, but also make larger investments than most other types of investor, so corporates are a valuable part of the investment mix in every region.

Investment by business angels and angel groups dropped from 2017 to 2018, no doubt in response to the same concerns about the economic environment that affected VCs in London. There is however considerable activity across the UK in building angel groups and encouraging new angels to invest, as a strong angel investment base is seen as a catalyst for the investment ecosystem in every region; the British Business Bank's creation of a new Regional Angels fund is one example of this focus, and can be expected to boost angel investment in future years after the funding is in place. As the market develops, angel groups appear to be ready to co-invest with each other (a practice increasingly evident in Scotland), opening up the potential for higher deal sizes.

Equity crowdfunding is also helping the market to develop, both in terms of the increase in the number of successful campaigns, and more particularly in the number of deals reaching £1 million, with four campaigns in 2018 raising over £10m each. It is interesting to see VCs co-investing in some of the large crowdfunding campaigns. Crowdfunding is less prevalent in Scotland and the Republic of Ireland, where it is possible that young companies seeking investment turn initially to the more conspicuous investor types, angel groups and local VCs respectively. However, crowdfunding platforms are amongst the most active investors in each of the three golden triangle regions, suggesting that they can be an important element of a diverse investment ecosystem.

5.3 Companies and sectors

With 80% of all UK risk capital investment, the golden triangle regions overshadow all other parts of the UK. With the combination of capital city, financial centre, world class universities, and close transport links, the golden triangle continues to build a very strong ecosystem in which high growth companies can start up and develop. London stands out within this eco-system, for the range of businesses in size and market sector; investment in digital & IT ventures, and in food & drink companies, is higher here than anywhere else in the UK. In the other regions of the golden triangle, influenced by the two ancient universities of Oxford and Cambridge, IP-based companies such as those in the life sciences sector attract sizable investment.

Outside the golden triangle, investment is variable, with different mixes of crowdfunding, regional public sector investment, and limited investments by the most active early stage investors such as specialist VCs, corporates, and commercialisation companies. Nonetheless, megadeals over £50 million are seen in several areas which otherwise have little early stage investment. The North West and South West, the regions which are closest in scale to Scotland, have a more consistent performance, and it is possible to discern the influence of market sectors and research institutions which are part of each region's historical legacy - a strong life sciences sector in the North West, and an advanced engineering tradition in the South West, for example.

Scotland has a number of strengths not evident in other regions, including the range of different market sectors, the bedrock of investment by angel groups, the active presence of most other types of investor, and the widespread support of the Scottish Investment Bank. The region continues to have a lower than average deal size compared with the comparator regions (North West, South West, Republic of Ireland), but the relative shortage of high value deals is counterbalanced by the strength of investment in the early stages of company development. As shown in the Risk Capital Market in Scotland report[11], the underlying market – deals below £10 million – has continued to grow steadily.

[11] *The Risk Capital Market in Scotland, Annual Report 2018, Scottish Enterprise (2019)*

The Republic of Ireland, many of whose young technology companies have marketing and sales offices in the USA, can be seen as oriented more towards the USA than towards the UK and Europe. In 2018 there were 25 VCs from the USA making 44 investments in companies in the Republic, often alongside 12 indigenous VCs, which themselves made 47 investments. There are some active angel networks, but few corporate investors and little crowdfunding, and the market is firmly based on VC activity. There is considerable concern currently in the Republic about the potential effects of Brexit on business, but for young technology companies at least there appears to be a good flow of investment, at deals levels considerably higher than in most UK regions.

5.4 Conclusion

A major conclusion to be drawn from the data and analysis presented in this report is that it is not possible to replicate in detail the success of one region or territory to another. The risk capital market is a complex system. It is affected by the local macroeconomic environment and history, as well as by more specific aspects of each region such as the presence of universities and research institutes, the availability of talent both technical and managerial, the location of target markets, and presence of different types of investor groups.

