Finance and Society (2025), 1–32
doi:10.1017/fas.2025.10016

CAMBRIDGE UNIVERSITY PRESS

ARTICLE

Subordinating 'alt-finance': How British venture capital became dependent on the US

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Abstract

Is the formation of venture capital (VC) markets a national phenomenon? Against the common view that VC emerged in the US in the post-WWII period and later (yet independently) in Europe, we argue that the uneven relation between US and UK VC markets was crucial for British VC formation since the 1980s. Based on an empirical analysis of secondary literature and financial data, the article demonstrates that this relation is better understood through the lens of international financial subordination and identifies three types of dependencies to qualify this relation: the dependencies of UK VC on US start-up investments, US growth capital, and US exit deals. This type of financial subordination is specific to 'alternative finance', because highly profitable VC exits kick-started a flywheel effect in UK VC in the 2000s, and the subsequent expansion of British VC went hand in hand with a concentration of capital because UK VC followed a 'winners-take-all' logic that is characteristic of alt-finance in general. This suggests, counterintuitively, that after UK VC formed, the US economy benefitted more in financial, economic, and technological terms from the growing British VC market than its UK counterpart mainly because most large exit deals took place in the US.

Keywords: dependency; international financial subordination; technological innovation; UK start-up economy; US finance; venture capital

Introduction

Is the formation of venture capital (VC) markets a national phenomenon? The commonly held view is that VC emerged in the US in the postwar period on the East and West coasts and later – though independently – in other countries in Europe, the UK, and Asia (Martin, 1989; Nicholas, 2019; Pinch and Sunley, 2009; Zook, 2005). US venture capitalists helped to establish 'tech clusters' in the San Francisco Bay Area and Greater Boston (Kenney, 2000; Kenney and von Burg, 1999) that financed some of the largest companies in the world by market capitalisation: US 'Big Tech' firms such as Amazon, Alphabet/Google, Apple, Microsoft, and Meta/Facebook. Meanwhile, other economies, the argument goes, have been developing their own VC markets and trying to 'catch up' with their larger US counterpart. Another variant of this argument foregrounds the role of governments in fostering their own 'national' VC markets (Cooiman, 2021; Kenney, 2011; Klingler-Vidra, 2018). In other words, VC has mainly been understood as a distinct and regional

phenomenon linked to 'tech clusters' or 'start-up ecosystems' that are typically placed in (and analysed through the lens of) a national economy.

This article revisits the national framing of UK VC by examining the relationship between the VC markets in the US and the UK. We argue that the uneven relationship between US and UK VC markets has been crucial for the dynamics of VC formation in the UK since the 1980s, as well as for the constraints it has faced when it comes to facilitating the formation of British 'national' tech champions. UK VC firms sought to emulate the US VC investment practice of early-stage equity investing in tech start-ups since the early 1980s, yet a lack of investment opportunities in UK-based tech start-ups in combination with highly profitable buyout opportunities in non-tech sectors pulled UK venture capitalists into the private equity market. Overcoming this 'private equity bias' became possible only after the dotcom boom when the US VC market and technology sector were firmly established. This enabled a new group of London-based VC entrants to successfully replicate the logics of US VC by profiting from a number of highly lucrative exit deals in the growing software sector and thereby reaching a critical mass in concentration of capital in UK early-stage start-up financing.

However, successful emulation did not mean full emancipation for UK VCs. Instead, the UK VC market has become financially subordinated to its US counterpart (see Alami et al., 2023) along three dimensions: US start-up deals, US growth investments in US and UK start-ups, and US-based exit transactions. Read as an instance of alt-finance-specific financial subordination, we put forward the counterintuitive hypothesis that the US economy has benefited more from the formation and growth of the UK VC market than the British economy, owing to the dominant role of US investors and incumbents in UK start-up financing and acquisitions. This matters for our understanding of the politics of UK finance, since channelling more funds into British VC is widely perceived as a key solution to reigniting growth in the stagnant UK economy and fostering advanced technological development in AI independently of the US. Our findings suggest that this would lead to a further concentration of capital and profits among a small group of top VC funds (which are not necessarily from the UK), do little to overcome the UK's subordinated position to the US, and hence not lead to the formation of UK start-ups with good chances of becoming national tech champions. Instead, the most promising British tech start-ups are still likely to be acquired by foreign (and predominantly US) investors and incumbents, as illustrated by the examples of DeepMind and Arm Holdings plc. However, an expansion of capital inflows into UK VC could lead to a concentration of power among a small capitalist elite of general partners and tech founders who, as in the US context, may come to exert significant influence over the trajectory of digital innovation and, potentially, British politics.

We define 'venture capital' as focusing on early-stage investments in the equity of firms that develop novel technologies and business models with significant growth potential. However, the question of how to define VC is a problem in itself. Both private equity and VC firms are often understood as part of the growing markets for 'alternative finance', which also include hedge funds and real estate investment funds (see Benquet and Bourgeron, 2022; Sgambati, 2024). However, we identify important evolutionary differences between private equity and VC firms in the UK context. As our historical account of the rise of VC in the UK demonstrates, UK-based investment firms that were labelled 'VC firms' in the 1980s and 1990s tended to engage in VC investments as defined above only to a limited extent. Instead, they primarily invested in management buyout (MBO) transactions of late-stage deals in non-tech sectors. While these investment strategies became chiefly associated with private equity firms after the dotcom era, the term 'VC firm' was previously used in the UK context to refer to firms that sought both early-stage equity and late-stage buyout investment deals.

This article makes both an empirical and a conceptual contribution. Empirically, we synthesise secondary literature from business history, economic geography, and management studies, and combine it with data analysis from a commercial VC database to provide the first comprehensive political economy account of UK VC formation from the 1980s to the 2010s. Conceptually, we advance a framework based on the notion of 'international financial subordination' (Alami et al., 2023) to foreground structural continuities rather than financial 'boom and bust' cycles – which are typically associated with VC – by outlining types of financial dependency that go hand in hand with trends of capital concentration in the 'subordinated market' and which are specific to alternative finance in general and VC in particular.

The article proceeds as follows. First, we review scholarship focusing on structural factors, institutional change, and 'supply and demand' dynamics to explain the rise of UK VC. We find that temporal and geographical constraints have left important dynamics of UK VC formation unexplained and, in the next section, introduce our theoretical framework of international financial subordination in alt-finance. We then trace the rise of UK VC in three empirical sections ordered chronologically to document (1) the failure of US VC emulation in the 1980s and 1990s, (2) the formation of the UK VC market in the 2000s, and (3) the VC market concentration in the 2010s. The final section provides a concluding discussion.

The rise of venture capital in the UK

For a style of investing that gained popularity in the 1980s, it is unsurprising that scholars have situated the rise of VC more broadly within the 'neoliberal turn' (Coopey and Clarke, 1995: 158; Mason and Harrison, 2002: 429). As the period of Britain's nationalist 'warfare state' model was gradually abandoned and stagflation gave way to the monetarist spike in interest rates, the Thatcher government made a series of sweeping changes to the architecture of the British economy (Edgerton, 2018). These reforms transformed the role and functioning of the state, with important consequences for VC. The supply-side attempts to enhance Britain's industrial productivity – which had characterized the Wilson government in particular (Edgerton, 2005) – were updated to supplement Thatcher's focus on fostering competition in product markets, financial innovation, and growth in services (Crafts, 2012). In this context, venture capitalists emerged as the financiers of new companies intended to drive innovation and as the central intermediaries between institutional capital and start-ups in the 'entrepreneurial economy' envisioned by the Thatcher government.

The UK experienced two recessions in the 1980s which represented central touching points for scholars analysing *structural* factors in UK venture capital's rise. A recessionary beginning of the decade was followed by a 'selective sectoral and regionally-based recovery and boom' (Coopey and Clarke, 1995: 157) before a second, deeper recession occurred towards the end of the 1980s. VC fundraising and investment are often theorised by scholars as closely tied to the business cycle of the economy at large. For instance, Coopey (1995: 270) cites the boom-and-bust dynamics of the UK computer industry as a major factor in VC's rise and fall in the 1980s. In a similar vein, Robbie and Murray (1992) see the decline in the number of UK VC firms and their level of activity as a consequence of the recession in the late 1980s. Mason and Harrison (2002: 435) explain the surge in VC investment in the 1990s and subsequent fall after the dotcom bust with its 'cyclical nature'. However, this simplistic argument is questionable. Few scholars would maintain that 'cyclicality' is the only factor in VC's rise, which is why scholars have gone on to complicate the cyclicality argument. In important ways, VC also benefited from downturns and 'bear' markets, because the crisis prompted new forms of business formation and

stimulated entrepreneurial activity (Coopey and Clarke, 1995; Martin, 1989; Murray, 1997). If we accept the argument that VC is a form of 'patient capital', its main quality is precisely its relative insulation from cyclical swings owing to its long-term outlook.

