

 BeauhurstParkwalk
Investing in Innovation

Equity investment into spinouts

2023



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Foreword



Moray Wright, Chief Executive Officer at Parkwalk

This year's report shows the total investment secured by UK spinouts fell during 2022 and looks set to fall further in 2023. It will be the first consecutive period of decline in nearly a decade of sustained growth, during which the sector displayed remarkable resilience.

The downward trend is without doubt a symptom of challenging macro-economic conditions. Significant changes in the costs of borrowing, global interest rate cycles, and a changeable policy landscape have impacted the entire UK equity market, and with it, investors' risk appetite for early-stage investments. Nonetheless, there is much to be positive about in this year's report and for the future performance of UK spinouts.

While total investment fell year-on-year, 2022 set a new record for the number of spinout deals. That so many deals were secured in such challenging times is testament to the UK's world-leading research centres and the groundbreaking innovation they cultivate. Key sectors also saw record performance and interest

from investors. Life sciences spinouts again made up the greatest proportion of investment and landed four of the highest value deals. Deep tech closely followed, with the number of deals for Artificial Intelligence spinouts growing significantly as this fast-evolving sector entered the mainstream for the first time.

It reflects a growing political interest in the UK's knowledge intensive industries. Since our last report, we now have a government department dedicated to science, along with a host of reforms to encourage greater investment from UK pensions funds into UK equities. While the impact of these interventions will take time to be felt, the unanimous political support for home-grown innovation should give cause for optimism.

But the job is not yet done. The trends in this year's report reinforce the need for further action to make sure spinout founders can access the funding needed to grow in the UK. The last eighteen months saw the highest proportion of foreign investment

into UK spinouts since our data collection began. Encouraging greater uptake of the Enterprise Investment Scheme (EIS), which for nearly three decades has offered investors robust financial and societal returns, would offer just one route to increasing levels of UK investment into our most innovative companies.

Arguably, this has never been more important. As a fourth industrial revolution gathers pace, spinouts will play an increasingly significant role in tackling the greatest challenges facing us and future generations - from ensuring the UK has a sovereign supply of critical technologies, to creating new, high-quality jobs, to providing green energy solutions.

It's why I believe the case for backing the innovation spinning out of the UK's top-class universities and research centres has never been clearer. And I'm confident it is only a matter of time before spinouts return to their record-breaking performance.

Executive summary



Henry Whorwood, Head of Research and Consultancy at Beauhurst

Academic spinouts are an important means of commercialising the cutting-edge research and intellectual property (IP) produced by the UK's universities. Equity investment is just one component of the spinout ecosystem but it is an important barometer of the health and dynamism of this important group of innovative companies. The right funding environment, combined with the collective backing of academia, industry, and government, will go a long way in helping these companies continue to boost the UK's global competitiveness.

The past decade has seen tremendous growth in terms of the number and value of equity deals secured by 1,130 unique academic spinout companies. However, in 2022, these companies experienced a decrease in equity funding from £2.73b in 2021 to £2.34b in 2022, and these H1 2023 numbers reinforce this trend. Despite this,

deals are still being closed, though perhaps not at the heady valuations that were witnessed during 2021 and 2022. This is positive as venture capital investing could be seen as decoupled from normal economic cycles. Innovation does not stop and the exit opportunities for the latest crop of spinout companies are many years from now. Investors are acting accordingly.

The allure of the UK's spinout ecosystem is not confined to just domestic investors. Foreign investors have displayed a growing appetite for these companies, with increasing participation from investors based overseas since 2021. Among the prominent contributors to this international interest are the US and Japan, with both nations featuring as major acquirers of UK spinouts, alongside UK entities. This further underscores the attractiveness of the UK's spinout companies.

“**Innovation does not stop and the exit opportunities for the latest crop of spinout companies are many years from now. Investors are acting accordingly.**”

In keeping with its ambitious vision of positioning the UK as a leading global innovation hub by 2035, the government's strategic initiatives are laying the groundwork for sustained growth in the UK's spinouts. With plans to boost annual public investment in R&D to £22.0b, spinouts stand to gain immensely from this significant resource allocation. Coupled with ongoing investor enthusiasm for these enterprises, UK spinouts are ideally placed to play a pivotal role in the nation's quest to emerge as a global innovation leader.

