The Risk Capital Market in Scotland

Annual Report 2018

Introduction

The purpose of this report is to provide a detailed and comprehensive analysis of the risk capital market in Scotland for the calendar year 2018. The report is one of a series dating back to 2003, which is intended to improve the understanding of the scale and characteristics of the risk capital market in Scotland. To consider recent trends this report focuses on the growth in deals and investment levels from 2013, the year after deals over £10m started appearing in the Scottish market.

Access to a strong supply of risk equity capital is important for national and regional economies due to the catalytic role that it plays in the entrepreneurial process. UK and Scottish Government policy recognises that the market does not always enable SMEs to grow rapidly because of the imbalance between demand from entrepreneurs and the available supply of funding from investors. Equity investment is inherently risky, different types of investor have different motivations, and external influences affect their willingness and ability to invest. Sometimes investment patterns are affected by favoured sectors, which can make it more difficult for companies in other market sectors to raise funds. This makes it important to track changes in the market, so that gaps in support can be identified and solutions developed.

Scottish Enterprise (SE) commissions research to identify the investment activity of all participants and to estimate the total flow of risk capital investment into Scottish companies. This includes investigating the characteristics of the industry's key players and beneficiary companies, the scale of the annual flow of new investment, and establishing whether there is evidence of gaps in the supply of risk capital. From this analysis, alongside independent evaluations, SE can better understand the impact on the market of its equity investment funds to check if these interventions remain 'fit for purpose', if any changes are required, and how best to optimise economic impact.

While the data series started in 2003, this report will focus on more recent trends from 2013 (referred to as the reporting period). This report aims to capture investments of all sizes in the market in Scotland, whereas a separate report (Investment Benchmarking Analysis), which tracks investment across the UK and in the Republic of Ireland, omits deals below the £100k threshold.

As far as possible, the data include all deals for which there is information in the public domain, not just the publicly announced deals that feature in other market reports. Furthermore, the data show the actual flows of equity funds into companies rather than 'headline' investments, which are the figures presented in press releases and other statements by investors and investees, and which quote the total equity commitment (which is usually invested in tranches after the investee reaches agreed milestones and therefore might not be invested). These headline announcements often include non-equity finance such as bank facilities and grant awards.

A common issue for this report, and for every report describing risk capital investment, is the information which is undisclosed. In a small number of cases, we know of an investment deal, but not the amount invested. These deals are shown in the table in Figure 1 below, but omitted from the analysis in subsequent sections, as amongst other things they would affect calculations of averages. In many more cases – two thirds of the deals in 2018 covered by this report – the total investment amount is known, but not the identity or even the type of the investor or investors. Moreover, even when the total investment and the investors participating in the deal are known, the amount contributed by each separate investor is rarely disclosed.

Where regular independent investors such as angel groups make a relatively small investment in a company in the form of a convertible loan, this is included in the figures in this report in the same way as equity investments. Such loans are not structured with a fixed repayment schedule and are usually set up to be converted to equity rather than to be repaid. As these investments have already been included at the time of the loan, there is no further increase to the figures in this report at the time of conversion.

As a change to earlier reports in this series, the analysis of investor types addresses all participations in a deal, rather than unpicking individual deals and attributing the deal amount to the lead investor.

In any one deal there can be several investors of different types; Figure 6 on page 11 therefore shows the total number of separate investments (or participations) by each investor type, whether the investor was acting alone or with co-investors. This means that the total number of investments is greater than the total number of deals, as each co-investor in a deal is counted separately.

Due to rounding, some totals in the tables throughout this report may not correspond with the sum of the separate figures.

Full details of the methodology adopted are given in Appendix 1.

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Main findings

Scottish companies have, for the fourth year in a row, attracted over £300m investment. Although a reduction from the peak achieved in 2017 of over £500m, deal numbers held up.

The underlying market – deals under £10 million, where 99% of deals took place – increased to £246m in 2018, a new record

The number of deals under £10m has more than doubled (a 130% increase) from 2013 to 2018, and the amount of investment has increased by 70% over this period.

A reduction in large deals above £10m resulted in the 2018 total investment level falling back to the recent average

Investment in 2017 was untypical due to the number of very large outlier deals and as a result, total investment for 2018 dropped by 41%, and was more in keeping with 2016 and the 2013-2018 average.

Angel groups were the most active investors

Leading on 55% of the deals in 2018 that they participated in (excluding those for which we have no investor information), an increase of 78% from 2017.

Vcs were less active in 2018

Leading on a third fewer deals than in 2017, but still accounting for 26% of all deals excluding those for which we have no investor information.

Crowdfunding deals increased slightly in 2018

There were 17 successful equity crowdfunding campaigns in 2018 (raising £35m), ahead of 2017 when there were 13 (raising £4m). 2018 also witnessed two leading angel groups using platforms to support their deals.

Companies in the East of Scotland again captured the largest share of investment

Taking 46% of all investment; companies in the West took a further 23%. These were big increases on 2017, when the East took 39% of all investment, and the West took 15%.

Digital & IT companies led the way for both deals and investment

Digital & IT companies accounted for 36% of all deals (122 deals) and due to a smaller average level of investment, took a lower 26% by value (£81m). Life science companies followed with 55 deals, 16% of the total, with £69m of investment.

Investment in start ups (under 5 years old) was down on 2017 but at the same time increased its share of the 2018 total market

Investments in companies under 5 years old represented 53% (179 deals) of all deals in 2018, slightly up from the 2017 share of 51% (187 deals); their share of total investment increased more significantly from 23% (£125m) to 51% (£110m) due to the smaller overall market in 2018.

Companies of all ages came to the market for their first equity investment

Continuing a recent trend, companies over 10 years old accounted for 20% (68 deals) of all deals, and 37% (£116m) of all investment; eight of these companies were over 20 years old.

First time investments fell compared with subsequent rounds

The proportion of deals and investment for first rounds dropped sharply from 2017 and reached new lows. In 2017, first rounds were 42% (157 deals) of the total number and secured 27% (£144m) of all investment; in 2018 these shares were 29% (97 deals) and 16% (£49m) respectively.

Exits were ahead of 2017 and in line with average levels

There was one IPO, and eleven trade sales, typical of the levels over the past five years.

1. Report findings

1.1 2018 overview

A total of 338[1] deals in Scottish companies raised investment of £316.1 million in 2018.

This is a decline of 8% in deal numbers from 2017, and of 41% in investment. 2017 had seen both deal numbers and investment at all-time highs.

As shown in the breakdown of deals by deal sizes in Figure 1 below, most of the decrease in 2018 was in deals over £5 million, where a small number of deals can make a big difference to overall investment totals.

Taking the three highest bands together to include all deals over £5 million, the decrease from 2017 to 2018 was 56% in terms of deal numbers, but 78% in total investment.

The decline was not limited to high value deals. We recorded a decrease in deals in the lowest band, under £100k - down by 24% in number, and by 21% in value. Although deal numbers at this level were still the second highest since 2013, the investment was the lowest for three years.

By contrast, there was a substantial increase in deals in the £2m - £5m band, which more than doubled from 2017 to 2018, in both deal numbers and value.

The characteristics of these deal size bands, in terms of investor type, company location, and market sector, are analysed in subsequent sections of this report.

Figure 1: Deals sizes by number and amounts invested (£ millions), 2013-2018

	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
=>£100m			1	1	1				£176.00	£128.00	£100.00	
£50m<£100m	1		1		2		£50.00		£88.00		£141.10	
£10m<£50m	3	4	3	1	6	4	£36.90	£92.40	£42.00	£19.00	£71.20	£70.10
£5m<£10m	5	7	6	3	12	7	£34.30	£47.50	£39.20	£16.60	£69.10	£46.60
£2m<£5m	18	18	19	29	14	31	£55.30	£54.40	£53.30	£85.40	£39.20	£85.70
£1m<£2m	6	13	19	28	35	32	£7.70	£16.70	£23.40	£34.50	£47.80	£44.60
£0.5m<£1m	25	35	44	34	45	50	£16.10	£23.80	£28.60	£22.30	£30.60	£32.50
£100k<£0.5m	61	113	83	120	139	129	£13.50	£27.30	£19.20	£26.10	£34.00	£32.90
<£100k	30	33	38	68	112	85	£1.60	£1.90	£1.90	£3.80	£4.70	£3.70
TOTALS	**149**	**223**	**214**	**284**	**366**	**338**	**£215**	**£264**	**£472**	**£336**	**£538**	**£316**
undisclosed		1		1	5	4						

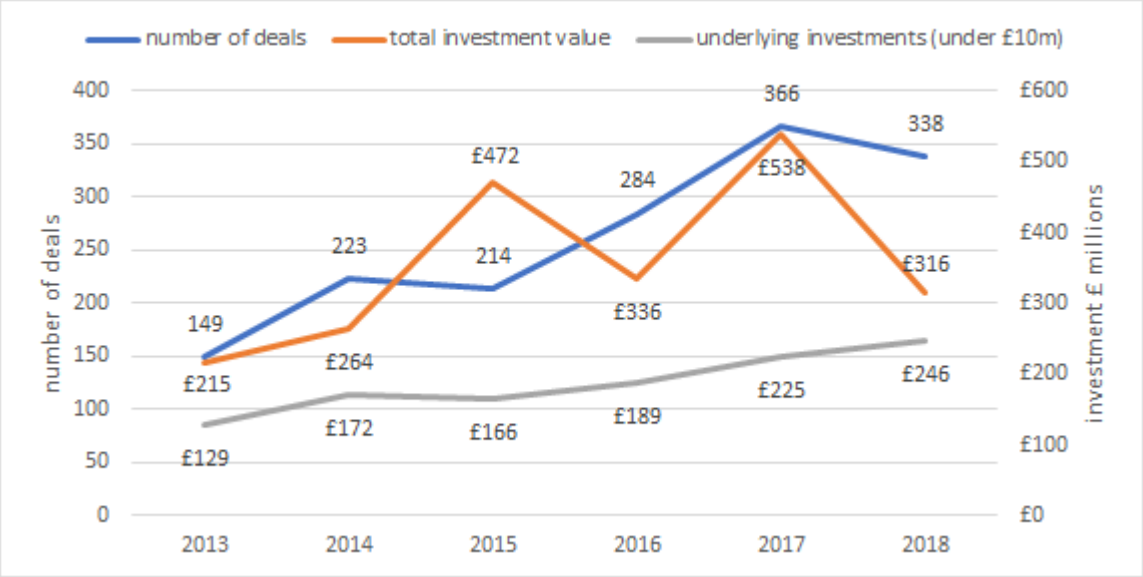
1.2 Total and underlying investment

For the purposes of this report, we differentiate between total investment that includes deals of £10m and over, and those that exclude the impact of the few deals of £10m and over, which we describe as the 'underlying investment'.

[1] *A further four deals, where we have no information on the amounts invested, are shown in Figure 1 but omitted from the further analyses in this report.*

The chart in Figure 2 below shows total investment including the deals of £10m and over (2018: £316m), and the underlying investment separately (2018: £246m).

Figure 2: Trends 2013-2018 – numbers and investment in £ millions



The underlying market (where 99% of deals took place) has continued to grow, with a 9% increase in total investment from the previous record level in 2017.

Total deal numbers in 2018 (338) were the second highest on record, with a small fall of 8% from 2017's record of 366.

1.3 Deals over £10m

There were four deals of £10m and over in 2018, listed in Figure 3 below.

Deals of £10m and over fluctuate from year to year, and although they are fewer in number than deals at lower levels, they have a disproportionate effect on overall totals. 2018 was a year which saw less investment in deals over £10m (four deals totalling £70m) than in the two peak years of 2015 and 2017 which included a few deals over £50m and over £100m. As a result, total investment fell from the 2017 record high of £538m to £316m.

Figure 3: Deals of £10m and over in 2018

company	deal date	£m	region	investors
BrewDog	Oct-18	£26.2	Aberdeen	Equity for Punks, Crowdcube
DySIS Medical	Aug-18	£18.0	East	Albion Capital, Lundbeckfonden Ventures
Duncan and Todd Opthalmic Opticians	Mar-18	£15.0	Aberdeen	Lloyds Development Capital (LDC)
Twig World	Sep-18	£10.9	West	undisclosed

Craft brewer BrewDog is a major influence on the risk capital market in Scotland in its own right. After having raised £100m from TSG Consumer Partners in 2017, BrewDog returned to the list again

with a crowdfunding campaign on its own Equity for Punks platform with support from Crowdcube. The investment in DySIS Medical was a follow-on round from its existing venture capital investors. The Duncan & Todd deal is an example of a private equity investor (LDC, Lloyds Development Capital) in action, investing in a well-established company, at a later stage than most VC investments, which aims to roll out its business by way of acquisitions.

1.4 Deals of £2m up to £10m

The deal bands from £2m up to £10m allow us to assess investment levels into this important growth stage for some of Scotland's most internationally ambitious companies. With 38 deals in the investment bands from £2m to under £10m, 2018 was well ahead of previous years in the series.

The 32 deals recorded for 2016 is the only other year to break through the 30-deal threshold (2017 activity was 26 deals). Looking at corresponding values for the £2m to under £10m bands, the total of £132m for 2018 was an increase of 22% on 2017's £108m.