Furthermore, scholars have zoomed in on *institutional* change that accompanied these new forms of business formation by focusing on funding sources for start-up investment, government schemes to incentivise start-up investment, and barriers for start-ups entering the stock market (Bank of England, 1982; Coopey and Clarke, 1995: 165). The debate about creating funding sources for start-ups and small companies predates the 1980s. Coopey (1994) traces the history of how a perceived shortage of funding for small companies found its way into policy discussions in the UK. This so-called 'funding gap' was first mentioned by the Macmillan Committee in 1931 and became known as the 'Macmillan Gap'. After the Second World War, political action was taken to fill this gap with the establishment of Industrial and Commercial Finance Corporation (ICFC) – later renamed 'Investors in Industry (3i)' – which Coopey (1994) identified as Britain's first venture capitalist. Yet the creation of ICFC did not resolve the issue, and debates over funding gaps that supposedly constrained British start-up investment continued to shape policy. This includes the 'technology gap' highlighted in Labour's 1964 election campaign (Coopey, 1994); funding gaps identified by the 1971 Bolton Committee and 1980 Wilson Committee; and an 'equity gap' that the Chancellor of the Exchequer in 1985 argued had held back the growth of new business (Martin, 1989). Some of the more recent incarnations of this argument include the 'regional equity gap' (Mason and Harrison, 2003), 'venture capital market gap' (Myners, 2001), and the 'patient capital gap' (HM Treasury, 2017).

Although the establishment of ICFC in the 1950s was in fact a supply-side measure, it was perceived at the time as being driven by Keynesian policy motives and fought by the City (Coopey and Clarke, 1995). However, by the 1980s, financiers and venture capitalists embraced the idea of 'closing' the 'funding gap' as one of the main reasons for supply-side reform. The transformation of UK finance in the 1980s, then, was not about government action to prop up the supply side (which had been a longstanding feature of British policy), but about creating new opportunities for accumulation for specific sectors of finance. The first step towards closing the gap were government support schemes to incentivise start-up investment. Noteworthy here are the Business Start-Up Scheme in 1981, the Business Expansion Scheme in 1983 (Coopey and Clarke, 1995), Venture Capital Trusts, Regional Venture Capital Trusts, Enterprise Capital Funds, and the Enterprise Investment Scheme introduced in 1995 (Mason and Harrison, 2002). Most of these schemes allowed for tax deductions on capital invested through these investment vehicles. The introduction of these schemes was accompanied by a hallmark of supply-side reform: successive reductions in capital gains tax. The capital gains tax indexation allowance in 1982, its rebasing in 1988, the taper relief in 1998, and the eventual abolition of the taper relief in favour of an overall decrease in capital gains tax in 2008 successively lifted equity investors' tax burden (Seely, 2010). This made a decisive difference for investors focused on the fast appreciation of equity investments, in contrast to debt-based forms of financing.

Lastly, scholars have pointed to the establishment of a new stock exchange as an important factor in the rise of UK VC. Even though VC investors do not invest in listed companies on stock exchanges, the conditions under which companies are allowed to be listed and their equity sold on stock exchanges greatly matters for venture capitalists' ability to realise returns through exit deals. In 1980, the London Stock Exchange set up the Unlisted Securities Market which allowed for smaller listings that were not allowed on the main market (Bank of England, 1982). Coopey (1995: 269) notes the similarities between the 1980 launch of the Unlisted Securities Market and the 1971 launch of NASDAQ in the US, and cites a contemporary venture capitalist who calls the new stock exchange 'crucial to the development of the industry' in Britain. However, business (and scholarly) interest

in the Unlisted Securities Market faded over the course of the 1980s and the London Stock Exchange shut its doors in 1996 (for an analysis of its successor, see Roscoe, 2023; Roscoe and Willman, 2021).

Within management studies, the emergence of VC in the UK has been analysed as the result of 'environmental factors' successfully coming together (Murray, 1997). This analysis overlaps with scholarship on institutional change but takes a more economistic approach by explaining the rise of UK VC in reference to supply and demand factors (Lockett, Murray, and Wright, 2002). The underlying neoclassical assumption here is that a balance of supply and demand factors will achieve an equilibrium in which VC effectively channels savings into productive investment. In the broadest sense, successful VC investing depends on the demand of funding from promising start-ups, the supply of said funding from limited partners (the funders of venture capitalists), and the demand from potential buyers (e.g., public market investors), so that start-ups can successfully 'exit' via initial public offerings (IPOs) on stock exchanges. Mason and Harrison (2002) argue along these lines when they discuss VC from an economic development perspective. They claim that venture capitalists are a central node in an extended network of financiers, entrepreneurs, corporate executives, head-hunters, and consultants. When demand and supply side are balanced, venture capitalists become part of a 'competence bloc' which consists of 'first, entrepreneurial awareness, the realization of the marketability of a new product or technology; second, acquiring VC to finance the start-up firm; and third, managing the enterprise from start-up through expansion into maturity' (Mason and Harrison, 2002: 433).

In sum, existing scholarship has explained the rise of VC in the UK as being a result of structural and institutional change, and the balancing of supply and demand-side factors deemed necessary for its growth. Major structural changes like the 'neoliberal turn' – amplified by multiple recessions in the 1980s – led to new types of firm formation and investment opportunities for venture capitalists. This was accompanied by longstanding efforts to close the 'funding gap' for start-ups and expressed through institutional changes like government funding schemes and fiscal policy changes to encourage investment. More technical analysis of supply and demand factors has highlighted how these institutional changes affected the availability of funding, funding opportunities, and exit opportunities.

Our article addresses three shortcomings in the literature reviewed above. First, most contributions within business history and economic geography focus on UK VC during the 1980s and 1990s while neglecting the post-dotcom period. In other words, we are missing an account of UK VC that traces the development of VC beyond 2000 and conceptualises this development in broader political economic terms. Following from this, the established literature also has little to say about the politics of VC investing. How did venture capitalists assert themselves against other types of finance? Was its rise accompanied by intra-finance conflicts? Scholars have sometimes too readily studied venture capitalists as a benevolent force for innovation in the economy. What can we learn if we conceive of venture capitalists as a highly capitalised, powerful group of financiers that exert their power on businesses shaping our economy?

Second, the widely accepted account of a 'funding gap' positions VC as an important intermediary that can direct money from institutional investors towards start-ups. In this view, innovation in the UK would take off if only we could find ways to channel more money from limited partners via VC funds into start-up investment. However, whether such gaps in general existed is controversial (Coopey and Clarke, 1995; Martin, Berndt, Klagge, and Sunley, 2005). The fact that numerous types of 'funding gaps' purportedly existed from the 1950s until today, despite skyrocketing funding volumes at various points in time, raises the question whether this 'gap' can ever be closed. It suggests that the 'funding gap' might be at its most real when it is rhetorically leveraged by proponents of

supply-side reform, typically calling to solve this problem through 'improving investment conditions' (i.e. lowering taxation).

Third, the existing literature largely explains the rise of UK VC as a result of changes within the national boundaries of the UK (e.g. government efforts to close the 'funding gap'). While international relations are hinted at, the established scholarship does not conceptualise these relations as drivers or even a necessary condition of the development of UK VC. We argue that the established scholarship understates the importance of these international links. As we will demonstrate in the following sections, the international dimension of UK VC – particularly its links to the US – was essential for the contemporary shape and functioning of this type of finance in the UK. In the following section, we will outline how this international dimension can be conceptually integrated into an analysis of UK VC formation.

Moving from Wall Street to Sand Hill Road

The conceptual challenge of this article is to read the rise of UK VC as embedded in larger international structures of financial capital (with US finance at its centre) without losing sight of the specificities that investments via alt-finance and VC present. An important starting point is international political economy scholarship that has examined the rise and internationalisation of US finance (Panitch and Gindin, 2012; Panitch and Konings, 2009). Following scholarship that has traced the rise and fall of financial centres around Europe, these contributions largely assessed US financial power in its unipolar moment against the backdrop of US hegemony within global capitalism. Scholars have further developed this research agenda by showing how US-led financialisation can also be understood as a co-constitutive development between Wall Street, the City, and other European financial centres by studying the example of the Eurodollar market, the rise of liability management, and sovereign debt management (Beck, 2022; Dutta, 2020; Green, 2016; Knafo, 2021). While UK-focused literature has tended to centre on questions of public policy and the mainstream financial sector, it has largely neglected 'alternative finance' (for an exception, see Benquet and Bourgeron, 2022). This matters because the international dynamics of private market equity investments, and specifically VC, differ significantly from the international dynamics of banking.

Literature on asset-centred financial actors is more promising in this regard, yet it has been less focused on international finance and power relations (Froud and Williams, 2007). The growing literature on 'asset managers' as a distinct group of financial actors has tended either to highlight general accumulation strategies and investment logics (Braun and Christophers, 2024; Christophers, 2023) or to reproduce methodological nationalism when studying the rise of large asset managers in the US (Braun, 2021) and VCs in Europe (Cooiman, 2021) and the US (Peters, 2024), or derived abstract accounts of VC as asset managers detached from any concrete, historical national (or indeed international) context (Cooiman, 2024). Other scholars experimented with framing VC as capital in Marxist terms (Kampmann, 2024; see also Howard, 2024), while neglecting the concrete historically grown relations between VC centres in different countries.