Spinout investment

3,613

equity deals secured by spinouts
(2013-2022)

192

equity deals secured by spinouts
(H1 2023)

£13.3b

equity investment secured by
spinouts (2013-2022)

£743m

equity investment secured by
spinouts (H1 2023)

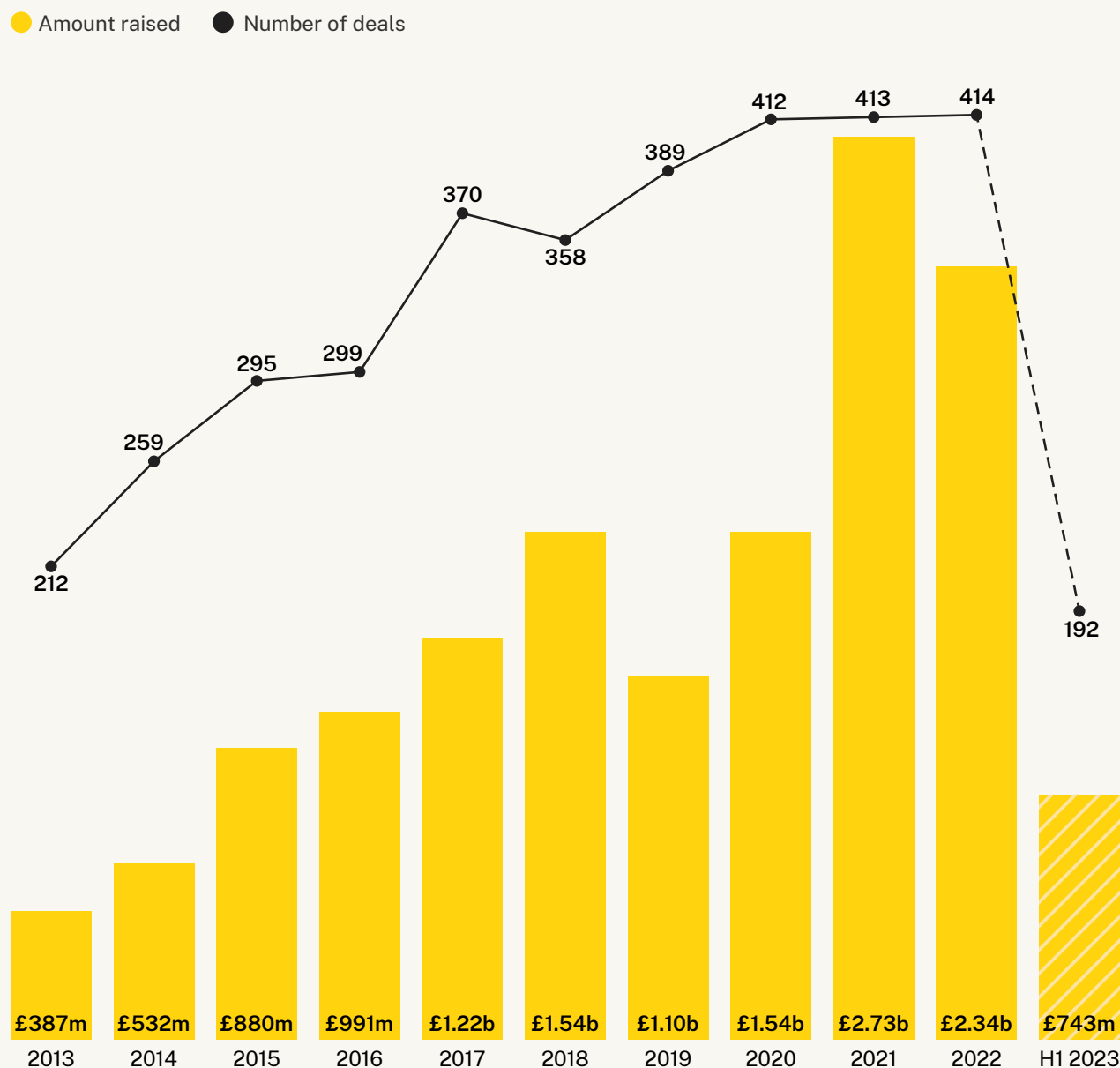


Spinout investment

Over the past decade, the number and value of equity investments secured by UK spinouts have risen significantly. Between 2013 and 2022, the total annual number of deals almost doubled from 212 to 414. Meanwhile, the combined value of these deals increased six-fold from £387m in 2013 to £2.34b in 2022. This upward trend in investment represents both the increasing investor interest in the UK's spinout ecosystem and the growing number of companies spinning out of academic institutions each year.