Figure 4: Deal numbers, 2013 to 2018, by investment band

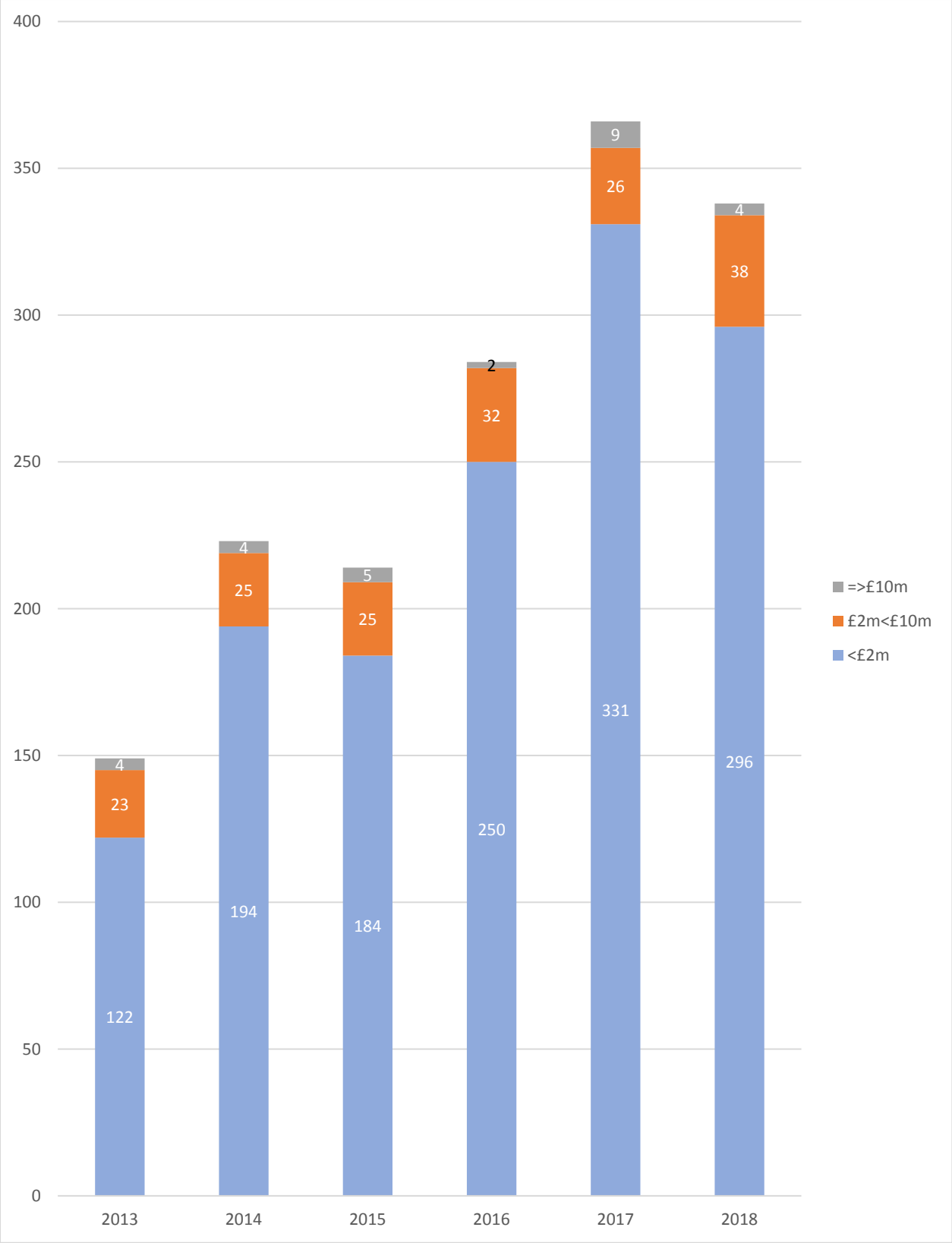
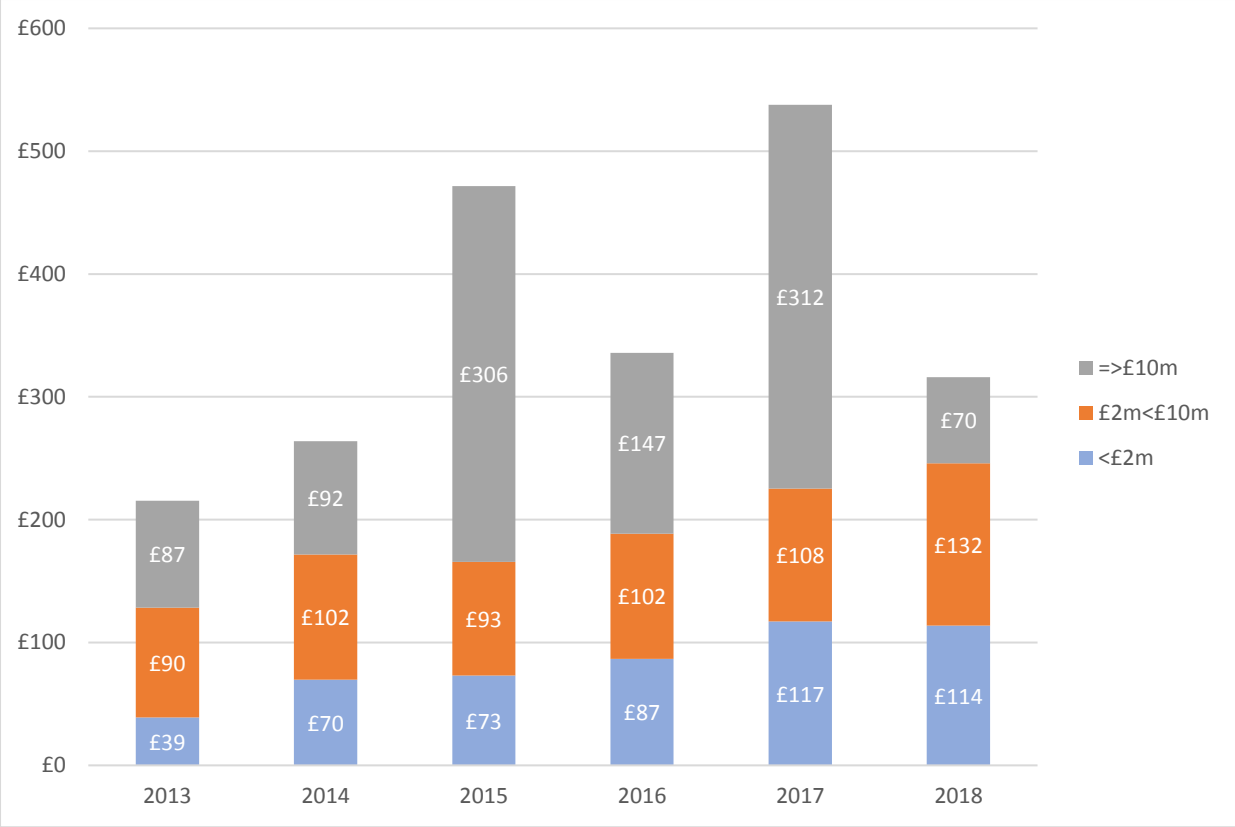


Figure 5: Investment 2013 to 2018, by investment band



A list of all the 2018 deals from £2 million to £10 million is given in Appendix 2.

1.5 Conclusions

While deal numbers were the second highest on record, the overall market investment total declined by 41% from 2017 yet was still broadly in line with the levels reached in 2016. As always, the figures are greatly influenced by the number and size of very large deals of £10m and over and it is particularly the reduction in deal numbers at this level that accounts for the overall market decline.

Indeed, the underlying market (deals under £10m), where 99% of deals are undertaken, increased to its highest point over this six-year period, and deals between £2m and £10m showed strong growth in both numbers and amounts raised.

2. Investors

Who is investing in Scottish companies?

In this section we look at types of investor, which can be considered under three main divisions: institutional investors, individual investors (including those investing as part of angel groups), and public sector investors.

Definitions of each category of investor are included at the head of each respective section below and further explanation can be found at Appendix 3.

2.1 2018 overview

Figure 6 below shows the number of transactions in 2018 by investors of different types.

In any one deal there can be several investors of different types; Figure 6 shows the total number of separate investments (or participations) by each investor type, whether the investor was acting alone or with co-investors. This means that the total number of investments is greater than the total number of deals, as each co-investor in a deal is counted separately.

The chart omits deals where the identity or even the type of investor is not known, and there were no known co-investors; there were 169 such deals in 2018, 50% of all the 338 deals in the year. Judging by the size of these deals it can be assumed that they were largely investments by business angels or small institutional investors. The breakdown of all remaining participations in Figure 6 indicates the relative activity levels of each type of investor.

Figure 6: Types of investor, by number of separate investments (participations) in 2018

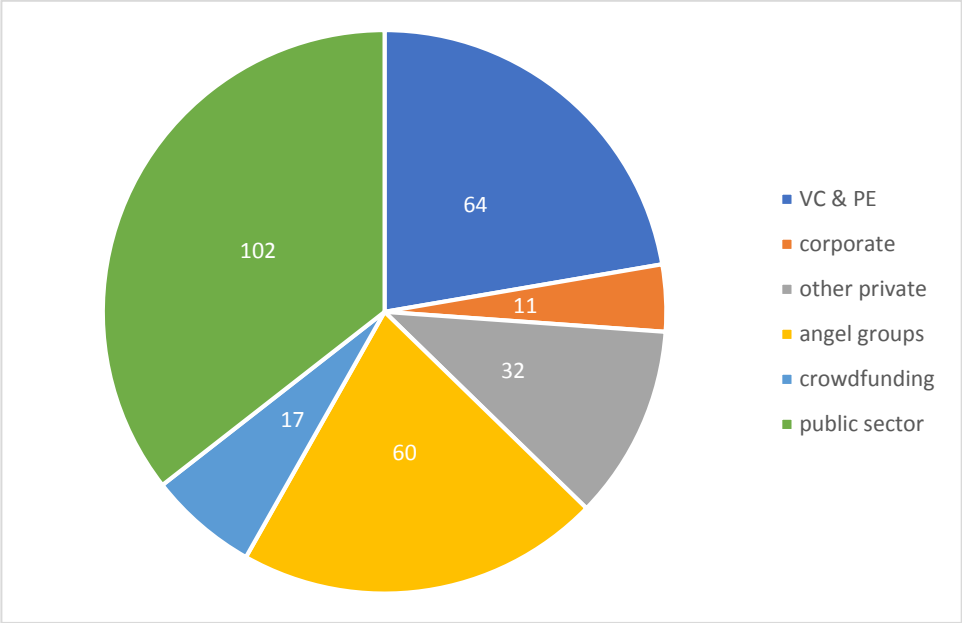
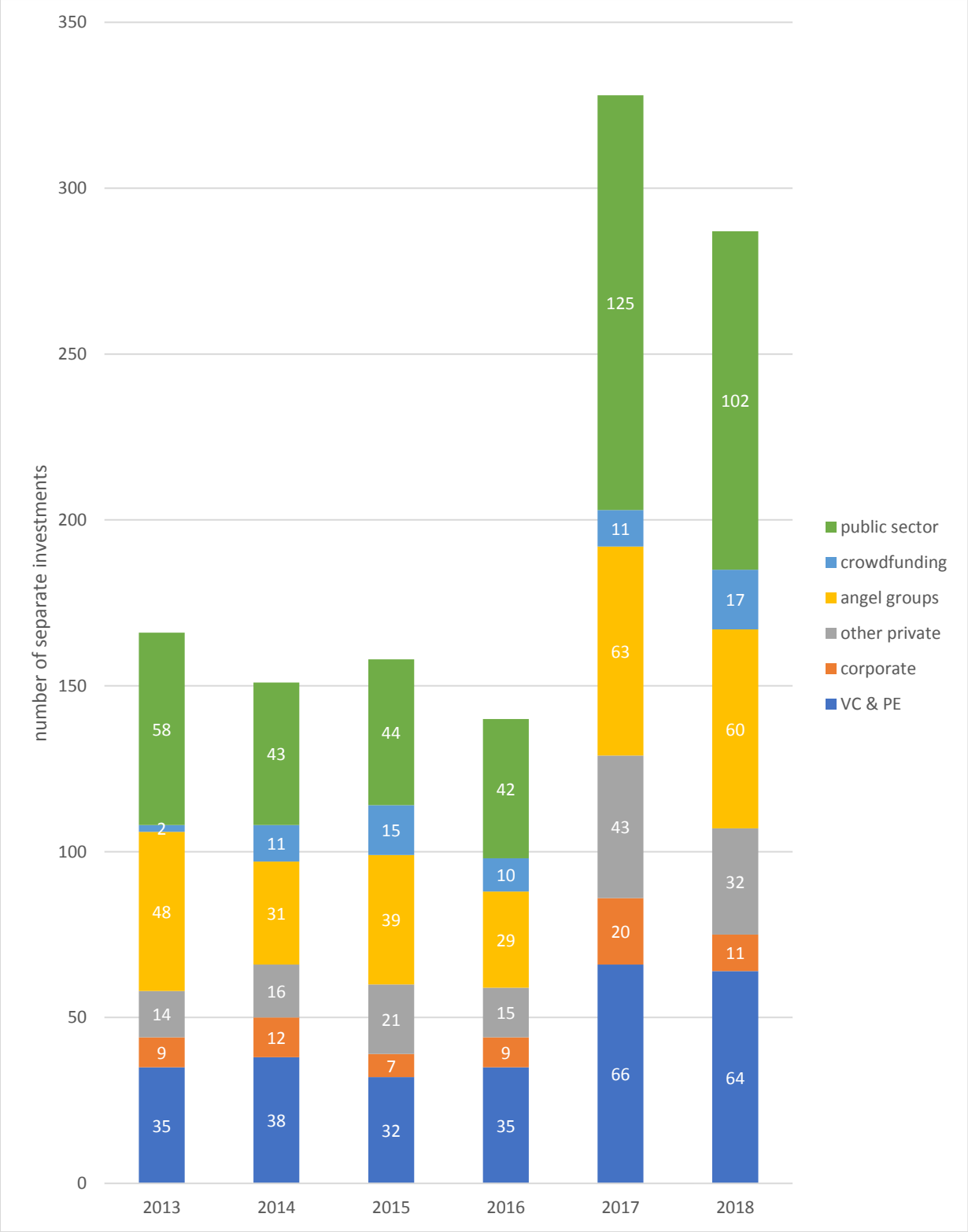