When it comes to the politics of international equity deals, the literature of intellectual monopoly capitalism offers important insights. One contribution of this scholarship has been to highlight the crucial role that start-up investments and acquisitions have played for incumbent corporations such as 'Big Tech' to continuously reinforce their monopoly power by seeking control of intellectual property, data, and knowledge (e.g. Rikap, 2021, 2023). From a VC perspective, tech and other incumbents have become a major (and highly profitable) exit route for early-stage VC investors. Consistent with the broader IPE literature on US financial power, the intellectual monopoly capitalism literature has

stressed the technological and economic dominance of US Big Tech and other American intellectual monopolies vis-à-vis other core and peripheral economies.

To make sense of US financial power in private market equity investing, we take inspiration from recent debates about the notion of 'international financial subordination' (Alami et al., 2023). This body of literature from various traditions has highlighted the particular impositions that international finance has made on peripheral nations, mainly focusing on the long-lasting consequences of varied colonial legacies that the latter have come to be subjected to as part of their integration into the global financial system. With US finance at the apex of this system, scholarship in this vein has largely focused on how global power relations underpin and work through banking, public equity, debt, and money markets, while largely overlooking VC and alternative finance.

Rather than financial 'boom and bust' cycles that are often associated with VC, the concept of international financial subordination centres on questions of power by foregrounding 'the structural underlying mechanisms which reproduce such subordination over time' (Alami et al., 2023: 1362). This insight directly speaks to the historical dynamics underpinning the interlinked yet unequal relationship that emerged between US and UK VC over time. Our intervention in the debate on international financial subordination is twofold: first, to move the focus onto the relation between two core countries, and second, to shift attention from mainstream finance and banking towards 'alt-finance' and VC. To do so, we conceptualise the international subordination of UK VC vis-à-vis its US counterpart via private market equity investing as consisting of and operating through three mutually constitutive relations of dependency: UK venture capitalists depend on the US start-up market for investments; UK start-ups and venture capitalists depend on US growth capital in later financing stages; and UK venture capitalists depend on the US market to 'exit' their investments and cash out. Importantly, the 'notion' of dependency refers to *one* dimension of the structurally uneven relation between the British and the American VC markets, while the notion of 'international financial subordination' seeks to capture the power relation underpinning the structurally uneven UK-US VC relation *in toto*, i.e., across all three dimensions.

We will merge this notion of subordination with two key dynamics of VC investing to flesh out the specificity of this type of finance. Existing literature has noted two important characteristics of VC: 'long tail investing' (Nicholas, 2019), which refers to making highly risky investments that, with a slim chance of success, can generate 'outsized' capital gains; and the need for 'hypergrowth' (Cooiman, 2024), that is the rapid growth and corresponding increase in equity valuation of investee companies required for venture capitalists to make these outsized returns. However, from a historical perspective, we argue that these two key dynamics should be read as instances of what we term 'kick-starting accumulation'. This means that to establish a VC firm for the long term, requires generating outsized fund returns at least once (Nicholas, 2019: Chapter 6). Once these have been achieved, a self-reinforcing loop makes a VC firm more likely to generate outsized returns again. This is often referred to as a 'flywheel': venture capitalists can raise further funds on the back of past successes while simultaneously attracting higher quality funding opportunities as founders are drawn to top-tier firms because of their successful track records (e.g., Sequoia Capital, Benchmark, and Founders Fund in the US). The social and cultural factors in building and maintaining such flywheel effects over time have been explored by Saxenian (1994). As the history of VC in the US demonstrates, successful exits by rapidly growing tech companies reinforce the formation of the VC sector as the latter became integral part of the growing US tech sector. This matters for our historical account because this flywheel effect and the concentration of capital via initial exits in the UK after the dotcom era are central explanations for the extreme concentration of profits in VC among a small group of top-tier financiers in the UK in the 2010s.

A failure of VC emulation: The rise of buyout deals, 1980-1999

UK investors first formed institutional VC organisations in the 1980s, which contrasted with earlier, more ad-hoc types of investments in start-ups that UK investors had been making since the 1960s (Coopey and Clarke, 1995: 160). This development was prompted by the desire to emulate US venture capitalists and the outsized returns that some VC investors achieved there. A typical example is the American Research and Development Corporation – which is widely considered as one of the earliest VC investors (Nicholas, 2019: 108) – and their investment in Digital Equipment Corporation in 1957. Another example is Apple's IPO in 1980 which generated high returns for some landmark VC firms like Venrock and Sequoia Capital. The 'halo effect' of these successes proved to be a 'crucial' trans-Atlantic influence (Coopey, 1995: 268) and popularised the 'import' of this style of investing to the UK (Coopey and Clarke, 1995: 160).

At this point in time, institutional VC in the UK included a larger variety of organisational forms. Alongside traditional/independent VC funds (e.g., Electra, Candover, Apax Partners, and ECI) – which were set up as limited partnerships with institutional investors as their main limited partners – VC investments were also made by clearing banks with VC subsidiaries (e.g., County Natwest Ventures, Barclays Development Capital, Lloyds Development Capital, and Midland Montagu Ventures), merchant banks (e.g., Schroder Ventures and Morgan Grenfell Development Capital), and stockbrokers (e.g., Phildrew Ventures) (Coopey, 1995: 269). However, commentators writing at the time observed that growth was most pronounced in UK investment companies and organisations that modelled themselves after the US pattern of traditional or independent funds raising money via limited partnerships (Shilson, 1984: 209).

A highly influential organisation for the development of VC in the UK in the 1980s does not fit into any of these categories: Investors in Industry (3i). Founded in the 1950s and originally named ICFC, the company had been making investments in private companies for decades (see above). By 1983, 3i made £50 million in equity investments which amounted to roughly 50% of the total investments registered by the industry publication *Venture Economics* that year (Martin, 1989; Shilson, 1984). This has shaped the view that 3i was the UK's first and, up until the 1990s, most important venture capitalist (Coopey, 1994). While not originally set up to do the US-style VC investments that became increasingly popular in the UK in the 1980s, the company was keen to build relationships with US entrepreneurs and expand into this style of investing. This included the launch of a subsidiary called '3i Ventures' and the establishment of offices in Boston near technology companies on 'Route 128', Newport Beach, and Menlo Park in 1984 (Coopey and Clarke, 1995: 177). Here, British managers like Geoff Taylor were sent to the US to build up an investment presence and join the 'deal stream' (Coopey and Clarke, 1995: 358).

We argue that 3i should not be considered a venture capitalist. This is not only because of the short-lived nature of 3i Ventures, which was wound down in the early 1990s due to lack of success and a misfit with 3i's overall rather conservative investment culture (Coopey and Clarke, 1995: 315). The majority of investments that are cited in the '50% figure' were made by 3i under conditions that do not tap into mechanisms and logics that were central to the development of VC investing (Coopey and Clarke, 1995: 309). For instance, 3i was a passive investor that did not take board seats to influence investee companies, whereas venture capitalists – at least before the dotcom era – tended to take a more active role and 'imprint' their growth imperatives on start-ups (Cooiman, 2024). In search for outsized returns, venture capitalists also cherry-pick the most promising companies whereas 3i largely stayed true to its original mission to provide long-term capital to all companies that met its investment requirements. Lastly, venture capitalists stand to benefit most through quickly appreciating equity investments. In the late 1980s, those 'pure' 100% equity investments only constituted 5% of 3i's investment portfolio

(Coopey and Clarke, 1995: 313). However, the fact that 3i was not a driving force for the development of UK VC *as a venture capitalist* does not mean that the company did not have an important effect on the development of the industry. This became most evident in the rise of Management Buy-Out (MBO) deals.

The initial project of emerging UK venture capitalists to emulate US-style early-stage tech investments had taken on a distinct domestic flavour by the mid-1980s. Coopey and Clarke (1995: 311) argue that the surge of capital committed to VC investing was not met with a number of 'high-tech start-ups' comparable to the one US venture capitalists were accustomed to in the growing tech clusters on the West and East coasts – a market that was estimated to be five times the size of the UK market (Bank of England, 1982). Further, a slowdown in the computer and electronics sectors (Martin, 1989) as well as a lack of entrepreneurial culture within UK universities in comparison to famous US examples such as the Massachusetts Institute of Technology (Coopey, 1994, 1995) resulted in limited investment opportunities for venture capitalists. The oversupply of money for a limited number of promising deals led to an increase in the price investors had to pay for equity shares. However, the limited number of exit opportunities led to comparably low returns on investments for venture capitalists and discouraged further investment in early-stage companies. Following the failure of this investment experiment, venture capitalists turned towards a more established, less risky and later-stage form of investing with a shorter time horizon and quicker opportunities to realise profits: MBOs (Coopey, 1995: 270; Lockett et al., 2002; Murray and Lott, 1995).