While the number of deals secured by spinouts remained stable between 2020 and 2022, the combined value of deals nearly doubled from 2020 to 2021. This can be attributed to a significant increase in the number of megadeals — deals greater than £50.0m — which rose from five in 2020 to 14 in 2021. In the first half of 2023, spinouts have secured £743m in equity investment from 192 deals, indicating a fall back to pre-pandemic funding levels amidst a wider economic downturn.

Equity investment into UK spinouts (2013-H1 2023)



Equity deals by number and stage

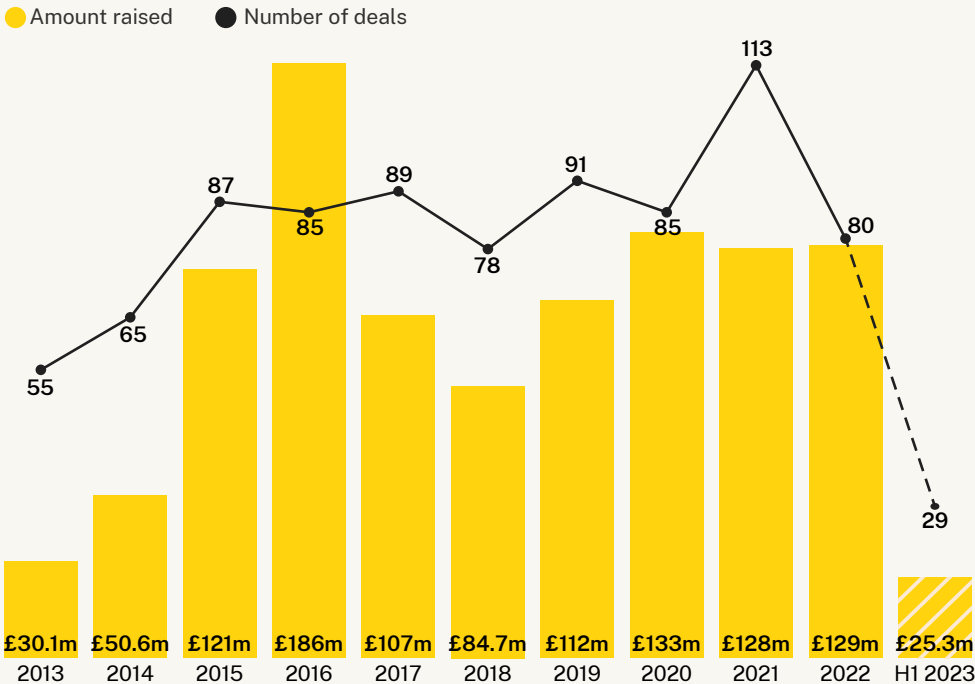
From 2013 to 2021, the number of spinouts raising their first fundraising round steadily increased, peaking at 113 in 2021. The cumulative value of these deals also rose from £30.1m in 2013 to £129m in 2022, increasing the mean value of first-time deals from £547k to £1.61m simultaneously. Mean pre-money valuations also rose from £1.14m in 2013 to

£2.87m in 2022. These upwards trends may reflect the increase in venture funding in the zero-interest financial environment.