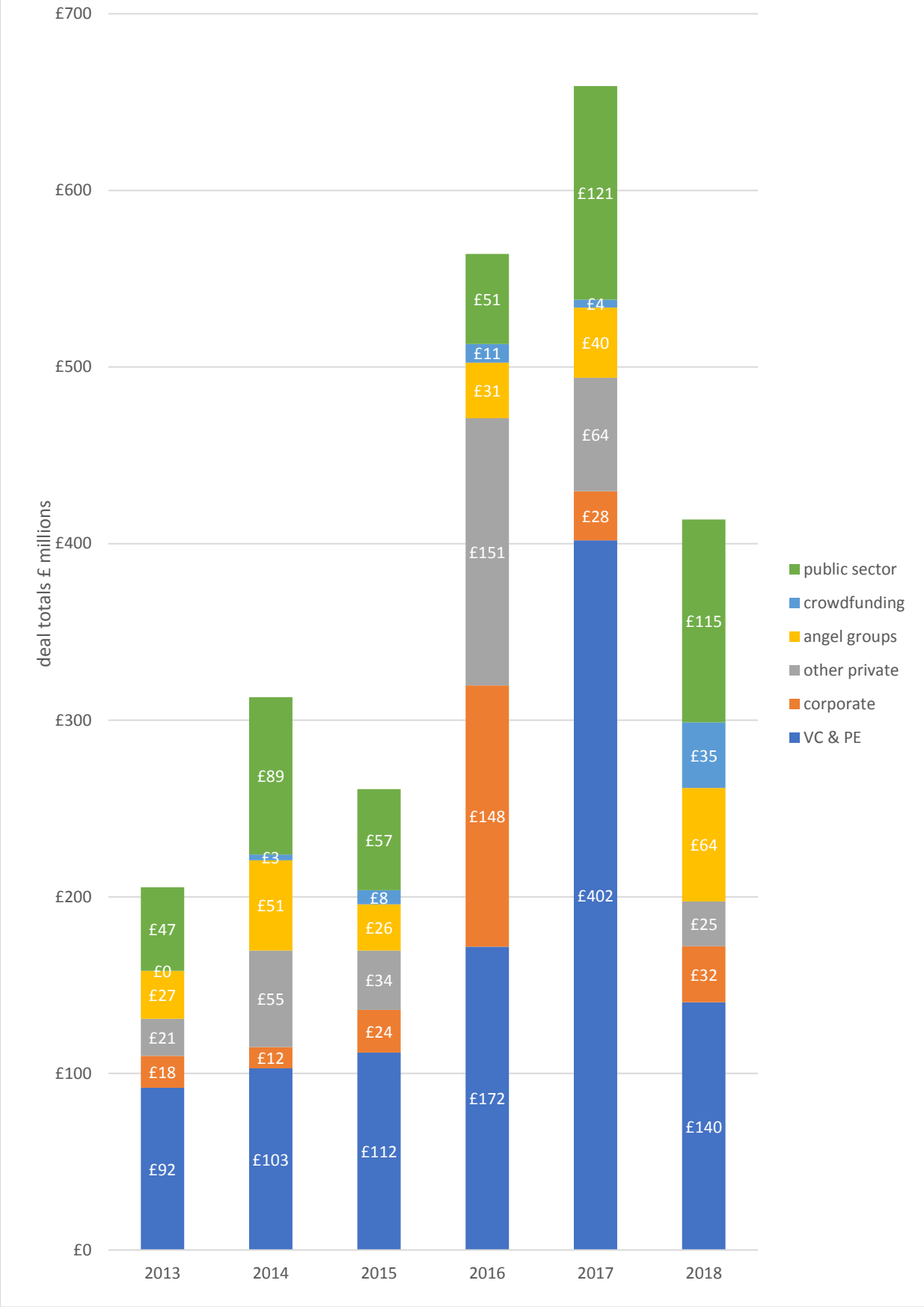
Figure 7 below shows the trend in the level of participation by each investor type, for the period 2013 to 2018. In Scotland, the Scottish Investment Bank co-invests with several types of investor – angel groups, individual angels, VCs and PEs, corporates – making the public sector the most active investor type in all years.

Figure 7: Types of investor, by number of separate investments (participations), 2013 to 2018



The amounts contributed by each separate investor in a deal are not usually disclosed, and it is not therefore possible to give the totals invested by each type of investor. Instead, the following chart shows the totals of all the deals in which each type of investor participated, and therefore includes the same deal total several times over if there are co-investors in the same deal.

Figure 8: Types of investor participations, by deal totals (£m) for all investments, 2013 to 2018



2.2 Institutional 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.

Venture Capital (VC) & Private Equity (PE)

The method used for measuring the participation by different types of investor has changed in this report from that used in 2017, where we assigned each deal to the lead investor type. This did not account for the activity of co-investors, so direct comparisons to identify trends need to be treated with caution. Using investor participation is designed to better reflect activity compared with the previous year's method of allocating deals to a lead investor. However, we are still able to report that 44 of the deals in 2018 in which VC & PE investors participated (64 separate investments) were led by the VC/PE firm. This is a large drop from the 66 deals led by VC/PE investors in 2017, but close to the 45 in 2016.

The 64 investments with venture capital (VC) and private equity (PE) participation during 2018 covered a wide spectrum of deal sizes, from a £40k investment by two Belgian VCs in music learning business Soundbops, to the £18m investment in medical device company DySIS Medical, supported by UK VC Albion Capital and corporate VC Lundbeckfonden Ventures of Denmark. The next largest deal of the 64 was the investment of £15m in ophthalmic opticians Duncan & Todd, by LDC (Lloyds Development Capital, a PE investor focusing on well established businesses).

Although VC/PE investors participated in 57% of the deals over £2m in 2018, the average value of all 64 deals is only £2.2m, and the median even lower at £1.5m. Over 80% of these deals are follow on investments (51 deals), often tranches of a much larger commitment, so in the deals of £500k and lower we see investors such as Mercia Fund Managers, Epidarex Capital, and Deepbridge Life Sciences which are usually associated with larger deal values.

Over a third (34%, or 22 deals) of investments with VC/PE participation were in the digital & IT sectors, with 19% in life sciences. All other sectors were represented, but in only a few deals each.

Two thirds of deals with VC/PE participation in 2018 had co-investment by Scottish Investment Bank.

In 2018 we tracked 13 VCs headquartered outside the UK which had made investments in Scottish companies. This was slightly lower than the 14 counted in 2017.

Corporate venturing

Corporates and corporate VCs made 11 investments in 2018 – 4% of total participations in the year and consistent with the period 2013 to 2016. There were 20 investments during 2017 (6% of total participations), although total corporate investment was greater in 2018 (£32m compared to £28m for 2017). As with VC/PE investors, these deals covered a wide range of values, but again weighted towards the lower end of the spectrum. The largest deal was the £18m investment in DySIS Medical in which Denmark's Lundbeckfonden Ventures participated, and the smallest was a £250k round in EC-OG with participation by UK corporate Castle View Ventures. The average value of these 11 deals was £2.9m, but the median was just £750k.

A third (36%) of the deals with corporate investment were in the renewables sector (Sunamp, Enocell, and two deals in Heliex Power).

Other private

The investors under this heading have a range of different objectives and investment strategies, making an important, yet relatively small, contribution to overall investment totals. With 32 participations during 2018 this was down on the 43 recorded during 2017, however, 2018 was double the number of participations recorded for any year from 2013 to 2016. Investment levels from other private investors reached £25m during 2018, a substantial drop from the £64m recorded for 2017 and a new low when compared to all years from 2014.

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 several 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

There are few accelerators in Scotland as strictly defined as above. SeedHaus in Edinburgh operates as an accelerator true to this definition, and in 2018 six companies at SeedHaus secured £30k each. A further company Beringar, based in Edinburgh and which has developed sensors powered by machine learning, took part in the R/GA IoT Venture Studio UK[2], a programme which originated in New York and now operates in London, and secured £80k funding.

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, which typically invest in companies that spin out from or start up at these establishments. The only commercialisation company to make an investment in a Scottish company in 2018 was IP Group, which invested in a £2.2m deal in battery technology company Dukosi, alongside Par Equity, Scottish Investment Bank, and some individual investors. Mercia Fund Managers, which focuses on investing in spinouts from universities outside the golden triangle, is classified here as a Private Equity/Venture Capital investor rather than as it is sometimes referred to, as a commercialisation company; Mercia made eight investments in Scottish companies in 2018.

Universities

Only two universities invested in spinouts or start-ups through university funds; Strathclyde in three companies (including the largest in this group, 3F Bio, which raised £6.2m), and Old College Capital, the investment arm of the University of Edinburgh, in seven deals. The median deal size for these investments was £700k.

Family offices, private investment vehicles

Two family offices made investments in 2018; David Murray's Murray Capital joined in the £2.3m investment led by angel group Equity Gap in P2P lender Lending Crowd, and Jon Moulton's Perscitus Advisers joined a £1.7m investment in microelectronics company Pyreos, led by Kelvin Capital.

Viscount Gough's Barwell plc participated in seven of the eleven deals in the private investment vehicle category; the others were Adelpha Group, a female-led corporate adviser and private investment network (invested in Healthy Nibbles), US based AeroDen (invested in UWI Technology), specialist life sciences investor Chimaera (invested in Sistemic), and The Royal Society of Edinburgh (invested in Prodsight).

2.3 Individual investors

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

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[2] *R/GA, formerly R/Greenberg Associates, was founded in 1977. The company has progressed from a computer-assisted film-making company, to a digital studio, to an interactive advertising agency, an advertising agency with a digital focus and beginning in 2012, product innovation and consulting.*

Individuals coming together as angel groups

Business angel groups, where individuals come together to invest, remain the most active type of investor in Scotland, and have seen consistent growth from year to year, participating in 60 deals during 2018, reaching a new high of £64m (deal participations were at similar level to 2017's 63 deals and well ahead of those recorded for 2013 to 2016).

Such groups, investing on the same terms and conditions, 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. After London, Scotland has the most active angel group market in the UK.

Some of the largest deals with participation by angel groups illustrate the way in which these groups are now co-investing, with other angel groups as well as with different types of investor. For example, angel groups Archangels and Par Equity were joined by VC Maven Capital Partners in a £2.8m investment in photonic chip business Optoscribe, Par Equity and angel groups Equity Gap and Highland VC were joined by corporate Osaka Gas and Edinburgh University's Old College Capital in a £2.2m investment in heat battery company Sunamp, and four angel groups (Kelvin Capital, EOS Technology Investment, Gabriel, and Investing Women) together with Par Equity supported ultrasound sensor company Novosound in a £1.5m investment. The Scottish Investment Bank, Scottish Enterprise's investment arm, co-invested in all these deals.

The Scottish Investment Bank co-invested in 83% of deals in 2018 which had angel group participation.

Individual angels investing in their own name

We identified 21 deals in which individual business angels are known to have invested, leaving a further 182 deals where the type of investor was undisclosed, and we have been unable to find any further information.

The average value of the 21 deals known to have investment from individual angels was £1.7 million. In four of these deals there were no other known investors (these averaged £54k in value); in another four the business angels invested alongside VC firms, and in a further eight deals they invested alongside angel groups.

Undisclosed

The 182 deals with undisclosed investors cover a wide range of values, the top two being Twig World (£10.9m) and Faraday Grid (£7.6m). There were in total 21 deals (12%) of the 182 which had a value of over £1 million, but the median value for all 182 was just £160k, leading us to conclude that in these cases the investors were private individuals rather than organised angel groups or institutional investors such as VCs, that tend to make investments of a higher value.

The breakdown of deals with undisclosed investors shows a concentration on the digital & IT sector (40% of all deals), with the food & drink and business services sectors both taking 15% of the deals.

Reporting a large number of undisclosed deals is not peculiar to Scotland. Undisclosed deals are reported to help us understand the full market picture and as can be seen from the examples above, many of them are of a significant scale.

Crowdfunding

There were 17 campaigns on crowdfunding platforms in 2018, listed in Figure 9 below, which were successful in raising investment. The BrewDog Equity for Punks campaign used BrewDog's own platform for the campaign, although the opportunity was also listed as a live campaign on Crowdcube.

