INNOVATION FINANCE

Private funding for innovative firms during the COVID-19 pandemic

A review of 2020

January 2021

Ipsos MORI

Key results

- The COVID-19 pandemic has produced a substantial economic shock and changes to social and working practices. There is optimism, however, that the accumulation of household savings will enable a quick recovery when social distancing restrictions are eased.
- There are risks that the pandemic creates permanent changes in behaviour that may cause frictions and a need for innovative solutions. This includes the possibility that alterations to the spatial distribution of population, economic activity, and consumption are enduring. This could create long term challenges for workers displaced by the pandemic and the efficiency of infrastructure systems.
- The private sector will be a key driver in identifying opportunities to innovate and providing the resources required to find those solutions. However, the pandemic has disrupted private innovation spending by creating frictions in the delivery of R&D projects and reducing the availability of internal resources.
- Equity markets will be critical in providing external funds to innovative firms. Based on experiences following the 2008 financial crisis, there were concerns that venture capital (VC) investment would be severely disrupted by the pandemic. These concerns have been largely unfounded. Global equity investment levels rose to historic highs in 2020 with all major VC hubs registering growth.
- The UK is no exception to these trends. UK headquartered companies obtained higher levels of VC funding in 2020 than in any prior year. However, investors have shifted their focus to later stage companies that have demonstrated their commercial model. This has reduced the supply of funding to start-ups and early stage companies. As these companies will often be responsible for future job creation, there are risks that funding shortages reduce economic growth in the medium term.
- Investors have displayed considerable appetite for technologies that promote short-term adjustments to the changes in behaviour required by social distancing restrictions. The food technology sector has been a major beneficiary of these trends.
- However, there is little evidence that the private sector has invested significant resources in addressing some issues of priority for the government. Levels of VC investment in companies aiming to support decarbonisation of the economy have fallen in 2020. The pandemic has not altered the regional distribution of VC investment, with associated implications for the ‘levelling-up’ agenda.
- The public sector may have a role to play in leveraging the resources of the private sector to address these issues. This could include addressing the - likely temporary - shortages of funding for early stage businesses. Thematically and spatially targeted competitions may also lever resources into areas of priority.
- Given the asymmetric nature of the economic shock caused by COVID-19, there may be value in considering how the public sector can offset the negative social consequences of innovation (the benefits of which tend to favour higher skilled workers). This could include building in requirements for investments in training of existing workers and/or hiring apprentices into conditions attached to public subsidies.

Economic context

Economic impacts of COVID-19

Measures to contain the outbreak of the COVID-19 pandemic have had a profound effect on the UK economy. The repeated closures of important sectors of the economy and introduction of social distancing measures has reduced economic output. The ONS estimates that the UK economy will contracted by 9.9% in 2020[1], a drop in output not observed since the 1700s.

The Government acted quickly to protect the economy through the introduction of the Coronavirus Job Retention Scheme (CJRS) and other support measures. This limited the short-term expansion in unemployment and prevented widespread insolvencies. However, unemployment still rose to over 5.0% by October 2020[2] while 7.3% of workers were furloughed under the CJRS[3].

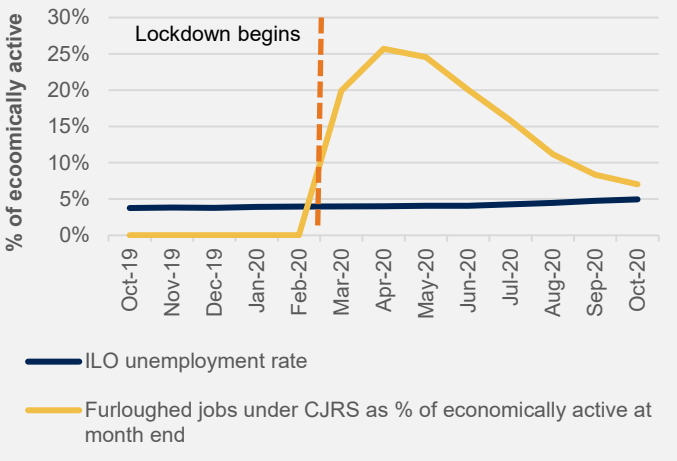
The impacts of the pandemic have also been asymmetric across industries, regions, and workers. The closure of non-essential retail, hospitality, and cultural institutions has led to deeper impacts in areas where these industries are concentrated (typically urban areas). As these are generally lower productivity industries, those in lower skill occupations have experienced more significant impacts. This may exacerbate existing disparities between workers and regions, although London has seen the most significant increases in unemployment to date.

Short-term adaptations

Managing the issues created by the pandemic has required adjustments to working patterns and consumer behaviour, and a need to innovate in the private and public sector:

- **Remote working:** The COVID-19 pandemic has produced large increases in remote working enabled by digital technologies. The proportion of people reporting that they did some work from home rose from 25% in 2019 to almost 50% in April 2020[4]. This has brought challenges for firms, such as monitoring the productivity of remote employees and addressing cybersecurity threats. Not all jobs can be performed remotely as it is not always possible to interface with customers (or production equipment) using digital technologies. As a result, these changes were unevenly experienced across groups of workers and regions. Workers with higher qualification levels and urban areas saw the most growth in home working levels.

Figure 1: Unemployment and furloughed workers, UK



Source: ONS and HMRC

- **Consumption patterns:** Closure of non-essential retail and hospitality has shift consumption patterns on-line. Retail spending online rose by almost 60% between February 2020 and June 2020, while in-store spending fell by 15% over the same period[5]. This shift has enabled some businesses in the hospitality and other industries to 'pivot' to adjacent business models based on delivery services. This has helped offset some of the negative effects on revenues and created an alternative source of employment for some workers.