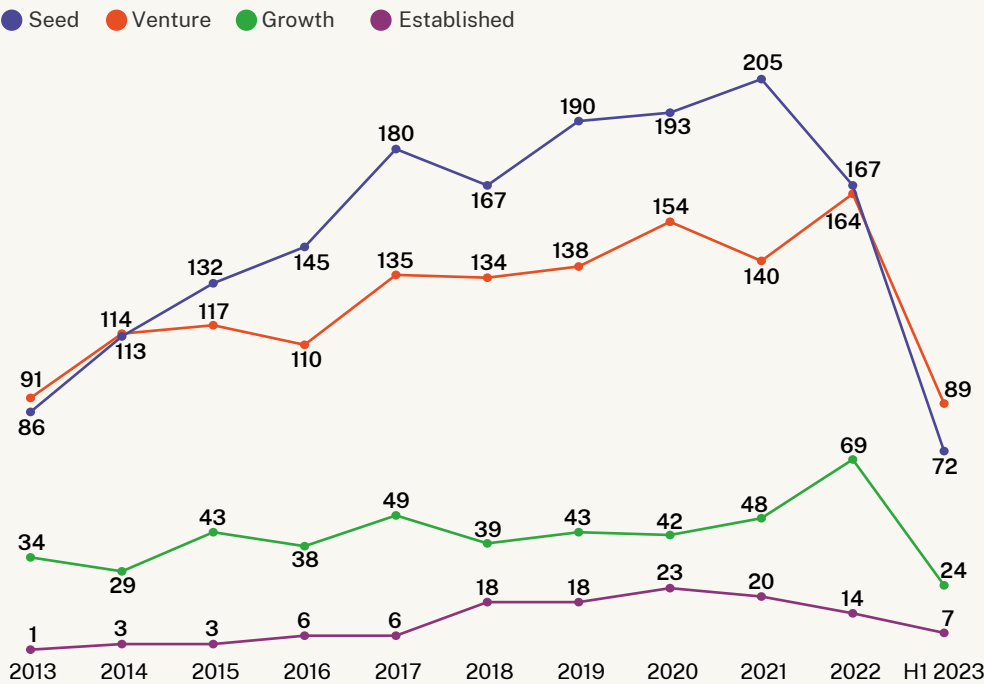
Equity investment rounds at the seed and venture stages have made up the majority of spinout deals over the past decade, while also experiencing greater

growth in the number of annual deals up to 2021/22. The number of deals at the later stages has remained more stable (although falling for the last three years). Notably, the number of seed stage deals dropped in 2022, and further in H1 2023. This suggests a shift in investor focus to investing in existing portfolio companies rather than making new investments.

First-time equity deals into spinouts by year (2013-H1 2023)



Equity investment deals into spinouts by stage of evolution at deal date (2013-H1 2023)



Top sectors for investment

The life science subsectors, research tools/reagents (70) and pharmaceuticals (70), rank as the top sectors by the number of equity deals into spinouts over the past year. This is naturally linked to these sectors being among the most popular for academic spinouts, but may also be linked to the fact that the UK still retains some large, world-class pharmaceutical and biotech companies for spinouts to collaborate with.

Artificial intelligence (52) is also among the top sectors for investment over the past year. The sector has grown significantly in recent years as investors and entrepreneurs recognise AI's potential across a range of use cases, which include improving the efficiency of drug discovery and development and automating manufacturing processes with AI-powered robotics. The sector is poised to play a major role in the future of tech; spinouts operating in this sector will benefit from the support of investors and the government's intention to implement pro-innovation AI regulations. Overall, the lack of funding into other equally important sectors such as climate change, materials and electronics is somewhat worrying.

Top sectors by number of equity deals into spinouts (H2 2022-H1 2023)

Research tools/reagents	70
Pharmaceuticals	70
Analytics, insight, tools	55
Artificial Intelligence	52
Clinical diagnostics	38
Software-as-a-service (SaaS)	35
Medical devices	34
CleanTech	30
Materials technology	29
Genomics	29
Precision medicine	18
Wearables	17
Nanotechnology	16
eHealth	16

Top equity deals into spinouts by investment value (2022)

Oxa	£114m		Institution: University of Oxford Headquarters: Oxford Incorporation year: 2014 Activity: Automotive software
TauRx Pharmaceuticals	£101m		Institution: University of Aberdeen Headquarters: Aberdeen Incorporation year: 2002 Activity: Pharmaceuticals
MiroBio*	£80.0m		Institution: University of Oxford Headquarters: Oxford Incorporation year: 2018 Activity: Pharmaceuticals
OMass	£75.5m		Institution: University of Oxford Headquarters: Oxford Incorporation year: 2016 Activity: Pharmaceuticals
Nexeon	£74.1m		Institution: Imperial College London Headquarters: Vale of White Horse Incorporation year: 2006 Activity: Lithium-ion battery components
Osler Diagnostics	£73.8m		Institution: University of Oxford Headquarters: Oxford Incorporation year: 2017 Activity: Medical devices for diagnostics
Nexeon	£59.4m		Institution: Imperial College London Headquarters: Vale of White Horse Incorporation year: 2006 Activity: Lithium-ion battery components

*MiroBio was acquired by Gilead Sciences in September 2022.