Figure 9: Successful crowdfunding campaigns in 2018

Company name	deal date	£m	platform
Freedom One Life	Feb-18	£0.28	SyndicateRoom
Sogud	Mar-18	£0.16	Crowdcube
Good-Loop	May-18	£0.24	Seedrs
Qikserve	May-18	£0.36	GrowthFunders (with Equity Gap, Par Equity, and Scottish Venture Fund)
Ambicare Health	May-18	£0.50	SyndicateRoom
MGB Biopharma	May-18	£1.30	SyndicateRoom (with Archangels, Barwell, TRI Cap, and Scottish Venture Fund)
Wooha Brewing	Jun-18	£0.18	Crowdcube
Incentive Games	Jun-18	£0.47	Seedrs
Sun Harvester	Jul-18	£0.12	Crowdcube
Loch Lomond Brewery	Jul-18	£0.55	Crowdcube
Aseptium	Aug-18	£0.15	Seedrs
St Andrews Brewing Company	Aug-18	£0.62	Crowdcube
Carbon Black System	Aug-18	£0.40	Crowdcube
Find a Player	Sep-18	£0.07	Seedrs
BrewDog	Oct-18	£26.21	Equity for Punks, Crowdcube
Orca Money	Nov-18	£0.58	Seedrs
MacRebur	Nov-18	£3.22	Seedrs

Without the outlier BrewDog deal, these campaigns raised £562k on average, but the median was lower at £380k. Five of the 17 campaigns were by breweries or distillers.

The number of successful campaigns in 2018 was 30% higher than in the previous year (13 deals, including another BrewDog campaign which raised £5.4m). Excluding BrewDog the average successful campaign in 2017 raised £370k, lower than in 2018, but the median value of £370k was much the same as in 2018.

2.4 Public sector

Public sector investors are equity funds set up by central government, devolved governments, or local and regional government, but in the case of Scotland investments under in this group are almost exclusively from Scottish Enterprise funds managed by the Scottish Investment Bank, Scottish Enterprise's investment arm.

Public sector funds participated in 102 deals, approximately a third (32%) of all investment deals in 2018. All except two of these deals involved co-investment funds managed by Scottish Investment Bank– the Scottish Co-investment Fund, and the Scottish Venture Fund - as well as two investments from the Renewable Energy Investment Fund. The remaining two deals were investments in Scottish companies by the Development Bank of Wales' Start Up and Early Stage Capital, one in Jellagen, a Scottish company with operations in South Wales, and the other Curapel, a company started in Scotland and now based in Cardiff.

The deals which had public sector investment had a median value of £400k. However, approximately a half (51%) of all deals of £1m and over had public sector investment, as did 44% of deals of £2m or more.

2.5 Conclusions

Measuring the total numbers of investments by different investor types – their 'participations' – shows that the most active investors in Scottish companies in 2018 were angel groups and VC/PE investors, both participating in circa 60 investments. These two groups benefited from high levels of co-investment by Scottish Investment Bank, 83% and 66% respectively. Both groups extended beyond their traditional investment range, with VC/PE firms featuring in deals under £500k, and a third of deals with angel group participation being over £1 million.

Corporate investors had a quieter year with 11 participations which still matched the average number of participations since 2013, while crowdfunding reached a new high of 17 participations. Average deals sizes were very different in these two categories; £2.9m in deals with corporate investment, and £562k for crowdfunding campaigns, having omitted the BrewDog exception at £26m.

The pattern of investment in 2018 shows that angel groups continued to be the core of the underlying investment in the market, and crowdfunding increased its role, albeit at a relatively low level when compared with other investor types. Institutional investors were less active than in 2017, and account for the decline in overall totals, with corporates not building on the 2017 expectations for increased investment activity.

3. Companies

Which companies are securing investment?

In this section we look at the characteristics of the companies which secured investment in 2018; for example, in which market sector they operate, where they are based, and their age at time of investment.

3.1 Sector

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. In this report we have allocated each company to a single sector.

The sectors chosen for analysis are a combination of those representing an activity (digital & IT, business services) or a target market (fintech, food & drink, oil & gas).

Two sectors which had a relatively large share of the 'other' totals in previous reports have been shown separately this year - food & drink, and business services (which includes both B2B and B2C services). As companies are allocated to sectors on a 'best fit' basis, the opportunity has been taken to adopt a more rigorous procedure for making the allocation, described in Appendix 4. Although the figures for 2017 have been re-worked following the new procedure, the introduction of new categories and the more rigorous allocation criteria (especially in the way that companies developing software are categorised) means that comparisons between 2017/2018 and the previous years cannot be exact; this is compounded by the usual difficulty in considering the effect of the very large deals over £10m.

Figures 10 and 11 below show the breakdown of deal numbers and amounts raised by these market sectors.

Figure 10: Sectors by deal numbers, 2018

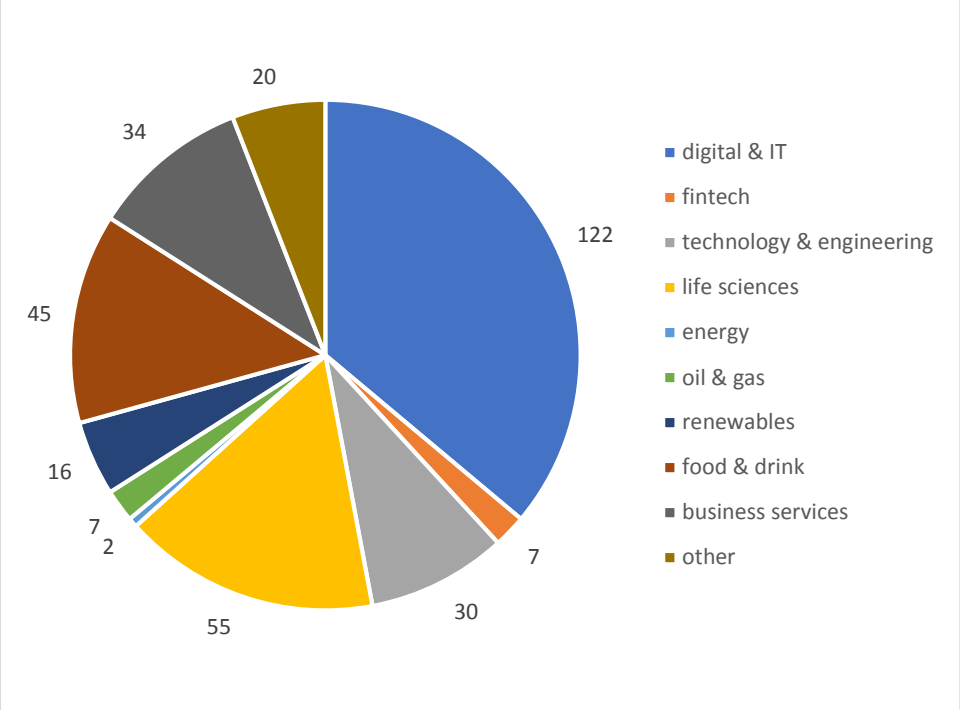
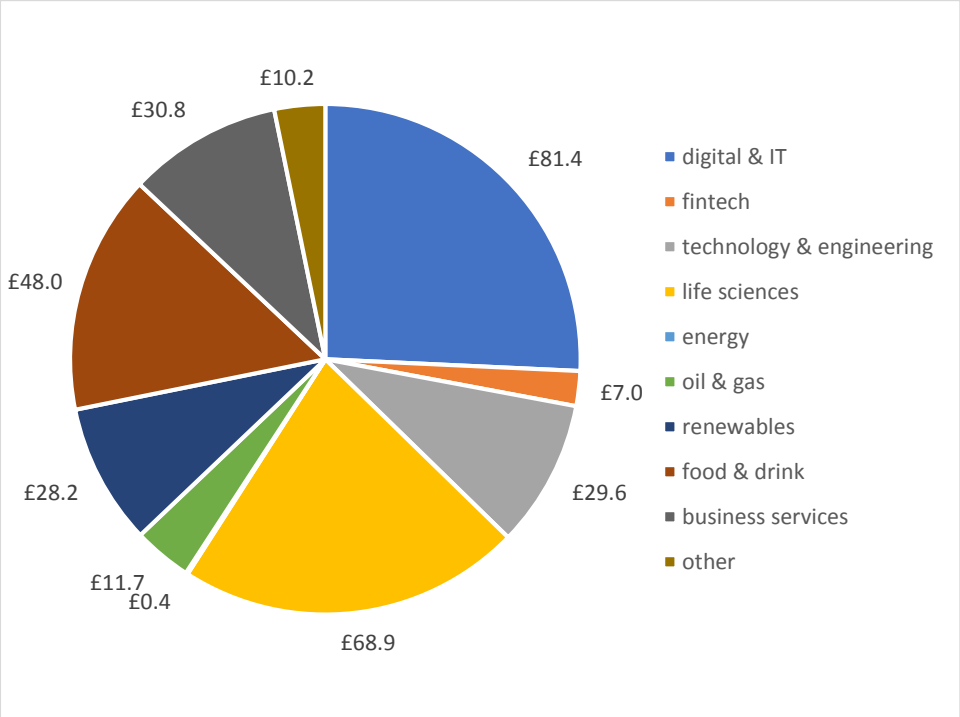


Figure 11: Sectors by amount raised, £ millions, 2018



The digital and IT sector accounted for over a third (36%) of all deals in 2018, but just over a quarter (26%) in value, giving an average of £667k per deal. The average deal size was higher in other sectors; the highest (£1.8m) in the renewables sector with 5% of all deals, and over £1m in three other sectors: oil & gas (£1.7m with 2% of all deals), life sciences (£1.3m with 16% of all deals), and food & drink (£1.1m with 13% of all deals). These figures reflect the influence of high value deals,

which is more muted where deal numbers are greater, but certainly in the case of life sciences and food & drink illustrates the different needs of companies depending on sector characteristics; digital & IT companies are often small businesses with low costs for developing and testing new products, whereas the opposite is true for life sciences, and for those food & drink companies where infrastructure costs are incurred, as in breweries and distilleries.

With the caveats about inter-year comparisons explained at the beginning of this section, the following two charts show the breakdown by the market sectors used in each year from 2013 to 2018 and are illustrative of the trends over this period.