- **Mobility:** Remote working and closure of cultural institutions and hospitality has seen levels of footfall in central zones fall dramatically. These trends could threaten the viability of businesses with central locations if these trends persist (a major unknown), though some suburban centres have seen renewed vitality. The Government has sought to promote active travel modes and micro-mobility (e.g. E-scooters) as an alternative to public transport to help revitalise town centres.
- **Migration:** The expansion in remote working has led to migration from urban areas with high housing costs to suburban or rural areas. Many non-UK born workers have returned to their home country. One study estimates that London has lost a tenth of its population since the start of 2020[6].
- **Interpersonal connectivity:** Restrictions on face to face social contact have prompted a significant expansion in the number of people using video calls to remain in touch. Research by Ofcom suggests that the share of adults making video calls weekly rose from 35% to 70% between 2019 and 2020[7].
- **Public services:** The public sector has also had to find ways of providing education and health services remotely. Research by IFS[8] estimated that children spent around 5 hours a day engaged in educational activities during the first lockdown, with around 1.5 to 2 hours spent in online lessons. Digitalisation has been less prominent in primary care – while use of remote modes of delivery for diagnosis and triage have increased substantially, use of video calls remained low at around 0.5% of all consultations.

Long-term recovery

It is presumed that the roll-out of the vaccination programme in 2021 will allow easement of social distancing restrictions later in the year. Many of the adaptations made to manage the pandemic may only be required on a temporary basis.

The economic impacts of the COVID-19 pandemic have also stemmed from a forced 'hibernation' of the economy rather than systemic problems in the financial or other sectors of the economy. Some economists have suggested that the economy may quickly rebound once restrictions have eased. The Bank of England estimates that consumers have built up over £100bn[9] in unplanned savings as a result of the pandemic. Those researching past pandemics have noted the frequency of consumption led booms in their aftermath (most notably the 'roaring 20s').

This creates optimism for rapid economic growth in 2022 that would quickly reabsorb unemployed workers into productive employment. However, the pandemic may have long term consequences that policy makers may need to address.

Spatial imbalances

There are major uncertainties as to how far patterns of working and social behaviour will return to 'normal'. The COVID-19 pandemic has accelerated some pre-existing trends to digitalisation of social and working life. This has made economic activities (including those provided by high value service sectors) viable outside major economic centres and encouraged a redistribution of population.

If these changes prove permanent this could have transformative implications. On the one hand, the weakening of the 'pull' of a few dense urban areas may support Government objectives to promote more even patterns of economic development across the UK. However, this would also create spatial imbalances. City planning has centred on providing radial links between outer residential areas and inner employment zones. Existing transport systems and land use patterns would no longer be

efficient, creating pressures to reconceive these systems to adapt.

Shifts to remote working and online consumption patterns will only be 'locked-in' if they involve more productive use of resources. This case is strong in the retail sector. The productivity of the UK economy (in terms of output per hour worked) grew by 4% in the July to September 2020 period, the fastest growth observed since 2005[10]. This was largely driven by reduced activity in low productivity industries. Nevertheless, the retail sector was a major contributor as output was reallocated from less productive physical stores to more productive on-line services.

The permanence of shifts to remote working patterns across the service sector are less clear. Many commentators have claimed that reduced levels of face-to-face interaction will reduce innovation by limiting collaboration and serendipitous interactions. If firms that encourage their workers back into central office locations outcompete those that do not, then shifts in mobility patterns and the distribution of population are only likely to be temporary. So far, higher value service sectors (e.g. finance) with high levels of remote working saw output per hour worked fall. While this needs to be set against the potential savings from reducing office footprints, it is unclear whether permanent remote working will be a persistent feature of the post-COVID world.

Hysteresis

A second major issue is that the economy may not reabsorb unemployed or underemployed resources as rapidly as some economists have claimed. There are three major risks that may require consideration:

- **Insolvencies:** Corporate insolvencies have been kept at historically low levels by the Government's programme of support for businesses. However, the longer that businesses are forced to close or operate at reduced capacity, the more difficult it will be for them to continue operating without taking on unsustainable levels of debt. If businesses cease operating in large numbers, this will create a supply side shock that will inhibit the ability of the economy to respond to demand stimulated by re-opening of the economy (and insolvencies should be monitored).
- **Skills:** Many of the workers displaced by the COVID-19 pandemic were working in low skilled occupations in industries that are likely to require fewer workers in the medium term (particularly if COVID-19 pandemic has sustained impacts on tourism). It may be more difficult for these workers to find productive employment in the short-term, producing 'scarring effects' and problems of long-term employment.
- **Spatial redistribution:** Such issues would be exacerbated by any spatial redistribution of economic activity. Economic resources cannot always be straightforwardly be relocated to the places that they are needed. This would not just be problematic for displaced workers. Redistribution of economic activity could also leave many 'stranded' fixed assets – e.g. vacant offices in central locations.

EU exit

2020 was also complicated by on-going uncertainties arising from the UK-EU negotiations regarding the future trading relationships following the UK's departure from the European Union. The agreement of trade deal will have reduced these uncertainties and help businesses plan more effectively for the future. However, there are early indications that some trading frictions have arisen and some firms may need to find new efficiencies or markets for their goods or services to enable their future growth.