Top equity deals

This list of the top equity deals by academic spinout companies in 2022 features companies from several different sectors, indicating the UK's research strength across a range of areas. Oxa, a Parkwalk company formerly known as Oxbotica, secured the largest equity investment round, receiving £114m in December 2022 from investors including Tencent, IP Group and BGF. The University of Oxford spinout develops autonomous vehicle software to help businesses transport people and goods in a cost-efficient manner. Oxa intends to use the funding to expand into new industries and markets globally.

The next largest deal went to TauRx Pharmaceuticals, which develops treatments for Alzheimer's and other neurodegenerative disorders by focussing its efforts on the tau protein within the brain. In November 2022, the Aberdeen-based company secured £101m in equity investment to support its regulatory submissions in the UK, US, and Canada for its tau-targeting Alzheimer's treatment, HMTM. Since launching in 2002, the University of Aberdeen spinout has received a total of £209m in equity investment via four fundraising rounds.

Top investors

Parkwalk Advisors ranks as the top investor in spinouts by the number of equity deals in 2022, participating in 39 fundraising rounds. These included participation into a £40.0m funding round (alongside IP Group, BGF and Hydrogen One) in fuel cell developer Bramble Energy in February 2022. The Imperial College London spinout will use the funding to support the global deployment of its portable power products and the continued development of its liquid-cooled fuel cell stack. Parkwalk, with its parent IP Group, has consistently topped this chart in the last decade, investing in sectors as varied as quantum computing, life sciences, cleantech and AI.

Scotland's national economic development agency, Scottish Enterprise, also features among the top investors in spinouts last year, having participated in 35 deals. The agency focuses on supporting innovative businesses operating in Scotland and, as a result, has invested in many academic spinouts commercialising university IP. This includes the University of Edinburgh spinout Roslin Technologies, which develops animal cells for cultivated meat production.

Oxford Science Enterprises participated in 16 deals by UK spinouts in 2022, taking advantage of its unique partnership with the University of Oxford. The fund participated in a £9.42m equity investment round into Salience Labs in May 2022.

Top investors into spinouts by number of equity deals (2022)

Parkwalk Advisors	39
Scottish Enterprise	35
Oxford Science Enterprises	16
Future Planet Capital	14
Mercia Asset Management PLC	13
IP Group	13
Foresight Group	13
BGF	12
SyndicateRoom	11
Ascension	10
Sapphire Capital Partners	7
IQ Capital Partners	7
British Business Bank	7

Top universities by equity deals

The University of Oxford (64) and the University of Cambridge (50) continue to rank as the top institutions by number of equity deals secured, growing their previous year’s tally by seven and eight deals respectively. This naturally aligns with their positions as the top universities by spinout populations.

Imperial College London has moved up the rankings to third place (26) as the Imperial College Enterprise Funds accelerated the spin-out process there. It is encouraging to see universities from across the country featuring prominently in the rankings, including the Universities of Edinburgh and Bristol (22 each), the University of Nottingham (13) and

the Universities of Manchester, Strathclyde and Warwick (all on 12). This showcases the strength of the spinout ecosystem across the UK.

Top academic institutions by number of equity deals secured by their spinouts (2022)

University of Oxford	64	University of Exeter	8
University of Cambridge	50	King's College London	8
Imperial College London	26	University of Surrey	7
University of Edinburgh	22	University of Birmingham	7
University of Bristol	22	University of Aberdeen	7
Queen's University Belfast	18	Heriot-Watt University	7
University of Nottingham	13	University of Southampton	6
Royal College of Art	13	Newcastle University	6
University of Warwick	12	Queen Mary University	5
University of Strathclyde	12	Loughborough University	5
University of Manchester	12	University of Bath	4
University College London	12	Aston University	4
University of Sheffield	10		

Top universities by equity volume

The University of Oxford (£844m) and the University of Cambridge (£365m) also rank as the top institutions for the combined value of deals secured by their spinouts. Of the 12 megadeals that took place by spinouts last year, six were by University of Oxford spinouts. These include an £80.0m deal by pharmaceuticals company MiroBio in June 2022 and portable lab developer Osler

Diagnostics' £73.8m fundraising round in November 2022. Meanwhile, graphene chip manufacturer and University of Cambridge spinout Paragraf took an equity deal of £45.0m in February 2022.