Murray (1997: 1095) argues that '[t]he single biggest product for the UK VC industry throughout the 1980s and early 1990s has been the Management Buy-Out'. The number and volume of MBOs grew steadily throughout the 1980s. Key factors were two recessions and subsequent company restructurings, changing taxation incentives relating to capital gains taxation, and changes to the 1981 Companies Act which made the organisation of MBOs easier (Coopey, 1995: 270). While viable investments in high-tech companies were scarce, these structural changes led to an increased supply of mature companies for UK venture capitalists that could be subjected to financing (Murray, 1997: 1095). Summarising the large increase in MBOs, Martin (1989: 399) observed that '[i]n 1983 some £40 million was invested in management buyouts, representing nearly a quarter of total VC investment. By 1987 this had risen to almost £500 million, or 63% of the total amount invested in the UK. The corresponding increase in investment in start-ups and early-stage developments over the same period was much smaller, from £41 million to around £97 million'.

In the rise of MBOs lies an enduring influence of 3i on UK VC. The company had been organising buyout deals since the 1970s and became a major player in this space in the 1980s (Coopey and Clarke, 1995: 166). Expanding UK VC firms increasingly looked to 3i to fill their vacancies and poached a sizable chunk of the company's workforce (Coopey and Clarke, 1995: 362). The newly hired investors brought this MBO expertise into VC firms which affected their investment outlook and activities. We argue that this is an important UK-contextual factor that contributed to a failure of 'importing' or emulating the US model in the UK and derailed early-stage VC investing in the UK until the late 1990s. The transfer of MBO expertise aggravated an already apparent lack of skilled VC investors with a technical background, as UK VC investors mostly came from the City and typically had a background in accounting (Murray and Lott, 1995).

This led to the somewhat counterintuitive outcome in the 1980s, in that 'despite being the largest VC investor in Europe, Britain funded the fewest start-ups proportionally' (Coopey, 1995: 270). Commentators at the time wondered whether this development had led UK VC so far astray from its original mission that it could no longer be considered the foremost backer of new small business ventures (Martin, 1989). UK venture capitalists' MBO focus was dominant well into the late 1990s, with 'classic venture capital' (that is,

traditional independent funds) accounting for only 8% of investments in the 1997–2000 period (C. M. Mason and Harrison, 2002: 438). The MBO focus was also reflected in research. It is difficult to imagine from today's perspective – when VC and Big Tech are largely considered two sides of the same coin – that at the time scholars explicitly researched whether UK venture capitalists had a bias against tech investments (Lockett et al., 2002; Murray and Lott, 1995).

Besides the MBO focus, a consequential shortcoming in 'emulating' US VC was that the international relation between the UK and the US largely remained a one-way street during the 1980s and 1990s. UK venture capitalists sought to benefit from the established VC market in the US by establishing offices and making investments in Silicon Valley to copy this investment style at home (Shilson, 1984). Yet there was limited capital and expertise flowing from the US to the UK at this stage. Murray (1997: 1087) notes that '[w]ith the exception of approximately ten (primarily American) organisations, the UK venture capital industry has remained determinedly domestic in ownership. International investors have largely preferred to enter the UK market by participating in a UK originated fund managed by a British venture capital firm'. Murray (1997: 1088; see also Robbie and Murray, 1992) explained this with the 'maturity thesis', which postulated that the UK VC market was relatively highly developed compared to the rest of Europe and hence did not offer the opportunity for 'supernormal' profits. Overseas funds were more likely to be invested in still developing VC markets in mainland Europe. Billions of dollars of 'dry powder' that were about to be invested by US investors after the dotcom bust in 2000 duly proved this thesis wrong.

Another important front on which 'emulation' failed was the establishment of a stable top group of VC firms in the UK. US pioneers of VC like Davis & Rock, Kleiner Perkins, and Sequoia Capital quickly formed a relatively stable top-tier group of funds that consistently generated outsized returns. This can be explained with the 'flywheel' effect of funding a highly successful company, which facilitates access to deals by attracting other high-profile start-ups to the firm and eases fundraising with limited partners. At first, UK VC also showed signs of concentration not dissimilar to the US. Murray (1997: 1093) put the number of 'real' players in the UK VC market at only 20 to 30. In 1992, 28 firms managed funds in excess of £100 million, representing 77% of all funds controlled by all members of the British Venture Capital Association. However, Murray points out that the top four fundraisers were 'not the same firms every year'. Even more tellingly, none of the top UK VC firms today were active in the 1990s, as we will discuss shortly.

In sum, UK VC in the 1980s and 1990s was largely a failure of emulating US-style early-stage tech investing. After early-stage investment experiments in the early 1980s, UK venture capitalists focused on quicker, less risky, and more profitable MBOs as their accumulation strategy. This development was partly driven by UK specific conditions like 3i investors bringing MBO expertise into VC firms and a general lack of tech-savvy investors in the City. Another important factor in this development was the lack of viable investment opportunities in early-stage tech firms. Remaining opportunities were soon drowned out by a surge in supply of restructuring opportunities in existing companies. The international component of VC investing remained a one-way street, with UK venture capitalists seeking investment opportunities and importing this style of investment to the UK, but little effort from US venture capitalists to invest or open offices in the UK. If emulating the US-style of investing was unsuccessful in the 1980s and 1990s due to the specificities of the UK investment culture and market, how were these obstacles eventually overcome?

Post-dotcom era: Venture capital market formation in the UK, 2000-2010

The early 2000s marked a shift in the functioning of UK VC investing and prepared the ground for the UK VC market as we know it today. Technological innovation changed the landscape of funding opportunities for venture capitalists. UK-based web software companies could exploit opportunities that emerged with the privatisation of the internet during and after the dotcom boom. Early funding successes included hardware companies like Bookham Technologies (founded in Wiltshire in 1988) and Arm Holdings plc founded in 1990. Both were part of what came to be known as the 'Silicon Fen' regional agglomeration of tech firms around Cambridge in the 1990s. In the 2000s, VCs increasingly made investments in internet software firms, thereby mirroring a general VC investment pattern in the US. However, those investments were often made into 'niche' software markets. Examples here are the online gambling and betting company BetFair Group (founded in 2000) and the video game producer NaturalMotion Games (spun-off from Oxford University in 2001). In fact, the largest VC-backed exit deals were in Biotech/Drug Discovery, Financial Services software, later referred to as 'FinTech' (see Langley and Leyshon, 2021), and Entertainment software (see 'Note on Methodology' and Table 7 in the Appendix).

This hints already at the structural differences between the US and UK VC markets. While the US American market for start-up financing has been significantly larger than its British counterpart (see 'Note on Methodology'), there is a qualitative difference between the types of tech companies that are backed by VC firms in the UK vis-à-vis the US. This difference results from the historically grown patterns of concentration (i.e., in terms of capital, knowledge, and data) in the tech sector that have come to manifest in intellectual monopolies which are predominantly US (and Chinese) tech incumbents (see Rikap, 2021, 2023). In short, the US tech sector was already globally dominant at the heights of dotcom (think Microsoft, Apple, or Cisco) and shortly after (e.g., Amazon, eBay, or Google) when the UK VC and tech sector only started to form.

The change in investment opportunities in the early 2000s was met with increasing capital flows into European and UK-based start-up firms from US VC firms. This was a direct result of the dotcom bust: According to one figure from Venture Economics quoted in the New York Times, US VC firms had raised significant capital from limited partners during the dotcom boom which resulted in US$ 35 billion of 'dry powder' still to be invested when the US IPO market dried up (Kapner, 2001). Europe's exit routes had better prospects for high returns from exit deals than the US markets, because Europe was less exposed to the dotcom bust. Tech IPOs still took place on the London Stock Exchange (LSE) and other European stock exchanges in April 2000, when the US IPO market was completely frozen. Shortly thereafter, Mason and Harrison (2002: 435) noted a 'significant flow of money from large North American investors seeking diversification from their domestic market' which accounted for 41% of funds raised by independent UK VC firms between 1997 and 2000.

Increased flows of capital from US VC firms and limited partners were followed by an operational expansion into the UK, where US VC firms opened satellite offices of their established US headquarters. The San Francisco-based VC firm Benchmark Capital opened a European office in London in 2000, which became independent in 2007 as Balderton Capital. Palo Alto-based Accel Partners similarly opened an office in London in 2001. Boston-based VC firm Greylock Partners opened a franchise office in London and Israel in 2006 (under the name Greylock IL), which became independent in 2015 as 83North. Importantly, the new UK satellite offices could leverage existing networks and relationships of their US headquarters for both fundraising and investment deals. Sometimes US general partners, the managing partners of a VC firm, were major investors in the first funds raised by their European offices as in the case of 83North's first

independent fund to which Greylock's general partners contributed (Hirschauge, 2015). US offices were also co-investing alongside UK branches, which is illustrated by Benchmark's investment alongside Balderton in Swedish databank management software company MySQL (PEI Staff, 2008). In the case of Index Ventures, it was the movement of labour and expertise from Silicon Valley to the UK and Switzerland that made the difference as two of the founders worked at Silicon Valley based investment banks before setting up their own VC firm in Geneva and London (Mallaby, 2022b). This is a significant departure from the previous one-way street of internationalisation that mostly saw UK funds trying to get a foothold in the US market and at best limited investments of US firms in UK start-ups. Most strikingly, the funds listed above are still considered top VC funds in the UK whereas UK VCs from the 1980s and 1990s have largely faded into obscurity, pointing towards a serious step change in UK VC market formation.