Role of innovation

History tells us that innovation is stimulated by crises that both speed-up innovation processes and open-up new, often unexpected, innovation opportunities. In innovation terms, crises are periods of 'fast history': crisis-stimulated scientific and technological progress shapes future progress over the long-term. Innovation is boosted because the consequences of not innovating become very severe (to the level of existential threat) leading to a re-balancing of the risk-reward relationship in ways that encourage more ambitious and potentially transformational research and innovation.

'Disruptive innovation' can be a consequence of crises, sometimes bringing forward the obsolescence of, or re-directing, otherwise well-established trajectories of technological advance. Consequently, the COVID-19 pandemic creates several key types of opportunities for innovation (beyond the development of diagnostics, vaccines, and treatments to reduce disease burden):

- **Promoting short-term adaptation:** In the short term, there is demand for innovations to facilitate adjustment to the new circumstances that businesses and consumers find themselves in. This could include 'pivoting' to adjacent (or digital) business models that allow firms to secure new streams of revenue, technological innovation to enable businesses to open in a COVID-19 secure way, or facilitate transition to new working practices.
- **Exploiting long term opportunities:** However, there may also be opportunities for transformative innovation that addresses long-term opportunities created (or enhanced) by the COVID-19 pandemic. These are likely to arise from permanent changes in attitudes and behaviour produced by the pandemic.

The private sector will be a key driver in identifying these opportunities and providing the resources required to invest in the R&D needed exploit them. Recent data from Companies House indicates there were record numbers of new start-ups in Q3 2020[11], suggesting that the private sector is adapting. However, research by the Enterprise Research Centre for Innovate UK shows that 65% of grant holders are planning to scale back their R&D efforts[12]. This can be explained by:

- **Disruption:** Social distancing arrangements has created practical impediments to the delivery of R&D projects. A recent Ipsos MORI survey indicated that 70% of Innovate UK grant recipients have experienced some form of disruption to the delivery of their R&D projects – arising from challenges collaborating with partners, supply chain disruption, and difficulties securing investment.
- **Resources:** The pandemic has also reduced internal resources available for R&D. 55% of Innovate UK grant holders have seen reduced revenues as a consequence of the COVID-19 pandemic that has fed into reduced internal budgets for R&D.

The private sector will invest in R&D to exploit commercial opportunities. However, may also be opportunities for Government to influence R&D spending to help achieve its broader policy aims – such as decarbonising the economy and raising economic growth in lagging subregions.

Global VC investment

At the outset of the COVID-19 pandemic, there were substantial concerns that the resultant uncertainty would disrupt the flow of equity finance to business with high growth potential. This would have long-term economic consequences if:

- Innovative firms with a positive net present value closed, resulting in the loss of the IP built up in their R&D portfolios
- Businesses were unable to fund activities aiming to promote adaptation to the change in circumstances brought about the pandemic
- High growth firms were unable to reach their potential, reducing employment and productivity growth in the longer term

These risks led many Governments to rapidly introduce measures to provide liquidity to keep innovative businesses afloat.

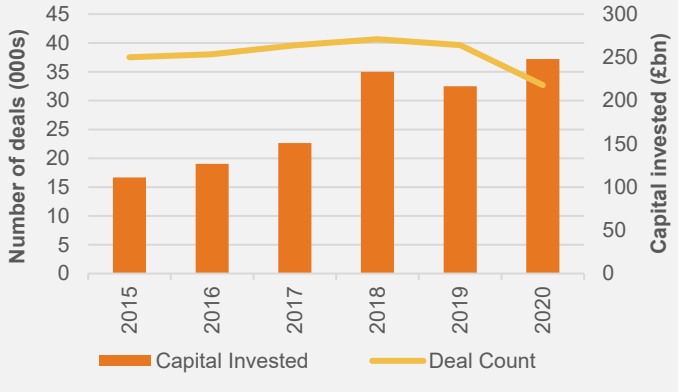
These fears were largely unfounded. Global venture capital (VC) investment levels were at historic highs going into the COVID-19 pandemic and continued to grow in 2020. There was little variation across the major global VC hubs, with US, UK, France, Germany and China all seeing growth in investment levels of more than 20% between 2019 and 2020. This is consistent with the long-term nature of VC investments. As the returns on those investments are not linked to current economic performance, some resilience to short-term economic shocks would be expected.

However, the number of deals completed dropped markedly in 2020 (by 18%). The resources available to investors were focused on a smaller number of larger investments, consistent with a shift in focus from early to later stage companies and fund managers concentrating on extending the cash 'runway' for their existing portfolios.

Recent research suggests this may be characteristic of recessionary periods. Early stage financing for US based firms was particularly sensitive to the 2007/08 financial crisis. Innovation conducted by VC-backed firms during the downturn was also less important, original, general and closely related to fundamental science - apparently driven by a shift in focus to less 'innovative' firms[13].

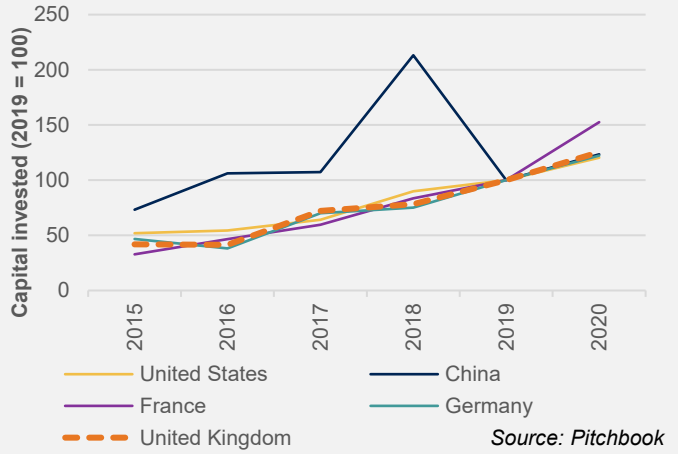
The consequences of the COVID-19 pandemic for innovation are likely to be linked more strongly to the ability of higher risk start-ups to secure funding than the fragility of later stage companies. As such, the economic consequences may be felt in years to come as opportunities for scale-up and job creation in the future are foregone.