Regions are likely to be most effective in attracting risk capital by building on their existing strengths, whether these be in the market sectors prominent in the region or the types of investor already active. All regions have their own ecosystems, and although not all will be as well advanced as that of the golden triangle, they have to be the starting point for future growth. The examples of Scotland where co-investment from Scottish Investment Bank plays a role in supporting the market, and the regions in the North of England where funds backed by the British Business Bank have started investing, show that an additional source of capital, complementing the funding from private sector investors, can be the catalyst for growth based on local conditions.

Although the companies securing very large investments or achieving high value exits are often taken as role models, there are not always any universal lessons to be learnt from them. The median value for exits by UK companies over the past couple of years implies that success means a valuation of £30m - £50m, rather than the $1bn valuation of a unicorn.

This report demonstrates the importance of looking at the market as a whole rather than focusing on particular size bands. A growing pipeline of opportunities should lead to more companies progressing to secure larger amounts at later stages. This suggests that to achieve a good stream of scale-up companies it is necessary to have a strong support infrastructure and adequate investment at the early stages of company growth.

Risk capital investment in the UK is massively concentrated in London and the other two golden triangle regions, with London dominant for the reasons described in section 5.3. This, and the effect of large deals over £10 million on an irregular and unpredictable basis across the UK, make it very difficult to discern underlying patterns or trends in regions outside the golden triangle; deal numbers are low in comparison with the golden triangle, and there is a danger of reading too much into small changes.

London's lead position is a natural outcome of local circumstances, and is mirrored for example in the USA, where Boston, New York, and San Francisco overshadow all other locations, and even in Scotland where there is a concentration on Edinburgh. One lesson would appear to be that if a region wishes to expand its market, it should encourage its companies and investors to engage with those where a larger market already exists. For Scotland this means continuing and building on engagement with London based investors and putting the resources in place to help prepare companies to engage with these investors.

This is achievable in the short term, but a further observation to be made is that changes to the local investment environment require consistent activity over a long period, to establish sustained support mechanisms and encourage different types of investor to increase their activity. The timescale from company start-up to exit is such that any intervention in the market needs to recognise the importance of patient capital and of having an eco-system and a pipeline of opportunities that can secure interest from a diverse range of investor types.

Appendix 1: Regional population and GVA

The following table shows the distribution of investment (using the figures in this report), and compares it with other distributions by region - population density, business population estimates (number of businesses in the private sector), and GVA (gross value added).

	investment 2018 £m	%	population millions	%	investment £ per head	GVA per head	business density rate
North East	£283	*3%*	2.6	*4%*	£107.3	£20,129	657
North West	£348	*3%*	7.2	*11%*	£48.2	£23,918	905
Yorkshire and The Humber	£222	*2%*	5.4	*8%*	£40.9	£21,426	953
East Midlands	£83	*1%*	4.7	*7%*	£17.6	£21,845	962
West Midlands	£338	*3%*	5.8	*9%*	£58.2	£22,713	964
East of England	£1,078	*10%*	6.1	*9%*	£175.9	£24,772	1,155
South East	£1,232	*12%*	9.0	*14%*	£136.4	£29,415	1,272
London	£5,877	*57%*	8.8	*13%*	£670.2	£48,857	1,519
South West	£408	*4%*	5.5	*8%*	£74.0	£23,499	1,170
Scotland	£312	*3%*	5.4	*8%*	£57.8	£25,485	771
Northern Ireland	£33	*0%*	1.9	*3%*	£17.7	£21,172	894
Wales	£110	*1%*	3.1	*5%*	£35.3	£19,899	818
TOTALS/UK averages	**£10,325**	*100%*	**65.6**	*100%*	£157.4	**£27,555**	1,069

GVA and population data from the latest Office for National Statistics tables, business population from Government estimates

The data is taken from the following sources:

- *www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/latest*
- *www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalregionalgrossvalueaddedbalancedperheadandincomecomponents*
- *assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/663235/bpe_2017_statistical_release.pdf*

Appendix 2: Types of investor

Investors are allocated to three broad categories – institutional investors, individual investors, and public sector investors – and subdivided into the groups defined below.