Perhaps the most decisive factor for the formation of early-stage UK VC firms was the increasing number of successful large exit deals. A key insight from the history of VC in the US is that even single exit deals with outsized returns can help to *establish* VC firms by setting off 'flywheel' dynamics. Examples include Sequoia Capital's investments in Atari and Apple, Kleiner Perkins' investment in Genentech, or Benchmark's investment in eBay, all of which generated outsized returns at the fund level and helped these firms to raise further, often larger funds (Mallaby, 2022a; Nicholas, 2019: Chapter 6). In the UK VC context, the exit transactions of Swedish software companies Skype and MySQL as well as the British gambling software firm BetFair Group proved influential. In the following paragraphs, we will briefly consider each transaction in detail.

Skype was founded by Niklas Zennström and Janus Friis in 2003 and acquired by then-US ecommerce giant eBay for US$ 2.6 billion in 2005 which is widely believed to be the first major VC-backed tech exit in Europe generating significant capital gains for early investors and around $780 million for its founders (Geron, 2011; PEI Staff, 2011). Index Ventures led Skype's Series B round in 2004, helping to establish the firm's leading position in the UK and European VC markets after the acquisition by eBay with a US$300 million profit (Nash, 2007). After Skype was taken private via a buyout deal led by a consortium including US investors Silver Lake Partners and Andreessen Horowitz in 2009, the company was acquired by Microsoft for US$ 8.5 billion in 2011. This was one of the largest cross-border technology exits at the time, through which the founders Zennström and Friis (who still held 15% of shares) realized more than US$1 billion in capital gains (Geron, 2011; Smiddy, 2011). Zennström had set up VC firm Atomico in London in 2006 already after the first Skype exit, which since then has become one of the dominant UK-based VC firms (see Table 6). This is an example of former founders using their exit gains to switch to the 'other' side and set up VC firms (similar to famous US examples such as PayPal co-founder Peter Thiel who set up Founders Fund and became one of the first investors in Facebook).

MySQL (founded in 1995) was backed by Balderton Capital, its former US headquarters Benchmark Capital, and Index Ventures, before being acquired by US-based incumbent Sun Microsystems for US$ 1 billion in 2008. Although the amount of realised capital gains remained undisclosed, the deal was hailed by the industry press at the time as an 'exit demonstrating the viability of venture investing in Europe' (PEI Staff, 2008), which suggests investors made significant profits through this acquisition.

BetFair Group sold 23% of their equity to the Japanese tech conglomerate SoftBank in 2006 which valued the company at US$ 1.5 billion (Garrahan, 2006). Both Balderton (under its previous name Benchmark Capital Europe) and Index Ventures had invested in BetFair and presumably sold their stakes (at least partly) to SoftBank, through which Balderton reportedly realized a 40x return (Taylor, 2007). BetFair became publicly listed on the LSE in 2010 via an IPO.

These exit transactions lastingly shaped the UK VC landscape and illustrate the key components in the early 2000s that eventually enabled the UK VC market formation. Skype, MySQL and BetFair were built on the new opportunities that the privatisation of the internet offered. They further exemplify the interconnections between emerging UK-based VC firms and international flows of capital, particularly from the US. Here, not just US VC firms but also incumbent US tech firms mattered as potential acquirers of European start-ups. Two exit deals – Skype and MySQL – were acquisitions by US incumbents. From those exit deals, UK VC firms profited alongside US investors with whom they had co-invested. In addition to these two US-dominated exits, the exit of BetFair reflects the growing importance of Japanese conglomerate SoftBank Corp as an increasingly dominant acquirer of and investor in start-up firms globally in the post-dotcom era, from which British VC firms also profited. The VC firms involved in the above transactions, Accel Partners London, Atomico, Balderton Capital, and Index Ventures have since become the top-tier VC firms in the UK. We argue that the above factors marked a shift in UK VC investing, because they led to the formation of a distinctly new group of top UK VC firms. In fact, all of the top 10 UK-based VC firms by assets under management (AUM) as of December 2023 were founded during or shortly after the dotcom era (see Table 6 in the Appendix). The above could easily be read as the eventual success of US VC emulation in the UK. However, that would neglect important international power imbalances that we will examine in more detail in the next section.

Post-global financial crisis era: Market concentration and financial subordination, 2010-2023

In the decade following the 2008 Global Financial Crisis, expansive monetary policy and ultra-low interest rates created a favourable environment for asset appreciation and led to a reallocation of capital from bonds towards equities. Alternative financiers stood as benefactors of this development, chiefly among them venture capitalists. The 2010s further saw an expansion of funding opportunities with the rise of the platform economy (Kenney and Zysman, 2016; Srnicek, 2017), 'gig economy' (Vallas and Schor, 2020), and fintech companies (Langley and Leyshon, 2021).

Against this backdrop, the UK VC market became more concentrated as a top-tier group of UK VC firms began to emerge. By building a track record of past investment performance based on profitable exit deals, top-performing VC firms such as Accel Partners London, Atomico, Balderton Capital, and Index Ventures could raise more capital from limited partners and thus pay higher prices compared to domestic VC competitors, which made it easier to win start-up deals. At the same time, these top VC firms attracted founders because the latter sought the reputation that comes with an investment by the former. Founders came to associate investments by top-tier VC firms with higher valuations and access to networks for follow-on funding rounds and high-skilled labour, which increased their prospects of success. Both of those tendencies – the competitive advantage of top-tier VC firms to raise capital and attract founders – led to a concentration of AUM held by the top group of UK VC firms.

In addition to AUM, this top group also differentiated itself in terms of profitability. While a study by the European Investment Fund – which is one of the largest limited partners in European and UK-based VC funds (Cooiman, 2021) – stated in 2011 'that within Europe [including the UK], VC has not reached a critical mass – which is required for the industry to be self-sustaining and experience healthy returns' (Kelly, 2011: 3) – the British Business Bank painted a different picture of UK VC over a decade later. Set up in 2014 as a state-owned development bank with a mandate to support the financing of small and medium-sized enterprises in the UK, the British Business Bank has become the largest

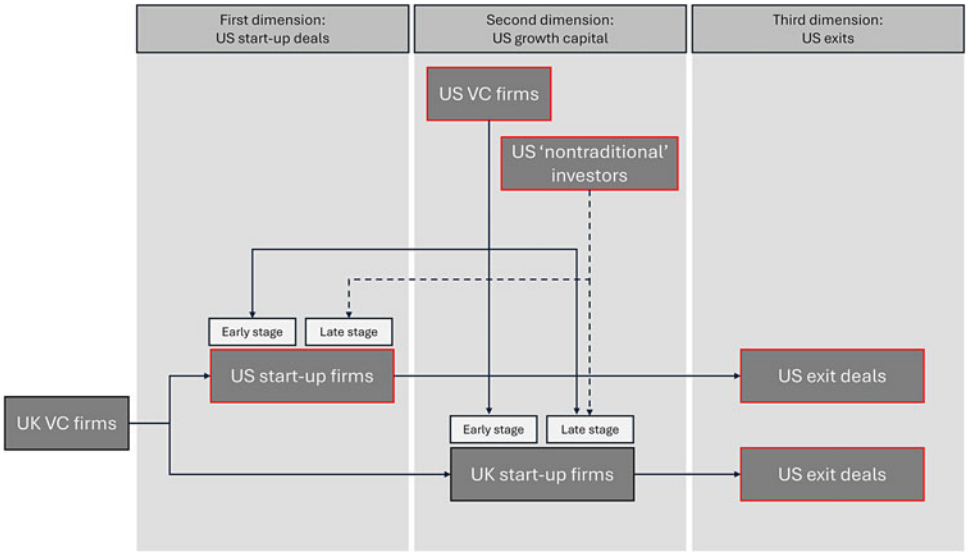

Figure 1. Three dimensions of financial subordination of UK VC.
Source: Author analysis.

domestic limited partner in UK VC funds. In a review of UK VC fund performance between 2002 and 2022, the British Business Bank found that 'a small subset of outlier funds yields significant returns, while most funds achieve comparatively modest financial performance. The distribution of UK VC returns largely follows the same distribution of US VC returns' (British Business Bank, 2023: 21–22).

However, despite the increasing concentration of capital among top funds and an increasing number of profitable exit deals, UK VC firms did not emulate *and* emancipate themselves from US VC. A closer look reveals that three distinct forms of dependency developed, each of which we will consider in the following (see Figure 1).

Dependency on US start-up deals

To better understand how the British top-performing UK VC firms were able to set themselves apart from their domestic competitors, we must look into the investments that generated their financial returns. While the lack of publicly available information on UK VC investments (e.g., from financial disclosure) makes it difficult to draw ironclad conclusions, the available data gives some indication of the potential geographical distribution of VC investments (and returns). It is striking that the top 10 UK-based VC firms[1] made most of their large investments in (and presumably profits from) foreign and particularly US-based start-up companies.[2] This is true across both exit and unicorn firm samples, where US investments constitute 57% and 50% while the UK only accounts for 14% and 12%, respectively (see Table 1). While our samples only include the largest exits (which primarily take place in the US) and highest valued start-up firms (which are also primarily located in the US), this finding is still significant because it highlights the continuous importance of the US deal pipeline for top-tier UK VC firms.