Figure 2: Global VC investment (£ invested and no. of deals)



Source: Pitchbook

Figure 3: VC investment, major global VC hubs



Source: Pitchbook

Equity investment in the UK

VC investment in the UK in 2020

As highlighted in the preceding section, the UK broadly maintained its competitiveness in global VC markets during 2020. VC investment in UK headquartered companies rose in line with other major economies. This occurred despite the simultaneous uncertainties created by the COVID-19 pandemic and UK-EU negotiations on their future trading relationship following the UK's departure from the European Union. Key figures include:

- An increase in overall VC investment levels to £13.2bn from £10.6bn in 2019 (a historic high).
- An increase in the average amount invested in portfolio companies (from £3.9m to £5.9m) indicating that those able to attract capital were able to do so in larger amounts.
- An increase in the median valuation of companies receiving investment (from £3.7m to £4.5m), suggesting that investors were not drawn to the sector to take advantage of lower prices created by financial distress.

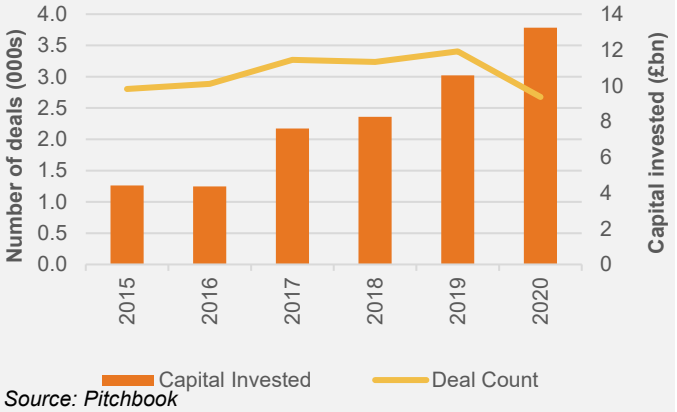
However, while the overall performance of the UK has proven robust, there was a substantial drop-off in the number of companies receiving investment. The number of completed deals fell from 3,400 to 2,700, indicating investors are channelling their capital into larger later stage investments. 2020 saw a large number of 'mega-deals' in which companies closed major private funding rounds:

- Eight firms attracted over £200m in a single funding round.
- Fourteen companies attracted a valuation of over £1bn (giving them 'unicorn' status).
- These companies were active in a wide variety of sectors, including food technology (Deliveroo, Gousto), financial technology (Revolut, Rapyd) and biotechnology (Oxford Nanopore).

The other side of this equation is that start-up companies and early stage businesses have found it more challenging to raise equity funding since the onset of the pandemic. As shown in Figure 5, while there was a drop in all types of VC investment, these were particularly significant for angel and early stage VC deals. This will disproportionately affect start-ups and pre-revenue companies (a concern given the record number of start-ups established in 2020).

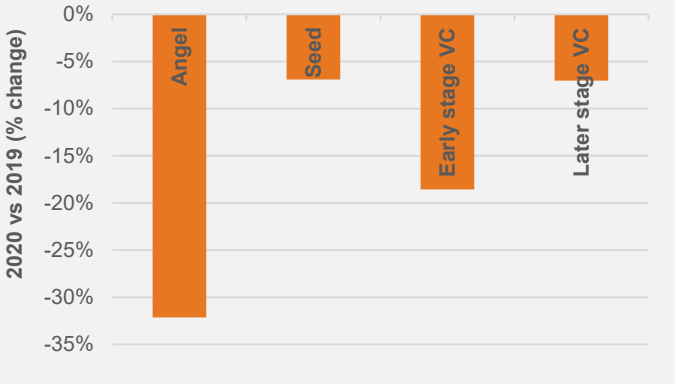
These figures provide a slightly different picture to those set out in recent analysis by the British Business Bank[14] based on Beauhurst data. However, these figures also show that first-time fundraisings have fallen significantly since March 2020.

Figure 4: VC investment in UK headquartered firms



Source: Pitchbook

Figure 5: No. of deals by type, 2019 vs 2020



Source: Pitchbook

Funding for early stage companies

Some insight into the severity of depressed fundraising conditions for start-ups and early stage companies can be gained from comparisons to the 2008 financial crisis. Figure 7 highlights that the 2008 financial crisis had a substantially deeper effect on levels of investment in start-up and early stage companies than the COVID-19 pandemic. This is explained by the nature of the economic shock. The 2008 financial crisis involved:

- system wide issues that constrained fundraising by VC funds and reduced appetite for risk amongst institutional investors
- large effects on equity prices that reduced the wealth of high-net worth individuals that typically fund angel investments

By contrast, the economic impacts of the COVID-19 have been largely been brought about by the forced 'hibernation' of sectors of the economy rather than underlying economic fundamentals. Equity prices have largely recovered to pre-pandemic levels, signalling that investors expect a relatively rapid rebound once social distancing restrictions are lifted.