Institutional investors

In this group, investments are made from funds, and investment decisions made by fund managers.

Venture Capital and Private Equity

Venture Capital firms manage funds raised from other investors - LLPs (limited liability partners), which term can include insurance companies and pension funds, and other financial institutions entrusted with other people's money. VC funds are usually time-constrained, typically set up for a ten year period in which the manager will attempt to complete all investments from the capital in the fund in the first five years, then focus on pressing investee companies to an exit (IPO or trade sale) in the subsequent five years; companies in the portfolio which do not show promise of a profitable exit will be shut down. Most VC firms manage a number of funds, and aim to produce high returns for their own investors in each fund, to enable them to seek support for further funds.

Private Equity firms are similar in many ways to VC firms, with the difference that they focus on investing in later stage companies with a proven cash flow, and aim to help them to a profitable exit within a shorter timescale than that of VCs.

Corporates and corporate VC

This includes corporations (rather than financial institutions) trading in various markets, which have set up specialised VC funds to invest in companies or technologies which are important for the parent company's development strategy. In some cases corporations invest in their own name rather than through a corporate VC fund.

Other private

A number of different types of institutional investor have been grouped together under this heading. Cumulatively they account for 5% of total investor participations.

Accelerators

Accelerators are often started in incubators set up by a university or other business support organisation, which host tenants of all sizes and backgrounds that have a shared technology focus. The objective of an accelerator programme is to ensure that all participants are spurred on to achieve results, and they have a number of defining features:

- time-limited
- competitive
- participants are funded for the duration of the programme
- participants are helped to pitch for further funding at the end of the programme

Family offices and private investment vehicles

These are similar to angel groups, with the difference that they invest funds from a single individual, family, or organisation. These groups are usually incorporated so that the fund is owned by the individuals, and it is the fund manager that makes the investment; for this reason they are grouped with other institutional investors.

Commercialisation companies

This category includes investment vehicles set up to focus on research and technology being developed in the UK's universities and research institutions, and typically invest in companies which spin out from or start up at these establishments (the term spinout indicates that the company was set up to commercialise IP - intellectual property – owned by the university or institution).

Universities

This includes investment vehicles set up by a university, such as Old College Capital (Edinburgh), the University of Cambridge Enterprise Fund, and Swansea University Innovation Fund.

Others

This includes organisations which make a small number of equity investments, or co-investments with other types of investor, but which do not fit easily into the other categories. This group includes asset managers, banks and merchant banks, and charities and other not for profit organisations.

Individual investors

These investors are making their own investment decisions and investing in their own names.

Angel groups

These consist of groups of business angels investing together in a deal, on the same terms and conditions. Such groups may consist of just three or four people, but the larger, longer established groups can have more than a hundred members. They do not necessarily all invest in the same deals, but do benefit from the shared administration which includes screening and due diligence on deals, common legal documents and forms, and the industry knowledge available from other group members. There is a wide range of different structures, from loose collaboration on single deals through to organisations which are managed in a similar way to venture capital firms (except that in the angel group all individuals are making separate investments in their own names).

When tracking investment deals, it can be difficult to differentiate between individual angels and angel groups. The larger groups list deals on their websites and often make public announcements about completed deals, but in other cases when it is known that individuals have invested in a round, it is not clear whether they were doing so as members of an established angel group.

Angels

In many cases it is clear from company or investor announcements or from trade press reports that an investment included business angels - High Net Worth Individuals (HNWIs) - investing in their own individual names. In addition to making direct investments into private companies, they may also invest as members of one or more angel groups or syndicates, or on crowdfunding campaigns. Unless it is clear from the sources that the investor was a member of an angel group, we have included them under the Angel heading.