Figure 12: Deal numbers by sector, 2013 - 2018

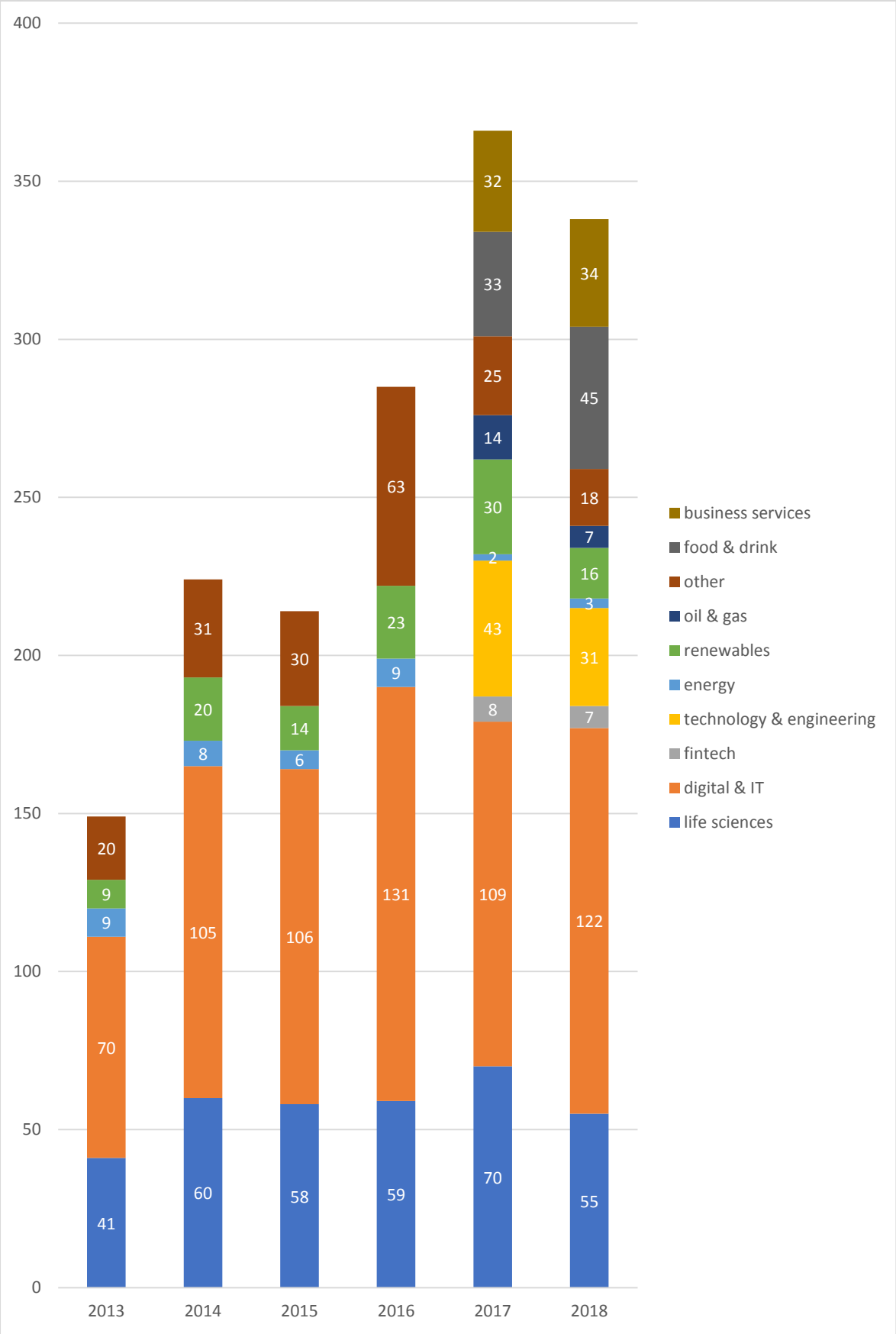
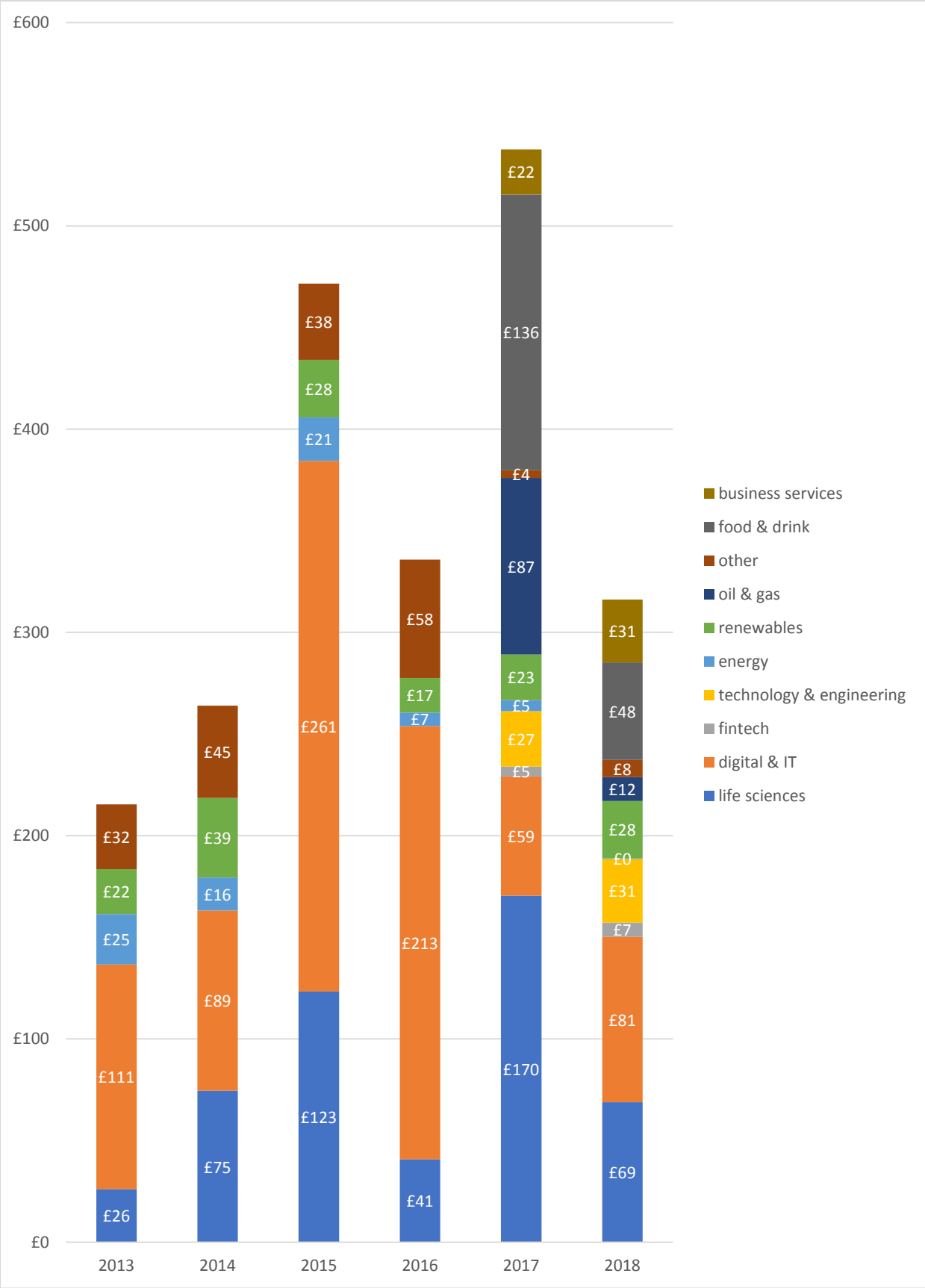


Figure 13: Investment (£m) by sector, 2013 - 2018



3.2 Location

The concentration of investment in different regions of Scotland reflects in part the concentration of population, and in part the market sectors which are prominent in each region. The following table shows the distribution of investment by deal numbers and amounts invested from 2013 to 2018.

Figure 14: Regions by number of deals and amounts raised, 2013 to 2018

	number of deals						amounts in £ millions					
	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Aberdeen	12	12	8	16	28	34	£50	£16	£118	£25	£201	£62
East	66	106	109	137	172	157	£121	£153	£248	£207	£210	£145
Highlands & Islands	7	16	9	18	18	15	£4	£38	£14	£14	£14	£10
South	1	3	3	5	9	5	£0	£1	£11	£1	£4	£8
Tayside	11	17	15	26	25	33	£17	£10	£6	£15	£28	£18
West	52	70	70	83	119	98	£23	£46	£74	£75	£80	£74
TOTALS	**149**	**224**	**214**	**285**	**371**	**342**	**£215**	**£264**	**£471**	**£336**	**£538**	**£316**

The East and West regions have together taken a consistently large share of the deals by number, from a high of 84% in 2015 to 69% this year. The East alone accounts for almost half of all deals in Scotland over this period (range 44% to 51%; 46% in 2018). Because of the presence or absence of large deals over £10 million in any one year and any one region, the share of investment fluctuates much more widely. For example, in 2017 these two regions together took 54% of all investment due to the influence of 5 deals of £10m and over in Aberdeen.

Aberdeen and Tayside were the only regions to see an increase in deal numbers from 2017 to 2018, although in both these regions investment was down; both had very large deals in 2017 which affected the totals, BrewDog in Aberdeenshire (total £115m – cf the £26m in 2018), and Exscientia in Dundee (£13m).

In the South, a reduction in deal numbers was more than matched by a large increase (95%) in investment, thanks to two large deals: gene therapy business Ryboquin (£4.4m), and plastic road company MacRebur (£3.2m).

3.3 First and subsequent investment rounds

Figure 15 below charts the number of deals in which companies secured their initial investment (first), and those where the investees had already secured investment in previous rounds (subsequent). Figure 16 sets out the corresponding amounts raised.

Figure 15: First and subsequent investment rounds, by number of deals

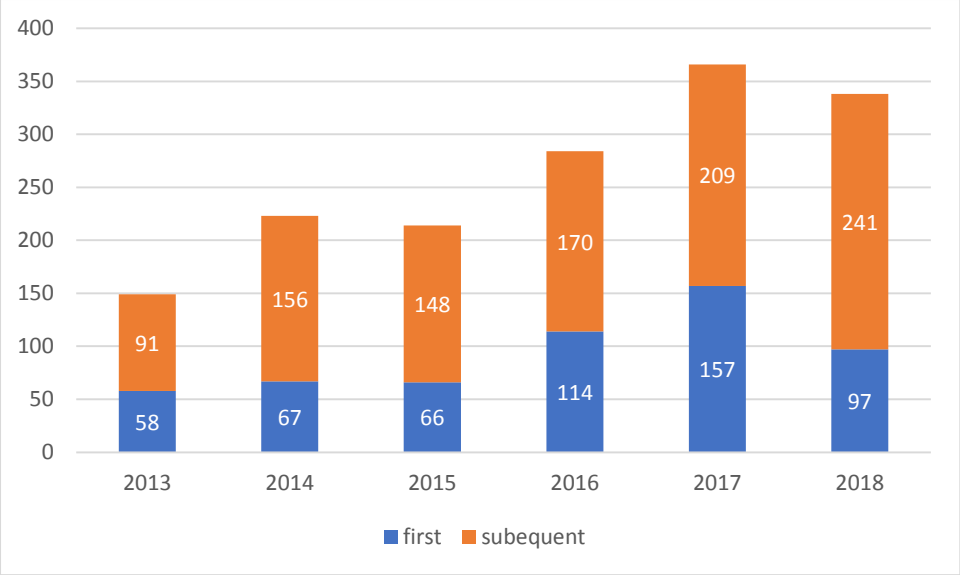
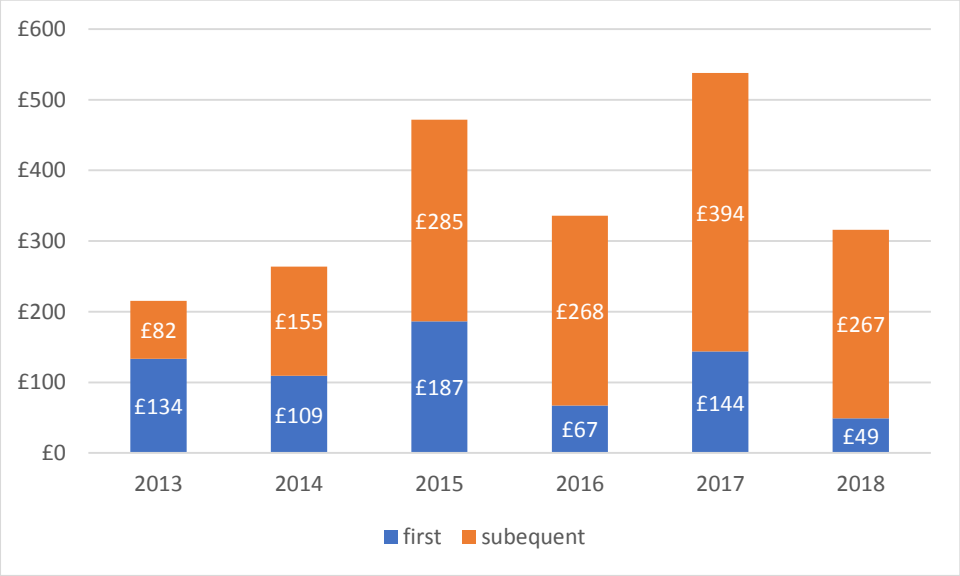


Figure 16: First and subsequent investment rounds, by investment (£m)



The proportion of deals which were first rounds for the investee company dropped sharply from 2017 to 2018, as did the proportion of total investment. In 2017, first rounds were 42% of the total number, and secured 27% of all investment; in 2018 these shares were 29% and 16% respectively, a drop of two thirds (66%) in investment.

The share of deal numbers in first rounds in 2016 and 2017 was higher than in previous years, around 40%, and the 2018 share reverts to around the 30:70 ratio (first to subsequent), a previous finding that was seen in both 2014 and 2015.

The same is not true of the share of investment, which was considerably lower in 2018 (with a 16:84 ratio) than in any previous year in this series. The lowest previous ratio of first to subsequent was the 20:80 for 2016. The ratio of first to subsequent rounds is affected by the number of first rounds which were in the high value bands; although it might be expected that most first rounds are of modest amounts in young companies, in fact the figures also include many well established companies raising equity investment for the first time in large rounds. In 2018, 13 of the 97

companies completing first rounds secured over £1m each; the top two were AdoRx Therapeutics, a young company in its second year after incorporation which nonetheless raised £7.6m, and Holyrood Distillery, under five years old when it raised £5.8m.

These large first round deals fluctuate from year to year; in 2017 the £13m secured by Dundee spinout Exscientia resulted in the total amount invested in new companies more than doubling from 2016 to 2017 (113% increase).

3.4 Investment in start-ups

In this section we focus on start-ups, defining them by the age of the company (from date of incorporation) and using two bands – under 3 years, and between 3 and 5 years – to analyse their place in the market. Figures 17 and 18 below show the number of investments and the amounts in these ranges over the past three years, differentiating between first and subsequent investment rounds.