These figures indicate there may be less cause for concern than in past crises. Nevertheless, frictions created by the pandemic are still reducing the level of funding reaching start-ups and early stage companies that may be critical in returning the economy to growth once the pandemic has subsided. As illustrated in Figure 8, funding shortages seem to have appeared for deal sizes of:

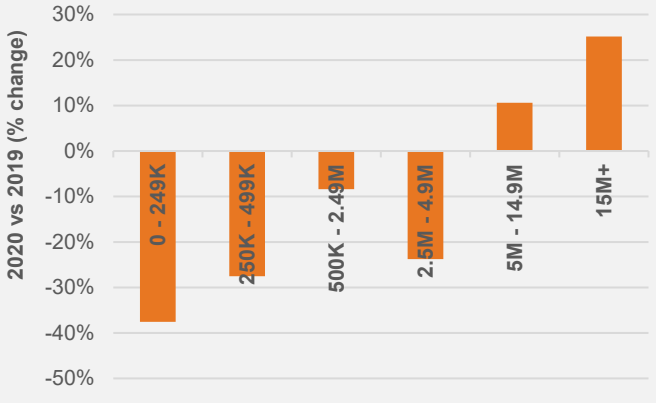
- up to £500,000, and
- in the range of £2.5m to £4.9m.

Innovate UK's response to the COVID-19 crisis through Business Fast Start Grants and the Sustainable Innovation Fund have tended to provide funding to innovative businesses at the lower end of

Figure 7: Impact on angel, seed, and early stage deals - 2008 financial crisis vs COVID-19 pandemic

Source: Pitchbook

Figure 8: No. of deals by size, 2019 vs 2020



Source: Pitchbook

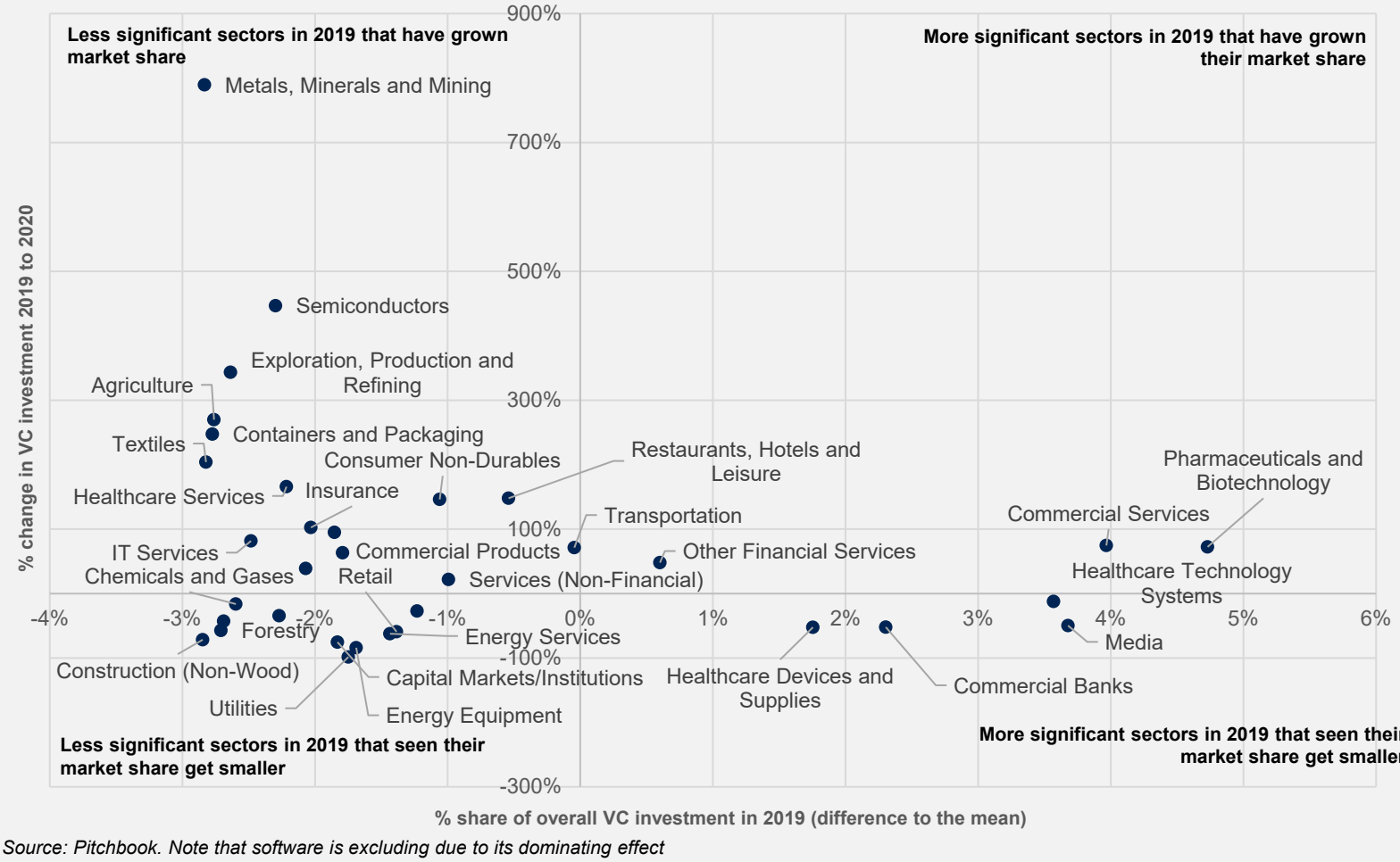
end of these amounts (Fast Starts provide funding of up to £50,000 for example). Larger amounts of funding have been made available in the form of convertible loans through the Future Fund. However, it appears that some gaps are emerging further downstream. If these conditions persist into 2021, then this may inhibit the extent to which firms can obtain follow-on funding to progress innovations beyond early stage exploratory work.