Hypothetically, it is not unimaginable that UK VC firms primarily invest in and profit from the small number of UK-based start-up firms leading to a higher geographical concentration of investments by UK VCs in the UK. For some UK VC firms such as Balderton Capital and Octopus Ventures this holds true. Octopus had all their four global

Table 1. Overview of exit and unicorn investments by country for top 10 UK VC firms.

Phase I: 'Exit investments' (Median Series A year = 2012)			Phase II: 'Unicorn investments' (Median Series A year = 2019)		
Country	Number of exit investments	Share	Country	Number of unicorn investments	Share
United States	75	56.82%	United States	101	50.25%
United Kingdom	18	13.64%	United Kingdom	25	12.44%
Finland	7	5.3%	Germany	19	9.45%
Denmark	5	3.79%	France	12	5.97%
Sweden	5	3.79%	India	9	4.48%
Israel	4	3.03%	Canada	6	2.99%
China	3	2.27%	Sweden	4	1.99%
Germany	3	2.27%	Spain	3	1.49%
Russia	3	2.27%	Estonia	2	1%
India	2	1.52%	Netherlands	2	1%
Others	7	5.32%	Others	15	9%
Total	132	100.0%		201	100.0%

Source: Author analysis based on data provided by PitchBook.

large exit investments in UK-based start-up firms (e.g., Zoopla), while UK exits accounted for 50% of Balderton total large exit investments. However, other firms such as Atomico and Index Ventures are much more outward-oriented and invest a significant share of capital abroad. Out of Atomico's 100 largest deals, 49 were in European countries (excluding the UK) while 32 were in US-based start-up firms, showing that the firm is more oriented towards mainland Europe and the US. Index Ventures is even more US-focused as 53% of the total largest investment deals are in US start-up firms (see Appendix, Table 9).[3]

Why does the US market draw UK VC investments, and in which companies do British VCs invest? The US VC market is not only by far the largest VC market globally where the most profitable start-up financing and exit deals are taking place, but it also represents the leading edge of technological innovation outside of US intellectual monopolies. However, when UK VCs invest in US start-ups, these tend to be laggard tech firms. This is because of the fierce competition in US VC which is dominated by highly capitalised US top-tier firms, such as Sequoia Capital and Andreessen Horowitz. This makes it difficult even for top-tier UK VC firms to get access to deals with the most promising and highest priced US 'unicorn' tech firms. In fact, out of the top 10 UK VC firms, only Index Ventures and Atomico managed to invest in at least one of the top 20 US-based unicorn companies.[4] However, due to their subordinate position vis-à-vis top US firms, top-tier UK VCs are rarely lead investors in early rounds (Series A or B) of top US unicorns, which tend to be the most profitable investments, but co-investors in large, late-stage rounds (Series C, D or later) among numerous other investors, which tend to be less profitable. Still, investing late and/or predominantly in laggard firms can still be highly profitable as the fund return data cited above suggests, but doing so will not help to create a 'homegrown' British tech champion. We return to this point below in our discussion of the US exit deal dependency.

Dependency on US growth capital

The VC funding timeline consists of different investment stages in which different types of investment firms invest in tech start-ups. In the 2010s, the composition of investors changed because of the unparalleled inflow of capital into equities (mentioned above) and increased competition following from that. Angel investors, seed investors, and VC firms typically invest in early-stage deals with five- to seven-year investment horizons, while late-stage deals increasingly attract 'non-traditional' investors such as private equity and hedge funds, sovereign wealth funds, or mutual funds making 'growth equity' investments over shorter periods of time (Kampmann, forthcoming). This has particularly been the case with 'unicorn' firms raising more capital to expand operations rapidly while seeking dominant market positions before any exit transaction which are crucial for investors to realise capital gains.

While UK VC firms were the dominant early- and late-stage investors in UK-based 'Exit' start-up firms – with US VC firms coming second in both early and late-stage deals – in 2012, the picture changed completely around seven years later with the rise of 'Unicorns'. Table 2 illustrates the geographical distribution of investments in British 'Exit' start-up firms in comparison with the investments in UK-based 'Unicorn' firms. The median 'Series A' deal year between both samples differs by seven years (2012 versus 2019), representing two consecutive cycles of VC investments in the UK. During the first VC cycle of 'Exit' firms, US VC firms had significant opportunities in their home market leading to the social media exit wave of firms such as Zynga, Instagram, Facebook, LinkedIn, and Twitter between 2011 and 2014 and little competition from other investors. However, during the second, 'unicorn' cycle, 'non-traditional' investors including private equity firms, hedge funds, and growth investors such as Tiger Global and SoftBank rapidly increased their investments in US tech start-ups leading to increasing competition in the US VC market in Silicon Valley and other American tech ecosystems. Due to the increasingly fierce competition among investors at home, US VC firms increased their investments in overseas markets such as the UK. US VC firms thus became the dominant investors in early and late-stage funding deals of British 'Unicorn' firms because they had raised more capital from limited partners and thus could pay higher prices when buying into UK deals, thereby outcompeting their UK counterparts. Moreover, a significant share of UK late-stage investments (~14.2%) in 'Unicorns' was made by US-based 'non-traditional' investors including private equity firms, hedge funds, and corporate VC outlets of US incumbent tech firms.

In short, the investor composition between the two cycles changed significantly with US investors playing a more dominant role in the latest cycle in which UK-based unicorn companies have been dependent on growth capital investments to finance rapid corporate expansion (see Kampmann, 2024). This dependency on US growth capital was exacerbated by a decreasing number of UK investors seeking to invest in late-stage deals. At the same time, UK VC firms that had invested in British 'Unicorn' companies also became dependent on US growth investors to provide the capital required by their investee companies to follow the 'hypergrowth' principle seen by investors as necessary precondition for a profitable exit deal (Cooiman, 2024).

Dependency on US exits

The general trend is that the largest exit transactions of UK-based start-up firms do not take place in the UK (see Tables 3 and 7 in the Appendix). Rather, they involve to a significant degree acquisitions by US and European incumbent corporations and investors. In total, the largest two categories of exit deals are acquisitions by US and European incumbent companies (39% and 26% respectively), particularly in cutting-edge sectors

Table 2. Overview of investors in UK exit and unicorn start-up firms.

Rank	Investor country (all investor types)	Number of investments (share)	Investor type and country	Number of investments (share)	Investor type and country	Number of investments (share)
Phase I: 'Exit investments' (Median Series A year = 2012)			Early-stage investments		Late-stage investments	
1	United Kingdom	38.8%	UK VC	28.2%	UK VC	19.6%
2	United States	29.5%	US VC	10.2%	US VC	17.8%
3	Germany	3.2%	UK Angel	5.1%	UK Asset Manager	3.7%
4	Switzerland	3.2%	US Angel	3.7%	UK Angel	2.7%
5	France	2.5%	US Growth	3.2%	UK PE	2.5%
	Others	22.8%				
Total	(n = 38 countries)	100%				
Phase II: 'Unicorn investments' (Median Series A year = 2019)			Early-stage investments		Late-stage investments	
1	United States	47.5% **(+18.0%)**	US VC	23.0% **(+12.8%)**	US VC	27.6% **(+9.8%)**
2	United Kingdom	23.5% **(− 15.3%)**	UK VC	16.9% **(− 11.3%)**	UK VC	11.1% **(− 8.5%)**
3	Israel	2.6%	UK Angel	4.9%	US PE and Hedge Funds	6.2%
4	Singapore	2.3%	Israel VC	4.4%	US Corporate VC	4.3%
5	Germany	2.1%	US Angel	3.8%	US Growth	3.7%
	Others	22.3%				
Total	(n = 39 countries)	100%				

Source: Author analysis based on data provided by PitchBook.

such as AI, FinTech, and biotech. Hence, when it comes to the largest exit transactions – which are typically vital for VC firms to generate outsized returns – the British VC market is to some extent dependent on exit transactions that take place abroad, and predominantly on acquisitions made by US incumbents.

The reasons for this are not only to be found in the differences in size between the US and UK M&A or stock markets. The main reason why there are so few VC-backed tech exits in the UK is the lack of an established British Tech sector. With few exceptions such as Arm plc, UK tech is comprised of small tech firms founded after dotcom (see Appendix, Tables 7 and 8). Even the Cambridge-based Arm plc – albeit being held up by the UK Government as the British 'crown jewel' – is foreign listed and owned: Arm is listed on NASDAQ and Japanese tech conglomerate Softbank holds 88% of shares (Arm Holdings plc, 2024). The absence of large UK tech incumbents means that acquisitions by the latter have remained insignificant as an exit route for UK start-ups and British VCs seeking to realise capital gains. What is surprising is that UK Big Pharma did not acquire any of the VC-backed

British biotech start-ups in our sample, which instead were bought by US and European Big Pharma. With AstraZeneca and GSK plc, the UK economy features two of the largest Pharma corporations in the world and a sizable Biotech sector. One reason to explain this might be that around half of the listed UK biotech companies in 2006 did not receive VC funding (Bains, 2009: 7), which might mean that UK Big Pharma acquire smaller biotech firms not backed by VCs or foreign biotech firms. However, delving into the reasons for this would require a more detailed analysis of the pharma and biotech sectors, which is beyond the scope of this article.