Figure 17: Numbers of deals with share by first and subsequent rounds, in companies under 3 years, and between 3 and 5 years

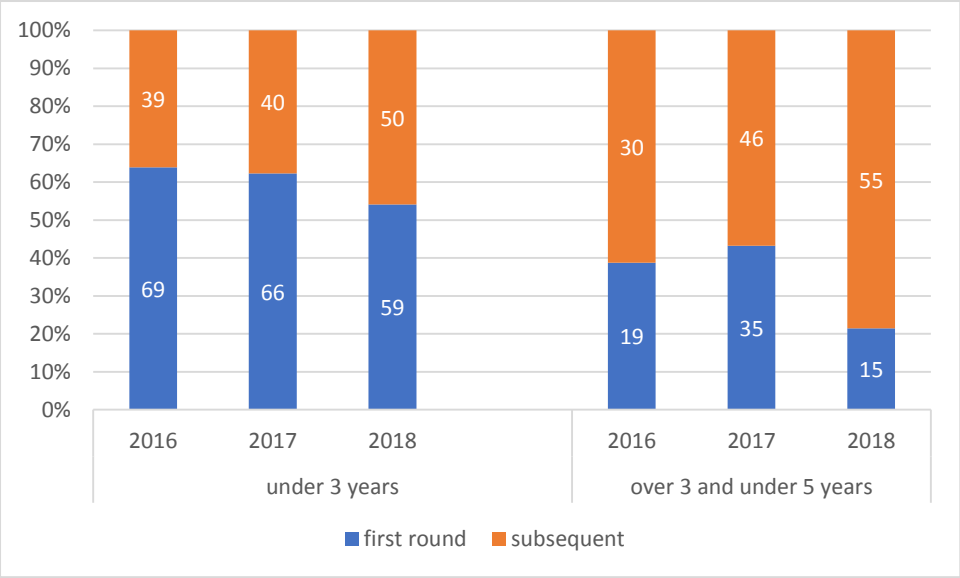
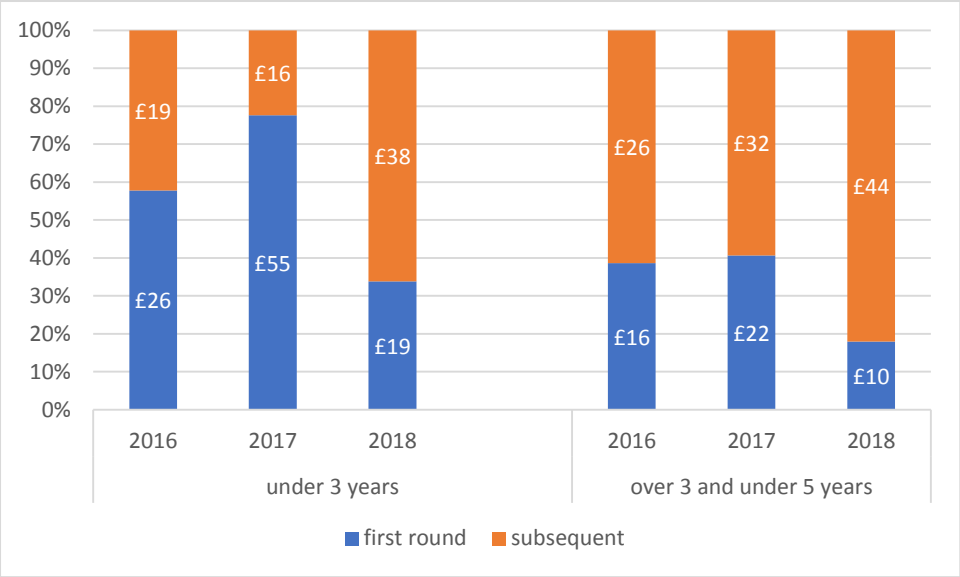


Figure 18: Investment totals with share by first and subsequent rounds in companies under 3 years, and between 3 and 5 years, £m



Companies under 5 years old (taking together both the bands shown above) account for approximately half of the total deals in the market in all three years. As a share of total investment, companies under 5 years old secured around a quarter in 2016 and 2017, which increased significantly to 35% in 2018.

The decline in deal numbers for companies under 3 years old at the time of investment was gradual, but there was a considerable drop (65%) in investment from 2017 to 2018, with average deal sizes decreasing from £665k to £520k.

There were similar declines in deal numbers and investment for companies between 3 years and 5 years old; a 57% drop in numbers, and 55% drop in investment. The average deal size, which was £851k in 2016, declined a little from £659k in 2017 to £641k in 2018.

3.5 Spinouts

For the purposes of this report, we define a spinout as a company emerging from a university or research institution, whether created to commercialise IP owned by the institution, or started by a member of staff or a recent graduate (within two years of leaving the university).

As with other companies in this report, spinouts saw a decline in investment in 2018. The 53 investments in spinout companies were approximately 15% of all deals, and the amounts invested also accounted for approximately 15% of the total; this is in fact a greater proportion than in recent years (in 2017 spinouts took just over 10% of all investment), but the number of deals was down by 13% on 2017, and total investment in spinouts down by 18%.

The universities with the most investments into spinouts were Edinburgh (14), Strathclyde (14), and Heriot-Watt (7), although the average investment in Strathclyde companies was much higher - £1.1 million compared with £700k in Heriot-Watt and Edinburgh companies. The Strathclyde average is greatly increased by the £6.2m investment in protein-from-plants business 3F Bio, which brought together a US VC firm (Data Collective), a local angel group (EOS Technology Investment), the University's own investment, the Scottish Investment Bank, and several private investors.

3.6 Time to investment

This section looks at the relationships between a company's age at the time of investment, amounts raised, and the market sector in which the company operates.

We are increasingly seeing more established businesses turn to equity funding to fund specific projects or further growth.

The following chart breaks down all deals from 2013 to 2018 by the age of the company (from date of incorporation) at the time of the investment, into bands of under 5 years (discussed in section 3.4 above), from 5 to 10 years, and over 10 years.

Figure 19: Companies by age at time of investment, deal numbers

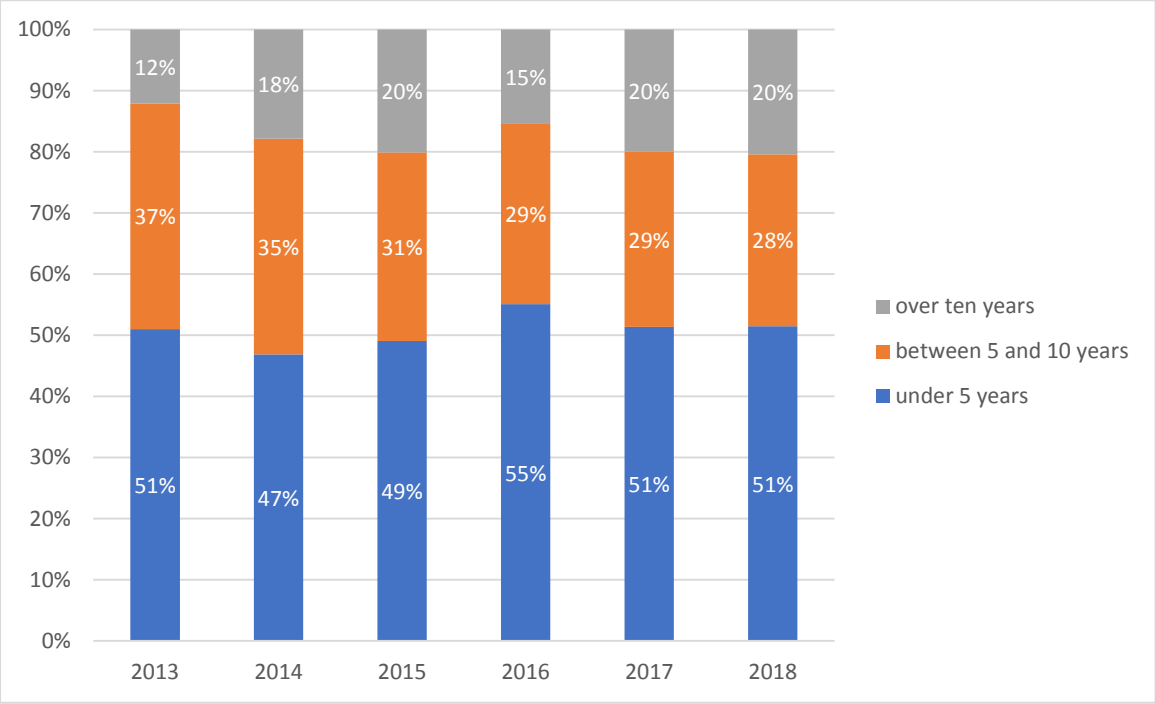
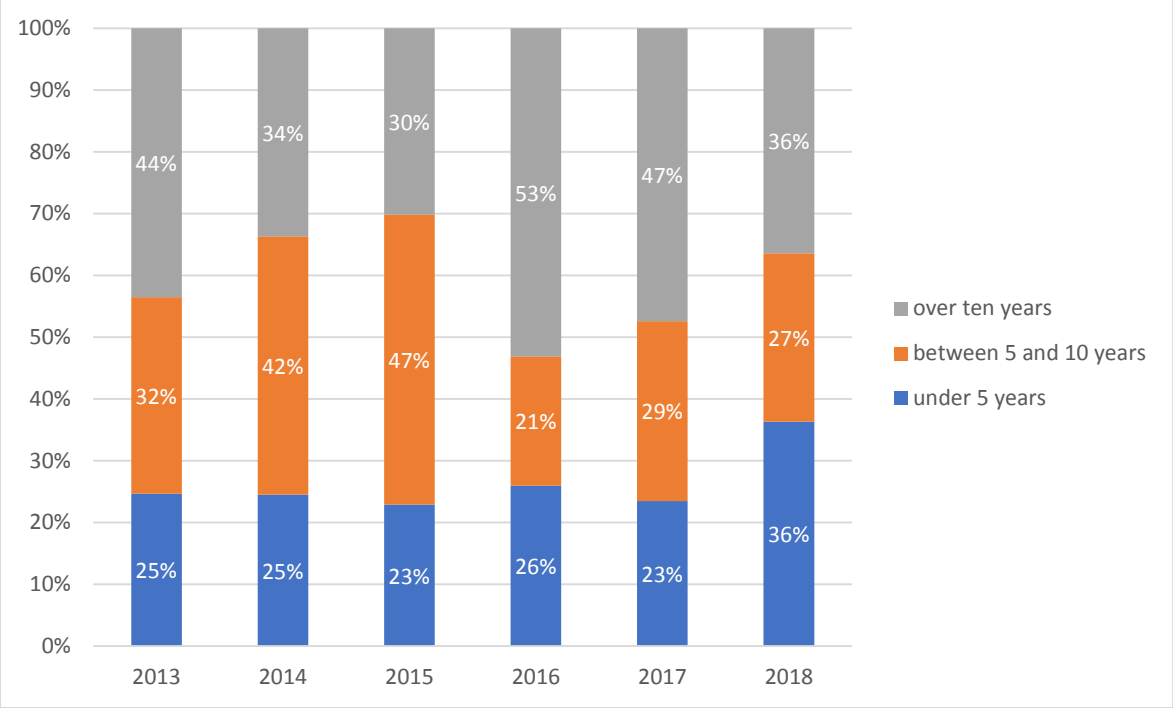


Figure 20: Companies by age at time of investment, amounts invested £m



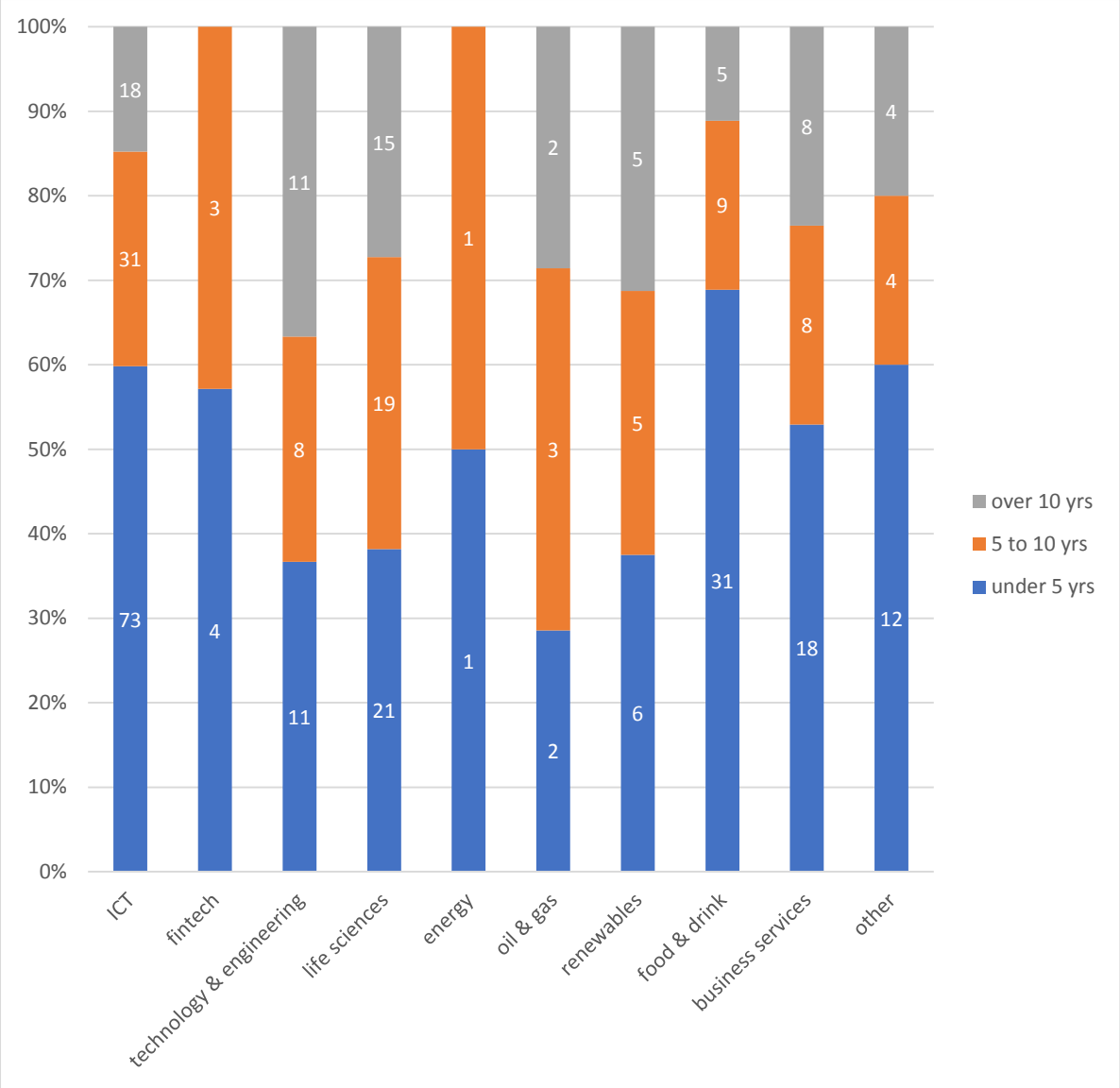
The average and median investments in these bands in 2018 were:

- companies over 10 years old, average £1.69m; this figure was influenced by some very high value deals, and the median for this group was £500k;
- companies between 5 and 10 years old, average £960k, median £370k;
- companies under 5 years average £610k, median £200k.