Sector distribution of VC investment

Figure 9 shows how growth in VC investment levels in 2020 were distributed across sectors of the economy, relative to their share of VC investment in 2019. The COVID-19 pandemic has produced some changes in the sector pattern of investment:

- **Digitalisation:** Significant amounts of capital were invested in digital technologies that promoted adaptations to the short-term changes in behaviour created by the pandemic. The 'FoodTech' sector - digital platforms to enable firms to move to business models based on deliveries, and supporting infrastructure in the form of 'ghost kitchens' - was a particular beneficiary of these trends in the UK. However, 2020 also saw significant investments in cybersecurity firms, digital 'venues' for events and the creative industries, and online education platforms.
- **Transport:** Investment in the transport sector also grew substantially on 2019 levels. Some of these investments were placed in firms providing micro-mobility platforms supporting a modal shift from public transport (e.g e-scooters) to help reduce transmission of COVID-19. However, significant investments were also placed in firms aiming to electrify transport systems (e.g. Arrival). These investments will support the Government's longer term aims to 'build back greener' when the pandemic subsides.
- **Energy and decarbonisation:** However, there has been reduced appetite for investment in technologies that may support decarbonisation of the electricity network (the energy equipment and

Figure 9: Winners and losers – growth in VC investment levels in 2010 by share of VC investment in 2019



Source: Pitchbook. Note that software is excluding due to its dominating effect

energy services sectors). The International Energy Agency has suggested that this may be linked to scepticism amongst investors that governments will provide the fiscal support needed to transition to new energy systems due to the impact of COVID-19 response measures on public finances.

- **Healthcare:** The healthcare and life science sectors normally account for significant shares of VC investment in the UK. The pharmaceuticals and biotechnology sector has seen VC investment grow since 2020. This was not directly linked to development of therapies or vaccines for COVID-19. Despite the significant challenges faced by national healthcare systems, investments in healthcare technology, devices and supplies contracted on 2019 levels. Take-up of digital solutions to enable remote care was relatively low in the NHS during 2020, which may partly explain these patterns.
- **Media:** The media sector – which normally accounts for a large share of VC investment in the UK – saw a major contraction in 2020. This has been explained by drop-off in advertising spending in 2020.

This indicates the private sector has been reasonably effective providing resources to sectors and technologies that can exploit short-term commercial opportunities created by the pandemic. However, its goals have not always been aligned with those of the public sector. Some intervention may be needed to stimulate investment in some areas that are fundamental to recovery objectives (particularly aims to support an environmentally sustainable recovery).

Geographical patterns of VC investment

The social distancing restrictions introduced by governments has limited face to face contact and international travel. This led to two contrasting views on how the pandemic may alter geographical distribution of VC investment:

- **Cross-border capital flows:** The VC sector has historically made significant use of face-to-face processes to conduct due diligence on deals. Constraints on international travel and face-to-face meetings would limit these contacts, reducing the level of cross-border capital flows and levels of FDI into the UK.
- **Investment outside traditional hubs:** A transition to remote working practices would reduce the need for start-ups to locate in traditional hubs to access local financial ecosystems. This would benefit regions outside of London and the South East that normally account for a significant share of VC investment in the UK, supporting broader 'levelling up' objectives.

However, an analysis of investment patterns in 2020 suggests there has been almost no change in the geographical distribution of investment:

- **FDI into the UK:** The share of investments made in UK headquartered companies involving an overseas investor rose from 29% to 33% between 2019 and 2020. This does not suggest that the departure of the UK from the European Union has made UK companies less attractive to overseas VC funds.
- **Capital outflows:** UK based investors placed 78% of their investments in companies headquartered overseas. This is slightly up from 75% in 2019.
- **Regional distribution:** The COVID-19 pandemic has had no impact on the regional distribution of VC investment. Firms headquartered in London, South East and the East of England accounted for 87% of UK VC investment in 2020. This is in line

with preceding years. This suggests that policy intervention will still be needed to promote greater levels of economic development in other regions.

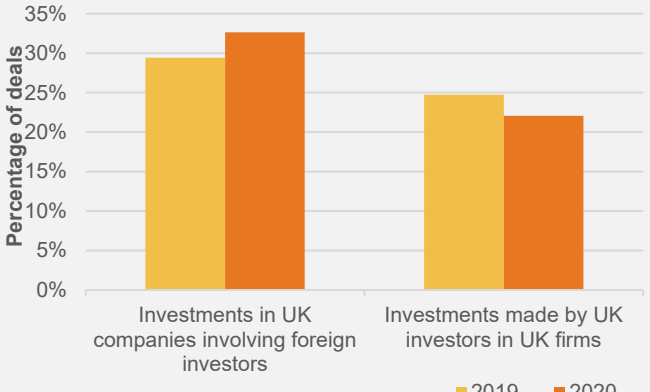
Initial Public Offerings

The behaviour of VC funds is influenced by their prospects of liquidating their investments in the future. If they anticipate that they will struggle to exit their investments profitably, this will encourage fund managers to concentrate their resources on their existing portfolios by extending their 'cash-runway'. One way that VC funds can liquidate their investments is if firms turn to public capital markets and float on stock exchanges (through an Initial Public Offering).

As illustrated in Figure 12, the UK IPO market collapsed in the late 2010s. Although this predates the COVID-19 pandemic, this will still create difficulties for firms seeking larger sums of capital to support their growth. This may help explain both the increased numbers of large private funding rounds and the decline in investments being made in early stage companies.