Each entry under this heading could refer to one or more individual investors in a deal; the same is of course true of angel groups, where a single entry can cover a large number of individuals contributing to an investment.

Undisclosed

Because most of the regular institutional investors and angel groups are tracked separately, it is assumed that in the majority of deals where the identity of the investors is undisclosed, the investors are business angels, but they have been shown separately rather than rely on this assumption for the analysis.

Crowdfunding platforms

Crowdfunding platforms enable members of the public to make investments, usually smaller than those by high net worth business angels, in companies which post fundraising campaigns on their platforms, with a stated target investment and a closing date. The platforms provide the structure and administration for operating the campaigns. Campaigns are run on an ‘all or nothing’ basis, with those which reach or surpass their target securing investment, and those failing to reach the target receiving nothing.

Public sector investors

This category covers direct equity funding interventions which support initiatives targeted at specific regional or sectoral aspects of the market.

Central government

This includes funds created by the British Business Bank, including regional funds (eg Northern Powerhouse Investment Fund, Midlands Engine Investment Fund), and funds co-investing with business angels (Angel CoFund, shortly to be superseded by the Regional Angels Programme).

Devolved government

This covers investments by funds set up by the devolved governments of Scotland and Wales. In Scotland, this comprises investments by the Scottish Investment Bank (the investment arm of national enterprise agency Scottish Enterprise), including its Scottish Co-investment Fund and Scottish Venture Fund. In Wales, it comprises investments by the Development Bank of Wales, including its Startup and Early Stage Capital Fund, and Wales Technology Seed Fund.

In some cases, these funds have invested in companies which have an operating presence in Scotland or Wales, but have been assigned to other regions in the dataset underlying this report due to their origins or other operations.

Local and regional government

Across the UK there are several funds set up by local government agencies to support local innovative companies.

Appendix 3: Sectors

The sectors chosen for analysis in this report are a combination of those representing an activity (fintech, business services) or a target market (food & drink, oil & gas). Each company has been assigned to a single sector using the following rules of thumb:

- as a first step, where a company provides equipment, materials, technology, software, or other services to any of the *life sciences*, *food & drink*, *oil & gas*, or *renewables* sectors, it has been allocated to that sector;
- secondly, if a company manufactures hardware, or produces materials, it is assigned to the *technology & engineering* sector;
- following these two steps, remaining companies which develop websites and apps are categorised as *digital & IT* companies; this is a change from previous years, and inflates the number of digital & IT companies at the expense of business services;
- the sector *business services* includes both B2B and B2C services, in order to reduce the number of companies in the Other sector.

Examples of the types of company allocated to each sector will help explain the groupings:

Digital & IT: all software development (enterprise software, websites, apps)

Fintech: software development targeted at the financial services sector

Technology & engineering: all hardware and manufacturing (including electronics), chemicals, materials

Life sciences: research & development, pharmaceuticals, medical devices, healthcare

Energy: conventional energy production and distribution

Oil & gas: includes supplies and equipment, R&D, consultancy

Renewables: renewable energy, cleantech, recycling

Food & drink: includes primary production and distribution, processing, restaurants, pubs, and other outlets

Business services: includes professional B2B services (legal, accounting, recruitment, transport, travel) and personal B2C services (gyms, tradespeople, training)

Other: businesses not included elsewhere, covering fields such as entertainment, film, TV, clothing, agriculture, packaging

Appendix 4: Methodology

This report includes investments which have been announced publicly, as well as those which have not, but have been found typically through Companies House records (and are therefore in the public domain). In this respect, the report differs from several other reports commenting on the risk capital market in the UK, such as those by the British Business Bank, the UKBAA, and Beauhurst's The Deal, which include only reported deals.

All investments in euros in the Republic of Ireland or US dollars in any region are exchanged to £ sterling at the rate applicable at the time of the investment; all figures in this report are the converted sterling figures.

The information presented in this report excludes deals which are below £100k, in order to make the volume of deals more manageable, and to avoid having tables and charts that are dominated by this level of investments, but do not give much further insight into market trends.