In its early stages of development, the nature of a company's activities dictates how quickly it can raise first investment, and how long it needs ongoing funding before reaching profitability and can fund its own growth, or alternatively before reaching an exit point.

As we will see in section 3.7 on Exits, it can take companies ten years or more to reach an exit point (IPO or trade sale) for their investors. For the purposes of this analysis we can regard companies which are over five years old as 'more established', in the sense that they have survived the initial set-up and proof of concept stages, even though in some sectors they may not have products or services ready for market. This is illustrated in the analysis of company age by sector, shown in Figure 21.

Figure 21: Companies by age at time of investment, by sector, deal numbers



The refinements to the sectors to improve accuracy for 2018, do not prevent us from making useful comparisons in the two major sectors (ICT and life sciences). In 2017, 19% of ICT companies were over 10 years old at time of investment, compared with 26% in 2018. This sector covers software companies only, with hardware companies in the technology & engineering sector, which might have suggested a continuation of below 20% for over 10 year old companies securing investment, although this was not the case. The oldest companies in this sector were CAS (49 years), SHE Software (22 years), and LiveCode (18 years).

In the life sciences sector, 23% of companies were over 10 years old at time of investment in 2017; this was almost unchanged in 2018, at 22%. The oldest of these was Ocutec (17 years), followed by DySIS Medical (16 years) and Ambicare (14 years). All these companies had also completed funding rounds in 2017 and follow a common pattern in the sector of needing frequent injections of capital en route to market.

The technology and engineering sector had the largest proportion of companies over 10 years old, a little over a quarter of the total. The oldest of these was Walker Precision Engineering (39 years), long supported by Archangels who have subsequently taken an exit from the company, followed at some distance by M Squared Lasers (15 years), Dukosi (15 years), and NCTech (14 years). Although

some of these companies are already making sales, they are often heavily dependent upon continuing research & development for the adaptation of existing products in the market, and for the introduction of new products.

Although the oil & gas and renewables sectors have a large proportion of companies over ten years old at time of investment, the actual numbers are too small for any generalisations about the market structure to be made.

The fintech and food & drink sectors stand out for the low number of companies over ten years old (zero in the case of fintech), illustrating the possibility of reaching profitability more quickly than in other sectors (although the food & drink category covers several different types of business).

The list of companies over 10 years at time of investment in 2018 covers a wide range; there were 8 over 20 years, 16 between 15 and 20 years, and 45 between 10 and 15 years. The oldest of these are listed in the following table.

Figure 22: Companies over 20 years at time of investment

company	yrs to investment	deal £m	sector
Hamilton Park Racecourse	94.8	£2.0	other
CAS	48.8	£0.1	digital & IT
Duncan and Todd Opthalmic Opticians	44.2	£15.0	business services
Walker Precision Engineering	39.3	£2.8	technology & engineering
Absoft	27.2	£1.0	business services
Parklands Group	25.9	£5.0	business services
Rabbie's Trail Burners	24.5	£0.03	business services
SHE Software	21.9	£3.0	digital & IT

3.7 Exits

One of the risks facing investors 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 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 would no doubt leave the market unless convinced of this possibility.

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

IPO

There was a single IPO by a Scottish company in 2018; Edinburgh-based fintech company Nucleus was listed on the London Stock Market AIM exchange having raised £32.1 million. The company was

12.3 years old (from date of incorporation) at the time of the IPO and had previously raised an aggregate of £0.5m from external equity investors.

Trade sales

IPOs remain few in number, and the main exit route for investors is by way of a trade sale. It is difficult to trace all acquisitions of companies, as without public announcements there are few other clues. The acquired company can continue in existence whether or not still trading in its original name, and when companies are dissolved, this can be for several reasons, and the new ownership of a business is not indicated on the Companies House returns.

The following table shows the number of companies known to have been acquired in 2018, and which were under 25 years old at the date of the acquisition and are known to have previously raised external investment.

Figure 23: Trade sales in 2018

company	exit date	acquirer	Location of acquirer	age in yrs at acquisition
Xodus Group	Feb-18	Subsea 7	Scotland	7.84
Lonburgh Capital	May-18	Gneiss	UK	4.68
Sumerian	May-18	ITRS Group	UK	1.54
FanDuel	May-18	Paddy Power Betfair	UK	10.3
Veropath	Jun-18	Calero Software	USA	16.54
JAG Shaw Baker	Aug-18	Withers Worldwide	UK	7.82
Redeem	Sep-18	Greybull Capital	UK	19.55
Edesix	Oct-18	Vigilant Solutions	USA	16.13
ZoneFox	Oct-18	Fortinet	USA	9.97
Kinetic Discovery	Nov-18	Exscientia	Scotland	10.07
Coretrax	Dec-18	Buckthorn Partners	UK	10.01

The price of the acquisition is announced in only a small proportion of trade sales. The only deal for which there was any financial information was the acquisition of FanDuel by UK quoted Paddy Power Betfair, which combined the US assets of its Betfair brand worth $612m with FanDuel, as well as providing a further $158m in cash. There are no values for any of the remaining 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.

The average age to exit for these companies was 10.4 years from incorporation – the median was slightly lower, at just on ten years. These values are longer than for all UK companies tracked in the Investment Benchmarking Analysis[3], which gives a median age of 8.0 years to exit for all 181 companies where a trade sale has been identified.

The following chart shows the trend in exits over the past five years. For 2013, the start of the series in this report, we have no data on trade sales, and there was no IPO.

[3] *Investment Benchmarking Analysis 2018, Scottish Investment Bank (2019)*

Figure 24: IPOs and trade sales, 2014 to 2018

3.8 Conclusions

Digital & IT and life sciences continue to be the sectors with the greatest investment presence in Scotland, followed by food & drink. Energy companies, including oil & gas and renewables, took only 13% of all investment in 2018. One reason for the different levels of equity investment is in part due to the different business models adopted in each sector; where companies have a range of other financing options, such as debt, or project finance, the straight equity investment route might not be the most favourable.

On the other hand, in 2018 we have seen the continuing trend for companies over 10 years old securing equity investments – they accounted for 20% of all deals, and 36% of all investment. For some of these, this is the first time they have taken on external equity (at least, the first time during the six years covered by this report), and the reasons are not obvious. This is perhaps linked to the reduction in investment in start-up companies (under five years old), although start-up companies increased their share of total investment.

One clear fact to emerge from the 2018 data is the continuing dominance of the East of Scotland region, which took 46% of all investment. Companies in the West took 23%, and these two regions together have accounted for an average of 70% of all investment over the past six years. It is impossible to determine trends from year to year, as the number and amount of high value deals over £10m in any year and in either region more than eclipse other changes from year to year. There are occasional welcome boosts for other regions, such as the strong showing of the South of Scotland in 2018, but this was due to two investments in very different companies (Ryboquin and MacRebur).

Reflections on the market

There is much to reflect upon when considering 2018 market data for Scotland.

Section 1 of this report tracks the levels of investment and deal numbers in Scotland. While the 2018 overall total for investment fell to £316m from the £538m recorded for 2017, we know that was due to a few very large deals in 2017, such as BrewDog at £100m and NuCana at £85m. Together with seven other deals at £10m and above, 2017 total investment scaled a new height for the market. By way of contrast, the four deals at £10m and above for 2018, were led by BrewDog again at £26m and DySIS Medical at £15m. While very large deals have been a feature of the market since the start of our current series in 2013[4], they do not appear every year at the levels reached in 2017 and they do not define the market. Instead, they introduce a level of volatility that demands further scrutiny to improve our understanding of trends.

Perhaps of greater importance for trend analysis and to allow us to consider the health of the market, we must turn our attention to the underlying investments (below £10m) where 99% of deals take place. To help us do this, the chart at Figure 2 on page 7, sets out trends in the underlying market for all investments below £10m, indicating steady growth, with a 9% increase from 2017 to 2018 (£225m increasing to £246m). The underlying market is on an upward trend and close to double the size at the start of this current series in 2013 (£129m increasing to £246m).

Overall, the 2018 market (£316m) appears similar to 2016 when the total reached £336m; however, even here, the 2016 underlying market was £166m and some 50% short of the 2018 underlying total. The distorting effect of the £10m and above deals in 2016 is again proving to be the difference.

Section 1 also draws attention to variations at each of the investment bands. The report considered activity in the bands between £2m and £10m which is an important company growth stage, attracting both VC and corporate investors as well as angel groups co-investing with other groups and Scottish Enterprise. With 38 deals in the investment bands from £2m to under £10m, 2018 was well ahead of previous years in the series. The 32 deals recorded for 2016 make it the only other year to break through the 30-deal threshold (2017 activity was 26 deals). Looking at corresponding values for the £2m to under £10m bands, the total of £132m for 2018 was an increase of 22% on 2017's £108m.

We can also point to a continuing strong performance across the next three bands (from under £100k to under £2m) in relation to deal numbers and investment amounts that may also strengthen the pipeline for larger subsequent rounds.

In the lowest investment band, below £100k, it is much more difficult to discover if all deals have been captured. From the available data, we can see that the number of deals has fallen back from 2017's record high (85 for 2018 compared to 112 in 2017) as has the level of investment (£3.7m compared to £4.7m in 2017). However, the below £100k level for 2018 remained one of the highest in this recent series, indicating a continuing flow of investor ready companies with potential to create much larger follow-on rounds for their investors.

Overall, we may conclude from the 2018 analysis of investment that the market remains robust, is experiencing notable growth in the below £10m deal space where 99% of deals took place, and that we continue to see much volatility from year to year in the very large deal sizes of £10m and above that skew the overall size of the market. It is also of interest that deal sizes in the £2m to under £10m space are together experiencing significant growth in numbers and it will be interesting to track these investee companies to see where they go next.

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[4] *2013 was selected as the first year for this latest data run to analyse recent trends. This allows us to consider the latest year (2018) relative to five previous years.*

Section 2 of this report looked at the sources of investment to consider activity by the type of investor and how their appetites may have changed over the last few years. As the largest contributor in funding terms, VC/PE firms participated in 64 deals during 2018, with these deals injecting an average of £2.2m into some of the most ambitious Scottish companies. VCs led in 44 of these deals which was a similar level to 2016 (45) but a significant drop from 2017 when they led on 66 deals. VCs were not only attracted to the larger deals, such as the £18m investment into medical device company DySIS Medical by London based Albion Capital and Denmark's Lundbeckfonden Ventures; significantly smaller deal sizes also won VC investment when LeanSquare and Meusinvest from Belgium invested £40k into Glasgow based music learning business Soundbops.

In 2018, there were 13 VCs headquartered outside the UK which invested in Scottish companies compared with 14 in 2017.

There has been much discussion over the recent growth in corporate investment into markets across the world. While corporates participated in only 4% of deals during the year in Scotland, these 11 deals (2018 total participations: 286) attracted some of the highest levels of investment, averaging at £2.9m, particularly into the renewables sector. While 2018 did not match up to the 20 corporate participations in 2017, the Scottish market continues to be an attractive proposition for this important investor type, such as Oghma Partners from London and Robert Bosch Venture Capital from Germany.

Angel groups participated in 60 deals (63 deals in 2017 was a record high) with 2018 providing further evidence of the growing appetite for syndication between groups. Angel Groups leading on deals of over £1m are now a regular feature, with 22 recorded for 2018. The report notes the level of syndication taking place, such as the £2.2m investment into Sunamp by Angel Groups Equity Gap and Highland VC who were joined by Par Equity, Osaka Gas, Edinburgh University's Old College Capital and Scottish Enterprise.

Crowdfunding for 2018 reached a new high of 17 deals raising £35m, compared with 13 deals raising £10m in 2017. The £26m raised by BrewDog in 2018 results in this campaign being responsible for three-quarters of the 2018 total. While equity crowdfunding is very important to these growth businesses, with only a few campaigns raising over £1m (three in each of the last two years), equity crowdfunding is yet to fully make its mark on the Scottish market.

Section 3 of this report looks at the characteristics of the companies securing investment over the year. The digital and IT sector continued to lead the way for both deal numbers (122 deals or 36% of all deals) and investment (£81m or 26% of total investment). Despite improvements to many sector labels to better reflect the latest business environment, such as fintech and digital, it is possible to do trend analysis through a mapping exercise. Using our sector mapping, we can see that the digital and IT sector has dominated Scotland's investment scene since 2013, securing some 41% of deals (643) and 38% of investment (£814m). By contrast, and over the same period, life science companies secured some 22% of deals (343) and 24% of investment (£504m), returning a higher average investment per deal. Looking again over the same period, companies in the renewables sector attracted 7% of deals (112) and 7% of total investment (£157m).