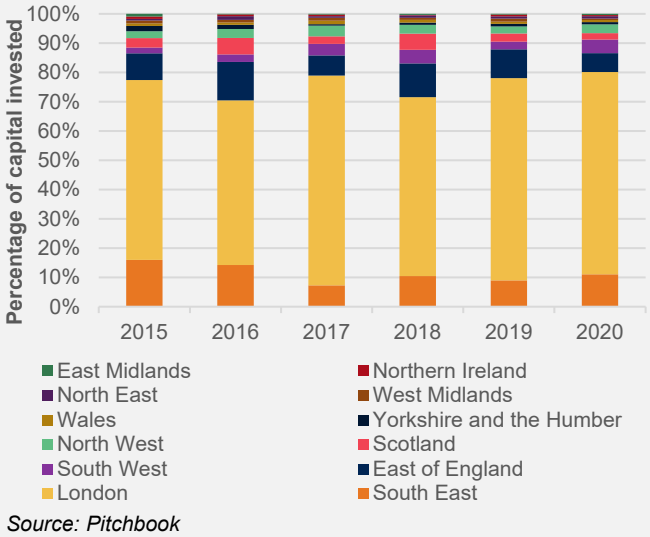
There has been some signs of recovery in the UK IPO market in recent months and some innovative firms have successfully raised funding through this mechanism (e.g. Freeline Therapeutics). However, growth has also been driven by 'blank-cheque' or Special Purpose Acquisition Companies. These are shell companies that are formed for the sole purpose of raising capital to acquire a (typically unidentified) company. The capital raised through these types of fundraisings will not directly stimulate the expansion or growth of innovative or disruptive companies.

Figure 10: Capital inflows and outflows, 2019 and 2020



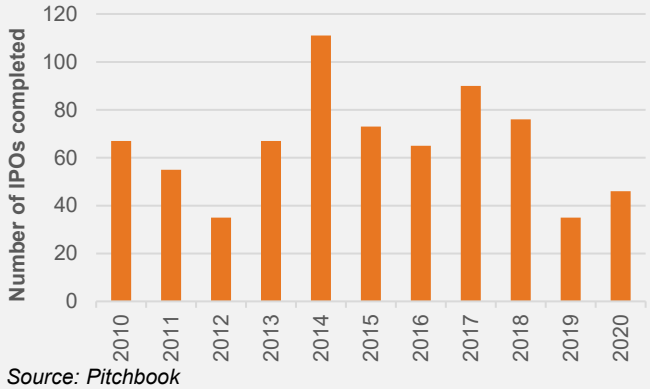
Source: Pitchbook

Figure 11: Regional distribution of VC investment



Source: Pitchbook

Figure 12: IPOs completed, UK headquarted companies



Source: Pitchbook

Supply of equity funding

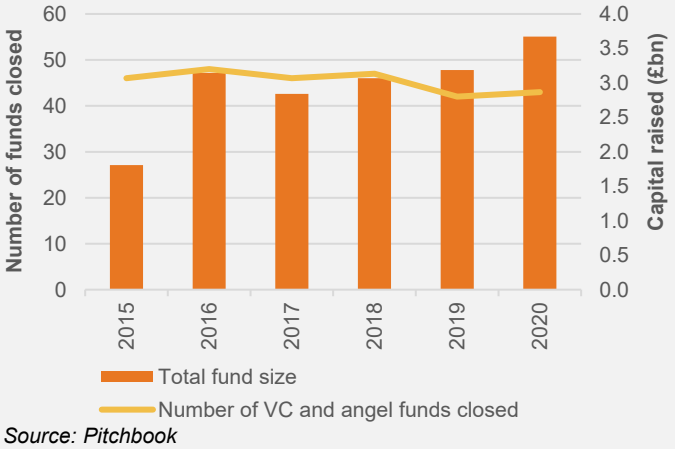
Fundraising by VCs

The impact of the pandemic will also influence flows of private finance to innovative businesses through its effects on the ability of fund managers to secure commitments from Limited Partners (LPs). VC funds have been well placed to weather the economic disruption caused by the pandemic:

- **Dry powder:** Fundraising was at historic highs going into the crisis. A total of 135 UK headquartered VC funds were closed between 2017 and 2019, with a total value of £9.1bn. To the degree that these funds were not fully deployed, fund managers will have had resources to invest during the pandemic.
- **Fundraising in 2020:** Fundraising has remained strong in 2020. A total of 42 UK headquartered VC funds closed in 2020, broadly in line with historic volumes. However, the total amounts of funding raised increased to £3.7bn (from £3.2bn in 2019). The VC sector has substantial resources to support economic recovery in 2020.

Although the VC sector has turned away from early stage investments, there are signals that levels of support for start-ups may increase in the short-term. The share of funds raised by funds categorised as early stage investors rose to 36% in 2020 (from 32% in 2019). Given these trends, it is likely that issues faced by start-ups and early stage companies in raising funds may ease once the uncertainty created by the pandemic has subsided.

Figure 13: UK headquartered VC funds reaching a close



Source: Pitchbook

Innovate UK beneficiaries

Innovate UK grant beneficiaries

Innovate UK provided R&D grants to 4,014 unique companies between 2017 and 2020. This section considers the effects of the pandemic on this cohort of firms.