Imperial College London has secured third position in the rankings in terms of both number of rounds

(26) and cumulative funding of £249m: a huge leap from last year's 8th place. Funding rounds in 2022 included investments into SERG Technologies, a digital health and care solutions provider for people living with neurodegenerative movement disorders, and NK:IO, a spinout developing a cell therapy for treating solid tumour cancers.

Top academic institutions by equity volume secured by their spinouts (2022)

University of Oxford	£844m
University of Cambridge	£365m
Imperial College London	£249m
King's College London	£134m
University of Aberdeen	£113m
University of Manchester	£70.7m
University of Edinburgh	£66.3m
University of Warwick	£57.8m
University of Bristol	£54.4m
Royal College of Art	£34.3m
Queen's University Belfast	£32.7m
University College London	£29.1m
University of Bath	£24.6m

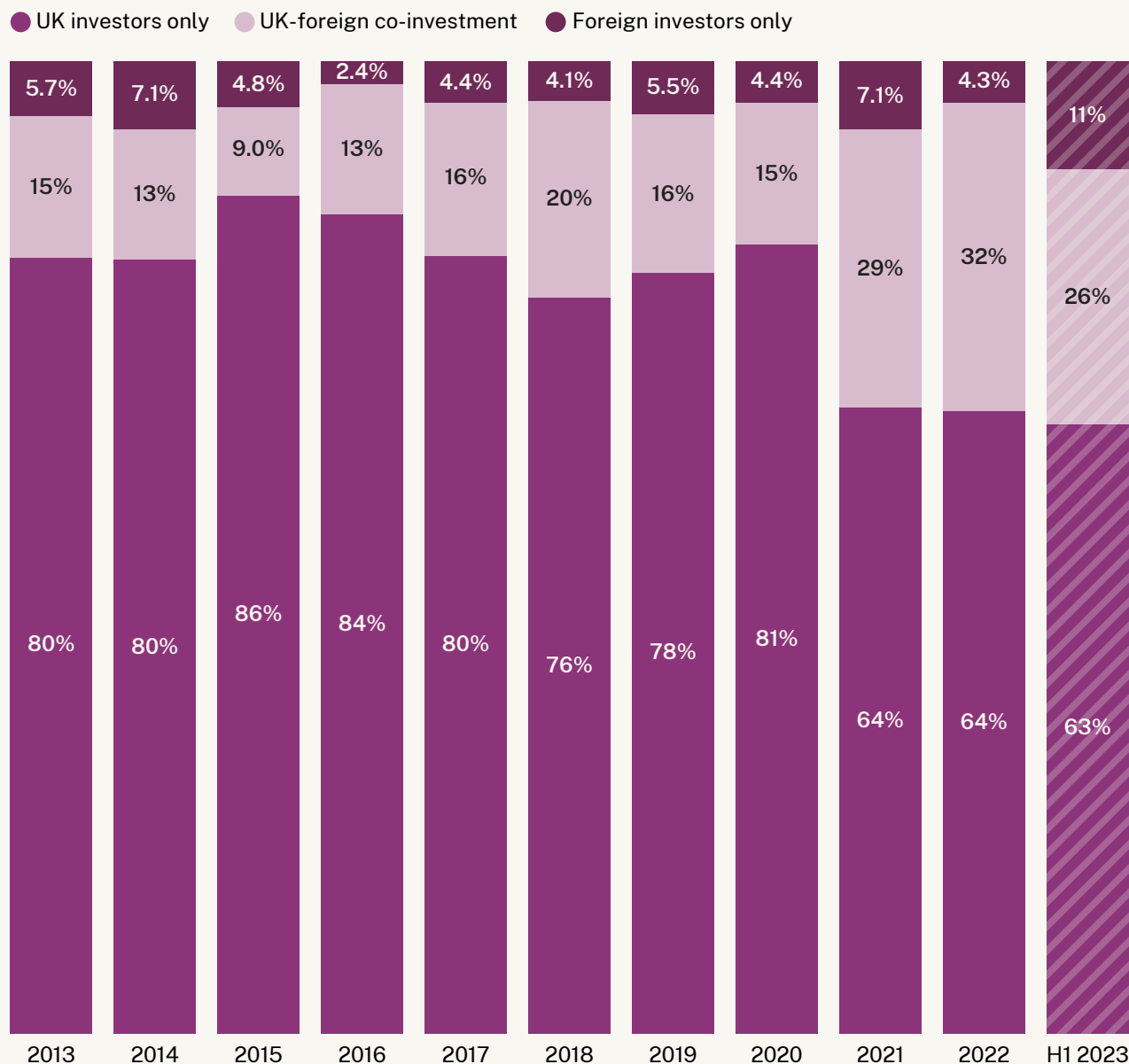
University of Strathclyde	£21.7m
University of Sheffield	£18.8m
Cranfield University	£16.6m
University of Nottingham	£15.4m
Newcastle University	£12.8m
University of East Anglia	£11.9m
University of Birmingham	£11.3m
University of Dundee	£8.7m
Queen Mary University	£8.2m
Lancaster University	£8.0m
Science and Technology Facilities Council (STFC)	£7.8m
Swansea University	£7.5m
University of Glasgow	£7.5m