The more recent emergence of breweries and distilleries as strong investment propositions has pushed the food and drink sector into prominence, securing 11% of deals (78) and 22% (£184m) of investment over the last two years, resulting in an average investment per deal only exceeded by the oil and gas sector.

The East and West regions continued to take the largest share of total investment in 2018 (69% or £218m). This share is close to the average over the period from 2013 (68% or £243m) and yet, significantly less than the 2015 high of 84% or £322m. In 2018, the Aberdeen region experienced its highest number of deals in the series (33), although total investment of £62m fell back to below its average over the period of £79m. The regions of Tayside, Highlands and Islands and the South of Scotland were able to match or (in the case of Tayside) exceed, their average number of deals throughout the period while attracting significant investment.

Section 3 also examines how companies securing investment for the first time fared, in comparison with those that successfully raised subsequent rounds of investment. Over the last few years, global market reports have raised concerns over reducing levels of seed investment cases. Market analysis for Scotland indicated concern over low deal numbers during 2014 and 2015 (30% share of total deals) then a noticeable pick-up from a much improved 40% share in 2016 and a 43% share in 2017. It is concerning that the share of first time investment deals has fallen again during 2018 and at 29%, is the lowest in the series.

As 13 of the 97 first-time investee companies in 2018 can be categorised as established companies and are at least five years old and often much older, the first-time investment analysis cannot simply be a proxy for start-up companies. That is why investment into start-ups is now a feature of our report, using date of incorporation to assess investment levels for very young companies up to three years old and another cohort of between three years old and five years old.

Taking the two cohorts together, we can see that companies up to five years old have been successful in taking up over half of all deals over the last three years (523), corresponding to 27% of investment (£323m). The implication is that these young companies are continuing to win investment support but with a weighting towards subsequent rounds, however, there are fewer new entrants securing investment to build the pipeline and that may impact on the number of subsequent rounds over the next few years.

What is not clear from a data analysis is whether first-time investment prospects are being starved of investment due to a supply shortage or a changing supply strategy, or if it is down to a reduced number and quality of propositions, affected by mounting external risks. There is little to suggest that there is an issue over levels of potential supply, with the investment literature pointing to significant supply of 'dry powder' globally and we might instead point to changing risk strategies with more investor confidence towards established firms and those closest to market?

The time to investment analysis for 2018 tells us that while there were 182 deals for companies under five years old and only 68 deals for those over 10 years old, the latter secured more investment (£116m compared to £110m). This means companies over 10 years old had an average investment of £1.7m compared to £600k for companies under five years old. It is of little surprise that more established companies are raising more investment per deal although the degree to which they do so is of interest. A quarter of investment raised by over 10 years old companies proved to be for companies over 20 years old.

Section 3.7 of the report looks at 2018 trade exits. The number of exits for 2018 (11) compared favourably with the six recorded for 2017 and the eight recorded for 2016. The UK and the USA were the homes of the acquirers in 2018 unlike 2017 and 2016, when Germany, Sweden, China, Israel, Spain and Iceland all featured. The average age at acquisition was just over ten, down from the 13 years old in 2017 and similar to the nine years old in 2016. As with 2017, there was a single IPO event.

Appendix 1: Methodology

This report is based on data collected by Beauhurst, complemented by information provided by Young Company Finance.

Data collection by Beauhurst

Beauhurst collects, collates and structures data on all equity investment deals into private UK companies, the companies receiving the investments, and the investors involved in the deals, using a variety of resources and techniques for this purpose.

1) announced deals

Beauhurst has developed a proprietary application to automatically read thousands of web-pages each day on websites that are likely sources for deal announcements; this includes national newspapers and trade press, as well as a myriad of less common sources. Using machine learning the application flags to the Beauhurst research team all press releases it has identified as containing mention of an investment. The research team reads these releases to determine what type of finance was involved, the company involved, the investors involved and all other relevant details.

2) unannounced deals

Most equity transactions in the UK are unannounced. Beauhurst identifies these deals by looking at SH01 forms filed at Companies House, which indicate the issue of new shares in a company. All UK companies are required to file these returns, which are usually an indicator of new investment in the business.

Beauhurst has developed proprietary software that reads all SH01s filed at Companies House. The research team can determine the value of the investment and, where the data is available, the investors involved.

This allows Beauhurst to identify all equity deals in the UK except for the very small percentage of deals into companies which fail to file SH01 returns.

3) further sources

Beauhurst also receives submissions from funds and equity crowdfunding platforms detailing their investments, which enables the matching of deals found through SH01s with their investors. Beauhurst also incorporates data supplied by YCF, LINC Scotland, and the Scottish Investment Bank.

4) ongoing tracking

Receipt of an equity deal is only one of the triggers for including a company in the Beauhurst database. It also includes all companies that have graduated from an incubator or accelerator, achieved scale-up status, or received an Innovate UK grant.

Once companies have met one of these triggers, Beauhurst continues to track them, looking for further deals, acquisitions, IPOs etc.

5) undisclosed information

In a small number of cases, the amount invested is not known, and although these deals are shown in the summary table in Figure 1, they are omitted from the analysis in subsequent sections. In many more cases the total investment amount is known, but not the identity or even the type of the investor or investors. Moreover, even when the total investment and the investors participating in the deal are known, the amount contributed by each separate investor is rarely disclosed.

Further research by YCF

YCF tracks investments in Scotland on its own account, to be able to provide deals reports in its monthly publication. YCF has several approaches:

Access in confidence to deals listings by angel group members of LINC Scotland;

Monthly 'news reminders' to investors and intermediaries (legal and corporate finance) for deals reports to be included in YCF's monthly publication;

Tracking of emerging companies which have participated in one or more of the many start-up level programmes in Scotland – for example SMART and RSA grants, Scottish EDGE, Converge Challenge, EIE, SIE, Shell Springboard, High Growth Spinout Programme, Saltire Fellowships, RSE Fellowships. The tracking includes some desk research, and some direct contact.

Appendix 2: 2018 deals over £2 million

company	deal date	£m	region	investors
BrewDog	Oct-18	£26.2	Aberdeen	Equity For Punks, Crowdcube
DySIS Medical	Aug-18	£18.0	East	Albion Capital, Lundbeckfonden Ventures
Duncan and Todd Opthalmic Opticians	Mar-18	£15.0	Aberdeen	Lloyds Development Capital (LDC)
Twig World	Sep-18	£10.9	West	Undisclosed
Care Sourcer	Jul-18	£8.5	East	Accelerated Digital Ventures, Legal & General Capital
Faraday Grid	Jun-18	£7.6	East	Undisclosed
AdoRx Therapeutics	Jun-18	£7.6	East	CRT Pioneer Fund (CPT), Epidarex Capital
3F BIO	Apr-18	£6.2	West	U of Strathclyde, EOS Technology Investment, SIB, Data Collective VC, individuals
TVSquared	Mar-18	£6.0	East	West Coast Capital, 4J Studios, SVF
Holyrood Distillery	Mar-18	£5.8	East	private investors, SVF
Parklands Group	Nov-18	£5.0	Highlands & Islands	BGF Growth Capital
Ryboquin	May-18	£4.4	South	TRI Cap, Braveheart, SVF
Current (Snap40)	Jul-18	£3.8	East	Accelerated Digital Ventures, MMC Ventures, Par Equity, SCF
Jellagen	Apr-18	£3.8	Tayside	Start Up and Early Stage Capital, Newable
Deep Casing Tools	Jun-18	£3.8	Aberdeen	EV Private Equity
NCTech	Aug-18	£3.7	East	Archangels, SVF
Enpro Subsea	Jan-18	£3.6	Aberdeen	EV Private Equity
MacRebur	Nov-18	£3.2	South	Seedrs
Calcivis	Jul-18	£3.1	East	Archangels, Julz, SVF
Sustainable Marine Energy	Dec-18	£3.1	East	Undisclosed
SHE Software	Feb-18	£3.0	West	NVM Private Equity
Incremental Group	Nov-18	£3.0	West	Dunedin
ZiLift	Dec-18	£3.0	Aberdeen	Undisclosed
Optoscribe	Sep-18	£2.8	East	Archangels, Maven Capital Partners, Par Equity, SVF
Shot Scope	Dec-18	£2.8	East	London & Scottish Investment Partners, Old College Capital, business angels, SIB
Walker Precision Engineering	Nov-18	£2.8	West	BGF Growth Capital
Just Gluten Free Bakery	Oct-18	£2.6	West	Undisclosed
TravelNest	Oct-18	£2.5	East	Undisclosed
Qikserve	Mar-18	£2.5	East	Undisclosed
E Fundamentals	Jan-18	£2.5	East	Downing Ventures, others
Orbital Marine Power	Sep-18	£2.4	Highlands & Islands	private investors, Renewable Energy Investment Fund (REIF)
LendingCrowd	Mar-18	£2.3	East	Equity Gap, Murray Capital, SIB

Dukosi	Aug-18	£2.2	East	IP Group, Par Equity, SVF
Hutchinson Networks	Apr-18	£2.2	East	YFM Equity Partners
Sunamp	Oct-18	£2.2	East	Par Equity, Equity Gap, Highland Venture Capital, Old College Capital, Osaka Gas, SIB
Codeplay	Apr-18	£2.1	East	Foresight Williams Technology EIS Fund, Foresight VCT
CelluComp	May-18	£2.1	Tayside	FPCI CapAgro Innovation, Sofinnova Partners, SVF
ScotBio	Nov-18	£2.1	West	Kelvin Capital, Oghma Partners, Investing Women
Greengage Lighting	Dec-18	£2.0	East	Par Syndicate, SCF
BDD	Feb-18	£2.0	West	Archangels, SVF
Speech Graphics	Aug-18	£2.0	East	Archangels, Par Equity, SCF
Hamilton Park Racecourse	Aug-18	£2.0	West	Undisclosed

Appendix 3: 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 several 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

Several 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 several 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 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, which typically invest in companies that 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), and the Strathclyde Innovation Fund.

Others

This includes organisations which make a small number of 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 many 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 the platforms, with a stated target investment and a closing date. The platforms provide the structure and administration for operating the campaigns.

Public sector investors

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

In Scotland this mainly 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.

Appendix 4: 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

Other 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: not included elsewhere, eg entertainment (film, TV), agriculture, clothing, packaging

Appendix 5: Glossary of terms

Term	Definition
angels	Private individuals who invest their own capital either alone or part of a syndicate, and who personally own the equity they purchase.
corporate venturing	Investment by large (often global) non-financial companies, for the purpose of building innovative capacity which might give the investor competitive value.
deal	The transaction between an investor and a company, which may be standalone or part of an investment involving other investors.
equity investment	A discrete purchase of share capital in a company by one or more investors at a given time.
institutional investors	Organisations which invest on behalf of others. These include Venture Capital companies, partnerships, corporations and corporate venture firms, banks and investment trusts.
ICT	information and communications technology
IP	intellectual property
LS	life sciences
new investment	The first significant external equity investment in a company, excluding early small scale investment by founders, friends, and family. Often referred to in the industry as a Series A round.
others	The category 'others' refers to individual investors who are not part of an angel group (and are not 'founders, family, or friends'), but also includes investors whose identity it has not been possible to determine.
public	Public sector investments include those by the Scottish Investment Bank funds, Highlands and Islands Enterprise, and other public sector agencies.
SE	Scottish Enterprise
SIB	Scottish Investment Bank, a division of Scottish Enterprise that provides investment funds to support company growth in Scotland.
spinout	spinout - a company emerging from a university or research institution, whether created to commercialise IP owned by the institution, or started by a member of staff or recent graduate.
syndication	Investment by two or more groups or firms, investing under the same terms and conditions in order to increase the total deal size.
VC	Venture capital, or venture capital firm**.** Typically, VCs are investing funds with a specified time scale, often ten years, within which they aim to generate returns on the investments of the fund's LLP (limited liability partner) stakeholders.

Appendix 6: Authors

Jonathan Harris, Editor, YCF

Jonathan is the publisher and editor of Young Company Finance (YCF) a monthly review of early stage high growth companies in Scotland which focuses particularly on the issues of how to fund growth.

Since acquiring the business from Gavin Don in November 2000, Jonathan has subsequently expanded it to encompass special reports on specific market sectors (to date Life Sciences, Digital Entertainment, and Renewable Energy), a very successful annual conference now in its 16th year, and in 2006 a new edition of YCF, a monthly publication tracking young companies in the North of England, subsequently discontinued after four years of publication.

In 2011 Jonathan started Spinouts UK, a new project managed by Young Company Finance which is based upon a database of spinout and start-up companies from universities across the whole of the UK. Spinouts UK has been supported by prestigious partners including universities (Oxford, Cambridge, Edinburgh, Manchester, UCL, Imperial, Nottingham, and Loughborough), public sector agencies (Scottish Enterprise, Finance Wales, Nesta), and several other organisations with a close involvement in the university commercialisation sector (PraxisUnico, BBSRC, Royal Society of Chemistry, Marks & Clerk, MFL Science & Technology, and Winning Pitch). In 2018 the Spinouts UK business was acquired by Beauhurst.

Beauhurst

Henry Whorwood, Senior Consultancy Associate, Beauhurst

Henry leads Beauhurst's Research & Consultancy team. He is an expert on business finance and has worked on briefs for clients including the British Business Bank, Penningtons Manches, Syndicate Room, and Innovate UK. Henry regularly gives presentations on market trends at events around the country. He studied Classics at the University of Oxford.