Resilience entering the pandemic

An analysis of the these companies' accounts indicates that around 30% of these companies would exhaust their capital in six months or had already done so by the end of 2019:

- **Profitability:** Just over half of the companies supported were operating profitably in 2019 (53%). These companies went into the pandemic with an average of £347,000 in reserves and were better placed to weather the crisis than those operating loss making businesses (an average of £6,000 in reserves).
- **Burn rate:** Around two-thirds of loss making firms had positive shareholder funds. Based on their burn rates in 2019, around 17% of these firms (450) would run out of funding in six months, and a further 20% would run out of funding in six to twelve months.
- **Negative shareholder funds:** A further 22% were operating with negative shareholder funds in 2019, suggesting that they were exposed to some potentially significant financial risks.

Additionally, 336 firms in this group of Innovate UK beneficiaries raised VC funding since the start of 2019. Although the total funding raised by this group of firms was large (£1.3bn), it also suggests that a high share of firms (more than 90%) did not go into the pandemic with recent private backing. While it is recognised that not all firms will need external funding to finance their operations.

Closure rates

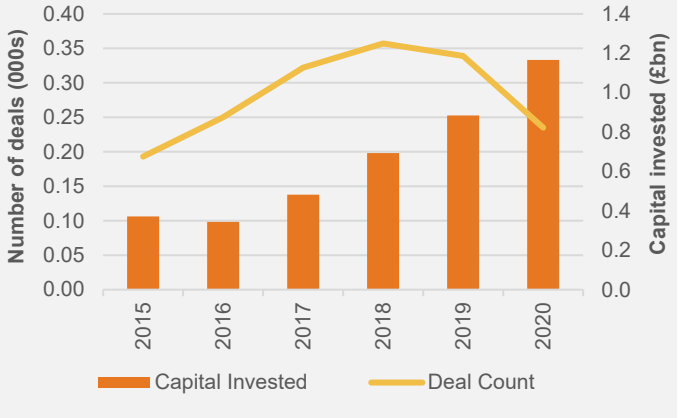
Closure rates have so far remained low. Just 23 firms have filed for bankruptcy, administration or liquidation at Companies House (less than 0.5%). Filing regulations have been eased during the pandemic and companies that have become dormant will not be reflected in these numbers. However, it does suggest that the portfolio of companies have so far shown resilience to the adverse economic conditions.

Fundraising during the pandemic

Innovate UK grant beneficiaries have had similar experiences to innovative businesses across the UK since the start of the pandemic. The total amounts invested rose to over £1bn in 2020 (from £800m in 2019). However, the number of firms attracting investment fell. Around 230 deals were closed, down from more than 300 per year between 2017 and 2019.

The evidence suggests that Innovate UK grants can promote more even distribution of VC investment. Just 22% of the investment in Innovate UK beneficiaries was captured by firms headquartered in London, compared to almost 70% across the whole economy. This highlights the potential role public support for R&D can play in promoting the 'levelling-up' agenda.

Figure 14: VC investment in Innovate UK grant beneficiaries



Source: Pitchbook

Looking forward to 2021

Success in vaccine development and rollout creates optimism that social distancing restrictions can be eased in 2021. There are signals that the economy is poised to recover rapidly. The VC sector is well capitalised and enduring impacts on the UK's innovation ecosystems are not anticipated. However, demand unlocked may meet supply side constraints, and the COVID-19 pandemic may lead to enduring structural issues that require intervention.

Potential policy responses

- **Addressing funding gaps:** There may be a role for Innovate UK to play in helping start-ups and early stage businesses navigate temporary funding shortages caused by COVID-19. The Fast Start grant programme introduced to respond to COVID-19 will clearly aid these issues. However, the amounts made available (up to £50,000) may see many firms fail to progress while fundraising conditions remain depressed or inject additional competition for the private funding that is available. Complementing the existing response with follow-on funding of up to £500,000 for the most promising innovations may be helpful in addressing short-term issues.
- **Leveraging the resources of the private sector:** The priorities of the private sector will not always align with the objectives of the public sector. Intervention on the supply and demand may be needed to leverage investment into these priority areas (especially those linked to promoting an environmentally sustainable recovery). Possible areas of focus could include:
  - **Demand side issues** – programmes that increase the volume of potentially profitable investment propositions in priority areas will leverage private funding toward public goals. Innovate UK has historically provided funding for technical de-risking. A greater emphasis on pairing this with consultancy support for commercialisation may be beneficial.
  - **More targeted competitions** – the Sustainable Innovation Fund was launched with priorities to address decarbonisation and other environmental objectives. However, it was open to all applications that would support recovery from the economic aftershocks of COVID-19. Adjusting eligibility and assessment criteria to align with broader policy objectives could help promote greater investment in these areas.
- **Levelling-up:** The asymmetric nature of the economic shocks created by COVID-19 may exacerbate existing regional equalities, making it more difficult to achieve 'levelling up' objectives. There are no indications yet that the COVID-19 pandemic has broken the agglomerative 'pull' of the major urban areas. The development of a spatial strategy to guide future programmes may be beneficial, as past evaluations of Innovate UK programmes indicate funding for companies in lagging regions can have significant impacts.
- **Skills:** Innovation tends to benefit workers with higher skill levels. Given the asymmetry in the economic shock caused by COVID-19, there may be value in considering building in requirements for investments in training of existing workers and/or hiring apprentices into conditions attached to public subsidies.
- **Structural issues:** It is unclear how far changes in working practices and behaviour will persist. However, there are risks that this could create structural inefficiencies through its effects on infrastructure systems (e.g. on urban transport systems or city planning). These structural effects should be monitored closely as the economy recovers. The private sector may have little incentive to find innovative solutions to the problems that arise. There may be a future role for Innovate UK in promoting innovation in the public sector – through SBRI type instruments or by working directly with public sector agencies.

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