What does this mean for British VCs? By default, UK VCs are in the business of investing in laggard and subordinated UK (and US) tech firms. This is because emerging UK tech firms are subordinated to US intellectual monopolies such as Amazon, Alphabet, and Microsoft, because they depend on the latter's services (e.g., cloud computing infrastructure) for their own operations. The UK-based tech firms that exited via IPOs in London mostly represent 'subordinated' platforms for delivery (e.g., Deliveroo, Just Eat), rental/property (e.g., Zoopla), or lending services (e.g., Funding Circle) that do not develop the most advanced technologies but copied business models from more mature US platform firms to operate mainly in markets outside of the US. At the same time, it is exactly the most technologically advanced British start-ups (e.g., DeepMind) that are acquired by US American intellectual monopolies. The UK market, in other words, mainly features 'second class' VC exits of (1) laggard tech firms which command lower equity valuations than their US competitors (i.e., the listed platforms) or (2) promising start-ups that are bought early in their lifetime by US incumbents at comparably low prices (e.g., Google acquired DeepMind for $650 million in 2014). Furthermore, it remains to be seen if (3) 'FinTech' unicorns – which make up almost half of the UK unicorn firms – can generate major exit deals for UK VCs (e.g., through acquisitions by UK or US incumbent banks) or spawn a British FinTech firm (e.g., Revolut) that could compete in certain markets with big US and UK incumbents.

In sum, the top-tier UK VC firms make a significant share of their investments in deals with US-based laggard start-up firms to realise capital gains via exit deals in the US. Furthermore, to enable US *and* UK-based unicorn firms to scale up their operations and grow towards the exit, UK VC firms compete with – and to some extent have become dependent on – US investors (especially non-traditional investors such as private equity firms and hedge funds) to provide larger amounts of growth capital in late-stage deals. Lastly, even though top-tier UK VC firms also make substantial investments in British start-up firms, the largest of those primarily exit via acquisitions with US incumbents. In other words, the top-tier UK-based VC firms are to some extent dependent on US start-up deals, US investors, and US exit routes – including US tech incumbents – to realise outsized capital gains that have led to the concentration within the *UK* VC market.

Concluding discussion

Existing studies on VC from various disciplines suggest that the formation of VC markets is a national phenomenon and typically neglect the international dimension of tech start-up financing. This article demonstrates that examining the relationships between national VC markets – and particularly the relation to the US where VC originated – is crucial to better understand the rise of the VC market in the UK.

We argue that the relation between the US and UK VC markets is better understood through the lens of international financial subordination and identified three types of dependencies to qualify this relation further: the dependencies of UK VC on US start-up investments, US growth capital, and US exit deals. The crucial point is that this is a new type of financial subordination historically specific to 'alt-finance' driven by two

mechanisms that we identified through our study of private market equity investments: first, highly profitable VC exit deals in companies like Skype in the 2000s that kick-started the flywheel effect in UK VC in the early to mid-2000s; and second, the subsequent expansion of the British VC market which went hand in hand with a substantial concentration of capital and returns reflecting a 'winners-take-all' logic – shared with its US counterpart – that is a characteristic of alt-finance more broadly (see Sgambati, 2024 for the case of hedge funds). We demonstrated in our discussion of UK VC in the 1980s and 1990s that VC failed during that period precisely because early-stage investing did not generate outsized returns.

The counterintuitive hypothesis that these findings lets us derive is that once UK VC had formed and kick-started its self-reinforcing loop of capital concentration based on the 'winners-take-all' logic underpinning UK VC fund returns, the US economy – and in particular US VC and non-traditional investors as well as US tech incumbents – seems to have benefitted more in financial, economic, and technological terms from the growth of the British VC market than its UK counterpart. While this hypothesis requires further research, our explorative findings suggest that this is because – and despite the formation of a top-tier of highly profitable UK VC firms – US VC firms and US non-traditional investors benefited from co-investing in deals with British and US 'unicorn' start-up firms while US incumbents could acquire the most promising UK based start-up firms, a trend that is exemplified by Google's acquisition of UK-based AI company DeepMind in 2014. This hypothesis runs counter to traditional scholarly accounts proclaiming that an economy such as the UK could build their own VC market and tech ecosystem *independently of* and with the aim to *catch up with* the US in terms of technological advancement and economic growth (see Klingler-Vidra, 2018: Chapter 1). It is even more remarkable that our findings point towards a financial subordination within VC not between core and peripheral economies as the research on international financial subordination has so far mainly pointed towards (see Alami et al., 2023), but between core economies such as the US and the UK, which echoes some of the observations of IPE research on the uneven transatlantic relationship in banking (e.g., Beck, 2022).

Importantly, the typical understanding of international financial subordination would focus on the VC market *in toto* as its object and thus would tend to overlook the substantial concentration of capital and profits *within* the VC market. In other words, such a perspective would miss the difference between a few top-tier VC firms that make outsized returns and the vast majority of VC firms that are laggards. This concentration is not stable but tends to be reinforced over time because of the flywheel effect that enables top-tier VC firms to raise more capital from limited partners *and* attract promising tech entrepreneurs (who seek to be funded by the top-tier firms for validation, expertise and guidance, and access to networks and capital), which makes it more likely that top-tier firms make *consecutive* home-run investments and thus persistently generate outsized returns for limited partners. This in turn leads to competition among limited partners to allocate capital to top-tier VCs firms, whose general partners can in turn demand better deal terms from limited partners in terms of higher management fees and carried interest. That is why the concentration of capital among the leading VC firms translates directly into a concentration of wealth among their general partners.

How does our conceptualisation of international financial subordination help us to read the politics of UK VC differently? Our article demonstrates that putting more capital into UK VC will primarily reinforce the concentration of capital under management by UK's top-tier VC firms such as Atomico, Index Ventures, Balderton, and Accel's London office (*and* the concentration of wealth in the hands of their general partners), while doing little to drive the innovation so desperately desired by UK policy makers. There has been an ongoing debate in UK academic and policy circles about reforming UK pension fund regulation to enable pension capital allocation to UK VC firms to drive British tech start-up

firm formation with the objective to help create national Tech champions and 'improve the lives of working people across the UK' (HM Government, 2025). What a higher capital allocation to UK VC would most likely lead to is a further concentration of capital among top VC funds because UK pension funds will seek to pick the best performing VC firms with the highest returns. Furthermore, more capital inflow to supposedly 'close the funding gap' will be insufficient for the UK VC market to overcome its subordinated position vis-à-vis the US and in itself does not make the formation of UK start-ups that become national tech champions more likely. Even if more capital is channelled via UK VC firms into early and late-stage deals with UK-based start-up firms, the exit deal dependency on US incumbents and American stock markets is the crucial limit to the independent formation of UK listed and headquartered tech monopolies. Furthermore, such aspiring British tech monopolies would in their formation phase of start-up financing compete with US intellectual monopolies and face all the barriers and limits that the extensive work in the literature on intellectual monopoly capitalism has already pointed to (see Rikap, 2023).

However, we are not advocating for the UK VC market to become independent of the US on the assumption that this would necessarily boost the UK tech sector, the wider UK economy, or improve the lives of people living in the UK in general. What we are witnessing with the rise of UK VC is a mechanism that not only reinforces the already extreme concentration of wealth in this country, but also may lead to the concentration of power within a small capitalist elite of general partners. These actors occupy positions that allow them to shape one of the predominant processes of technological innovation – start-up financing, as opposed to in-house investments by tech incumbents – by picking start-up founders and digital technologies. At a time when 'venture capital' increasingly serves as a broader ideological roadmap for the overhaul of the economy and political institutions supposedly for the betterment of society, the study of its contradictions is more pressing than ever.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/fas.2025.10016.

Acknowledgements. We thank the editors and two anonymous reviewers as well as Sahil Dutta and Stefano Sgambati for their encouraging and helpful feedback.

Notes

1. We refer here to the top 10 VC firms by the total number of large exit and unicorn investments based on our two data samples (see 'Note on Methodology' in the Appendix).
2. While exit deal size (in US$) is not necessarily correlated with the actual profitability of investments by individual VC firms, the deal size is an important indicator of potential profits in the absence of data on actually realised returns.
3. In contrast, Balderton's investments are more focused on British start-up firms, which representing the largest geographical share of their top investments by size (38%).
4. Index invested in Plaid's Series C and D rounds, as well as in several late-stage rounds of Discord. Atomico invested in Stripe's Series D round. We excluded Accel Partners because PitchBook data did not differentiate between Accel London and the US offices.