UK and foreign investment

Between 2013 and 2020, the majority of equity deals by UK spinouts featured solely domestic investors, while the proportion of foreign investor-only deals and UK-foreign co-investment deals remained relatively consistent. The reliance on domestic funding sources exemplified the commitment of local entities, such as government agencies, university commercialisation arms and institutional investors, in supporting the UK's IP-rich spinouts.

Since 2021, there has been a shift in the composition of investors participating in spinout fundraising rounds. The proportion of investments exclusively from UK investors has seen a decline, while the share of UK-foreign co-investment deals has increased. This potentially reflects a few large life science funding rounds and a potential 'value-arbitrage' between the UK and other deeptech hubs internationally, partially encouraged by a fall in the value of sterling.

UK and foreign investor participation by proportion of equity deals into spinouts (2013-H1 2023)



Investor nationality

Over the past decade, the UK's academic spinout companies have attracted significant investment from funds based overseas. Of these foreign investors, funds based in the US participated in the most fundraising rounds by UK spinouts (465). This figure was achieved by 244 unique US-based funds, including the likes of venture capital firm Accel, Google Ventures and tech startup accelerator Y Combinator.

Funds located in the Netherlands retain their second place spot, while funds from Germany have overtaken Chinese firms in the number of deal participations since last year's edition of this report. Two German firms, Join Capital and Schauenburg Ventures, participated in Opteran Technologies' £10.0m equity fundraising round in June 2022. The company plans to use the funding to further develop its bio-inspired robotics and autonomous software and expand into international markets. Recent Chinese investors in the UK's spinout landscape include Tencent, Puhua Capital, and Bits x Bites, all of which have participated in deals in the past year.

Top nationalities of funds by number of equity deal participations into spinouts, excluding UK (2013-H1 2023)

	United States	465
	Netherlands	55
	Germany	46
	France	40
	China	40
	Switzerland	29
	Australia	26
	Ireland	23
	Japan	20
	Singapore	18
	Hong Kong	16
	Denmark	16
	South Korea	15
	Canada	14
	Belgium	13

Exits by spinout valuation (2013-H1 2023)

IPO Acquisition

Oxford Nanopore Technologies	£3.38b
Exscientia	£2.38b
Orchard Therapeutics	£950m
Immunocore	£806m
Adaptimmune	£772m
Intelligent Energy	£639m
Ziyo	£623m
Gyroscope Therapeutics	£588m
Circassia	£581m
Achilles Therapeutics	£529m
Autolus	£498m
Freeline Therapeutics	£476m
MiroBio	£356m
NaturalMotion	£320m
Base Genomics	£315m

Exits by valuation

Since 2013, the UK has seen several of its academic spinouts successfully exit via an acquisition or an IPO. The most valuable exit since the last edition of this report is Immunocore’s IPO in February 2021, which floated on the NASDAQ with a market capitalisation of £806m. Since spinning out of the University of Oxford, the immunotherapy developer has secured a total of £336m in equity investment via 12 rounds from investors such as BlackRock, General Atlantic, and the Bill and Melinda Gates Foundation.

The acquisition of Gyroscope Therapeutics by Swiss firm Novartis is another new addition to this ranking. The gene therapy developer was acquired for £588m in February 2022, having grown significantly since spinning out of the University of Cambridge. Prior to its exit, Gyroscope Therapeutics raised a total of £194m from four equity fundraising rounds, including participation from Cambridge Innovation Capital, Fosun Pharma and Syncona Partners.