The publicly available information about risk capital investments in the UK is often inconsistent and incomplete. Some investors or investee companies make announcements about deals, but many more do not. There is often a difficulty in establishing whether an announced investment includes grants or loans as well as equity.

Again, it is not always evident whether the announced amount is the total committed deal size (the 'headline' amount), which will typically be divided into separate tranches payable after the investee reaches agreed milestones, or whether it is one of these separate tranches.

The actual amount going into the investee company at the time of the investment can be checked on the Companies House records, where companies must post details of new share issues on SH01 forms (which indicate equity investments in the business). However, there is no penalty for late or incorrect submissions.

This report aims to include the separate tranche amounts rather than the full 'headline' figures, since the total announced amount might not be paid in full if the investee fails to meet deadlines. It is not always possible to make this distinction, for example in the case of investments by overseas VCs, late filings of forms to Companies House, or the use of convertible instruments which are not straight equity and are therefore not covered by new share issues.

For the data in this 2018 report, we have drawn on YCF's own research for its monthly publication Young Company Finance in Scotland and for the Quarterly Journals of its Spinouts UK project covering spinouts and start-ups from universities across the UK. We have also made substantial use of other resources, in particular the databases of Beauhurst (for investments in UK companies) and TechIreland (for investments in companies in the Republic of Ireland). Beauhurst is the developer of a database of start-up and scale-up companies across the UK; TechIreland is a not for profit organisation whose mission is to become the definitive source of data and insights on Irish innovation globally. Both organisations track unannounced investments as well as those in the public domain. Beauhurst's own publications are restricted to publicly announced deals, and include deals below £100k, which means that the figures in their publications do not match those in this report.

Appendix 5: Author

Jonathan Harris

Editor, Young Company Finance

Jonathan Harris is the publisher and editor of Young Company Finance (*www.ycfscotland.co.uk*), a monthly publication which tracks and reports on the progress of early stage high growth companies in Scotland, from start-up or spinout to maturity, with special reference to how they finance their development. Since it was started by Gavin Don in 1998, YCF has given detailed reports of over 2,500 investment deals, together with news and features about investors, major grants, funding initiatives, business awards, company pitches, and analysis and comment on the sector. Since February 2011, the operations of YCF in Scotland have been licensed to LINC Scotland, the national business angel association.

Jonathan has carried out many independent research projects focused on the early stage company sector, for clients including amongst others the Connect networks in Scotland, Midlands, and Yorkshire, Informatics Ventures (University of Edinburgh), and Scottish Enterprise. Together with other organisations he carried out research for Scottish Enterprise's Risk Capital Market in Scotland reports from 2005 to 2011, and in 2012 YCF was awarded a contract to continue this series into 2017, reporting detailed information about investment in young companies in Scotland on a quarterly and annual basis. In partnership with Beauhurst, YCF has been awarded the continuation of this Risk Capital Report commission through to 2020.

In 2012 Jonathan was invited to join the team representing Scotland on the first Regional Entrepreneurship Acceleration Program (REAP) run by MIT (Massachusetts Institute of Technology). Teams from Scotland, New Zealand, Finland, HangZhou in China, Andalucia in Spain, and Veracruz in Mexico participated in four workshops over a two year period to develop ways in which to build their entrepreneurial eco-systems. The report from the Scotland REAP team was taken up by Scotland CanDo, which is implementing its recommendations as part of a wide-ranging programme to boost innovation and entrepreneurship in Scotland.

Outside Scotland, YCF initiated the Spinouts UK project (acquired by Beauhurst in 2018), an online database of spinouts and start-ups from all universities across the UK (*www.spinoutsuk.co.uk*).
A Quarterly Report gives details of new spinouts and start-ups, recent exits by way of trade sale or IPO, and major investments in spinout companies, together with news and analysis on the sector, and helps ensure that the database is kept up to date.