Of the top 15 exits by valuation over the past decade, 14 have been by spinouts operating in the life sciences. This underscores the UK’s strength in the sector, which has seen a total of 74 spinouts successfully exit since 2013. Of these 74, 51 (68.9%) were acquired by another entity and 23 (31.1%) were publicly listed on a stock exchange.

Top stock exchanges by number of spinouts listed (2013-H1 2023)

Alternative Investment Market	14
NASDAQ Stock Market	12
London Stock Exchange	1
NEX Exchange	6

Top nationalities of acquirers of UK spinouts by number of acquisitions (2013-H1 2023)

United Kingdom	61
United States	60
Japan	12
Germany	4
Australia	4
Switzerland	3
Netherlands	3
China	3
Canada	3
Israel	2
France	2

Exits by location

The London Stock Exchange (LSE) and Alternative Investment Market (AIM) host the majority (59.4%) of the UK’s publicly traded spinouts, listing six and 14, respectively. This underscores the allure of domestic listing options, as opposed to seeking out alternatives abroad. However, the UK has missed out on some of these businesses, with 12 spinouts floating on the NASDAQ Stock Market in the US.

In this year’s updated ranking, there has been a notable uptick in the number of spinouts being acquired by UK-based entities. UK-based acquirers (61) have overtaken their US counterparts (60) in terms of the number of spinouts they have acquired since 2013. This may represent a positive shift in the UK’s ability to retain and develop its most valuable, innovative businesses. Furthermore, it reinforces the nation’s position as a global innovation hub. A recent example of this is Asite’s acquisition of 3D Repo in April 2023. The University College London spinout develops open-source software to facilitate the management of building information modelling data.

Methodology

Beauhurst tracks all spinouts deemed to have spun out on or after 1 January 2011. Spinning out from an academic institution is one of our eight triggers (outlined on the right of this page) that we believe suggest a company has high-growth potential. More detail on Beauhurst's tracking triggers is available via our website. Companies that spun out of an academic institution prior to 1 January 2011 may still be included in this report if they met one of the other seven triggers after 1 January 2011 and then were subsequently determined to be a spinout.

Equity investment

To be included in our analysis, any investment must be:

- Secured by an academic spinout (as defined previously)
- Some form of equity investment
- Secured by a non-listed UK company
- Issued between 1 January 2013 and 30 June 2023

What is an academic spinout?

We define an academic spinout as a company that meets condition 1 and at least one condition out of 2-4:

1. The company was set up to exploit intellectual property developed by a recognised UK university or research institution (This is broadly in line with the Higher Education Statistics Agency's (HESA) definition of a spin-off).
2. The institution owns IP that it has licensed to the company.
3. The institution owns shares in the company.
4. The institution has the right (via an options or warrants contract) to purchase shares in the company at a later date.

High-growth tracking triggers

-  Equity investment
-  Scaleups
-  Accelerator attendances
-  MBOs/MBIs
-  Academic spinouts
-  High-growth lists
-  Major grant recipients
-  Venture debt

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Beauhurst is a searchable database of the UK's high-growth companies.

Our platform is trusted by thousands of business professionals to help them find, research and monitor the most ambitious businesses in the UK. We collect data on every company that meets our unique criteria of high-growth; from equity-backed startups to accelerator attendees, academic spinouts and fast-growing scaleups.

Our data is also used by journalists and researchers who seek to understand the high-growth economy. It also powers studies by major organisations — including the British Business Bank, HM Treasury and Innovate UK — to help them develop effective policy.

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Parkwalk is the largest growth EIS fund manager, backing world-changing technologies emerging from the UK's leading universities and research institutions. With £500m of assets under management, it has invested in over 160 companies across its Parkwalk Opportunities and Knowledge Intensive EIS Funds, as well as the award-winning enterprise and innovation funds Parkwalk manages for the Universities of Cambridge, Oxford, Bristol and Imperial College.

Parkwalk invests in businesses creating solutions to real-world challenges, with IP-protected innovations, across a range of sectors including life sciences, AI, quantum computing, advanced materials, genomics, cleantech, future of mobility, medtech and big data.



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