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Appendix

Note on methodology

For the historical narrative of UK VC from the 1980s until the dotcom era, we synthesised existing secondary historical accounts from business history, economic geography, and management studies. We combined this historical narrative with quantitative data to empirically study the UK VC market of the post-dotcom era. To do so, this article examined the investor composition post-dotcom alongside three dimensions of start-up financing: (1) early-stage investments, (2) late-stage investments, and (3) exit transactions. We have drawn on financial data available at commercial provider PitchBook on: (1) the top 1000 exit deals by deal size globally from 1 January 2010 to 31 October 2023 realised by 917 VC-backed start-up firms (the 'exit deal sample') as well as (2) 1342 VC-backed start-up firms classified by PitchBook as 'unicorn' companies as of 4 December 2023 (the 'unicorn sample'). The data includes information on all investors involved in *all* funding deals for each sample company over the entire lifetime of the firms until December 2023. For the data analysis, we used the open-source statistical computing software R.

For the exit deal sample, 38 out of the 917 VC-backed start-up firms had UK headquarters. Each firm was assigned an exit deal defined as the first IPO, merger and acquisition (M&A), buyout/leveraged Buyout (LBO), or reverse merger deal. We analysed all private funding rounds prior to the exit deal, and excluded all deals after the exit deal (e.g., post-IPO buyouts), totalling 727 investments by 441 different investors. We retrieved 126 datapoints for each investment deal, including company name, deal type, deal date, deal size, investor name, investor type, investment amount (where available), investor HQ, and investors' assets under management (AUM). We recategorised PitchBook's deal type and investor type to reduce the number of categories. The largest and smallest exit deals (by deal size) in the sample were Paddy Power's (Ireland) acquisition of BetFair Group in 2016 for $10.1 billion and Blue Earth Diagnostics acquisition by Bracco (Italy) in 2019 with a deal size of $465.68 million. The unicorn sample included 1342 start-up firms out of which 46 firms were headquartered in the UK. This sample included 958 investments by 563 different investors.

By international comparison, the UK VC market plays a minor role compared to its counterparts in the US and China. Exit transactions with UK-based start-up firms only accounted for 4.1% of the 917 largest exit deals globally over the last decade (see Table 4). Moreover, only 46 out of the 1312 total unicorn firms (3.4%) were based in the UK (see Table 5). To complement the exit and unicorn sample data, we also gathered and analysed the top 100 deals by deal size for all portfolio companies of the three largest UK-based VC firms for which AUM was reported by PitchBook: Index Ventures, Atomico, and Balderton Capital (see Table 6 in the Appendix).

Table 3. Overview of UK exit deals and exit/investor country.

Exit deal type	Number of exit deals	US	Europe	UK	Others
M&A	26	15	10	0	1
IPO	6	1	0	5	0
Reverse Merger	4	3	0	1	0
Buyout/LBO	1	1	0	0	0
PE Growth/Expansion	1	0	0	1	0
Total	38	20	10	7	1
Share	100.0%	52.6%	26.3%	18.4%	2.6%

Source: Author analysis based on data provided by PitchBook.

Table 4. Overview of 'Exit deal' firms by country.

Country HQ	Number of VC-backed firms with exit	Share
USA	578	63.0%
China	136	14.8%
Europe	59	6.4%
UK	38	4.1%
Others	106	11.6%
Total	917	100.0%

Source: Author analysis based on data provided by PitchBook.

Table 5. Overview of 'Unicorn' firms by country (as of Dec 2023).

Country HQ	Number of unicorn firms	Share
United States	692	51.6%
China	291	21.7%
Europe	97	7.2%
India	65	4.8%
United Kingdom	46	3.4%
Others	151	11.3%
Total	1342	100.0%

Source: Author analysis based on data provided by PitchBook.

Table 6. Overview of top 10 UK VC firms and 'exit' investments by country.

Investor name	HQ location	Year founded	AUM (in USD million)	Total investments (exit & unicorns)	Total exit i nvestments	Top 1 country	Top 2 country	Top 3 country	Top 4 country	Top 5 country
Accel Partners	Palo Alto, CA/London, UK	2001	NA	141	58	76% (USA)	3% (CHN)	3% (FIN)	3% (IND)	3% (GBR)
Index Ventures	London, UK	1996	4000.00	86	31	58% (USA)	16% (GBR)	3% (CHN)	3% (DNK)	3% (FIN)
Atomico	London, UK	2006	5000.00	25	8	38% (FIN)	38% (USA)	13% (DNK)	13% (GER)	–
Balderton Capital	London, UK	2000	4940.24	19	8	50% (GBR)	38% (USA)	13% (DNK)	–	–
83North	London, UK	2006	2000.00	14	7	43% (USA)	14% (FIN))	14% (ISR)	14% (SWE)	14% (GBR)
Target Global	London, UK	2012	3293.49	13	5	40% (GER)	40% (USA)	20% (GBR)	–	–
Molten Ventures	London, UK	2006	2288.62	11	4	25% (DNK)	25% (TUR)	25% (GBR)	25% (USA)	–
Dawn Capital	London, UK	2007	2000.00	9	4	50% (SWE)	25% (ISR)	25% (USA)	–	–
Northzone Ventures	London, UK	1996	1700.00	9	3	33% (DNK)	33% (RUS)	33% (SWE)	–	–
Octopus Ventures	London, UK	2007	2415.76	6	4	100% (GBR)	–	–	–	–

Source: Author analysis based on data provided by PitchBook.

Table 7. UK VC-backed companies included in 'Exit sample'.

Company name	Primary industry code	Deal date	Total deal size (USD million)	Deal type 1	Investor name	Investor country	Still publicly listed as of Nov. 2024?
BetFair Group	Casinos and gaming	01-02-16	10066.61	Merger/ acquisition	Flutter Entertainment	Ireland	Flutter moved primary listing to NYSE (US) in May 2024
NEX Group	Brokerage	02-11-18	5584	Merger/ acquisition	CME Group	USA	
Moonbug Entertainment	Movies, music and entertainment	04-11-21	3000	Buyout/LBO	Candle Media	USA	
Deliveroo (LON: ROO)	Other restaurants, hotels and leisure	31-03-21	2078.84	IPO	NA	NA	Yes, still listed on LSE
Tendeka	Oil and gas equipment	21-02-22	1622.94	Merger/ acquisition	TAQA	Saudi Arabia	
Depop	Social/platform software	02-06-21	1600	Merger/ acquisition	Etsy	USA	
Vectura Group	Drug delivery	15-09-21	1514.56	Merger/ acquisition	Philip Morris International	USA	
Gyroscope	Drug discovery	17-02-22	1500	Merger/ acquisition	Novartis	Switzerland	
Kymab	Drug discovery	08-04-21	1450	Merger/ acquisition	Sanofi	France	
Playdemic	Entertainment software	20-09-21	1400	Merger/ acquisition	AT&T	USA	
G.Network Communications	Internet service providers	14-12-20	1384.99	PE growth/ expansion	Universities Superannuation Scheme	UK	

(*Continued*)

Table 7. (*Continued*)

Company name	Primary industry code	Deal date	Total deal size (USD million)	Deal type 1	Investor name	Investor country	Still publicly listed as of Nov. 2024?
Optal	Financial software	15-12-20	1300	Merger/ acquisition	WEX	USA	
Charlotte Tilbury Beauty	Personal products	04-06-20	1229.57	Merger/ acquisition	Puig	Spain	
Nutmeg	Financial software	01-06-21	985.85	Merger/ acquisition	JP Morgan Chase	USA	
Currencycloud	Financial software	20-12-21	893	Merger/ acquisition	Visa	USA	
Farfetch (NYS: FTCH)	Internet retail	21-09-18	884.87	IPO	NA	NA	Acquired by Coupang group (US) in 2024
KaNDy Therapeutics	Biotechnology	09-09-20	878.38	Merger/ acquisition	Bayer	Germany	
Cazoo Group	Automotive	27-08-21	805	Reverse merger	Ajax 1	USA	Listed on NYSE, but filed for bankruptcy in 2024
Tusk Therapeutics	Biotechnology	27-09-18	764.04	Merger/ acquisition	Roche	Switzerland	
InstaDeep	Business/productivity Software	31-07-23	723.55	Merger/ acquisition	BioNTech	Germany	
Oxford Nanopore Technologies (LON: ONT)	Electronic equipment and instruments	30-09-21	720.93	IPO	NA	NA	Yes, still listed on LSE
ETF Securities	Other capital markets/ institutions	11-04-18	695.74	Merger/ acquisition	WisdomTree Investments	USA	
YgEia3	Laboratory services (healthcare)	09-06-23	681	Merger/ acquisition	Kinnick	USA	

(*Continued*)

Table 7. (*Continued*)

Company name	Primary industry code	Deal date	Total deal size (USD million)	Deal type 1	Investor name	Investor country	Still publicly listed as of Nov. 2024?
Arrival	Road	24-03-21	660	Reverse merger	CIIG Merger	USA	Listed on NASDAQ, but filed for bankruptcy in 2024
Convergence Pharmaceuticals	Biotechnology	12-02-15	650.1	Merger/ acquisition	Biogen	USA	
DeepMind	Other commercial Services	27-01-14	650	Merger/ acquisition	Alphabet	USA	
Just Eat Holding (LON: JET)	Other services (B2C non-financial)	03-04-14	642.95	IPO	NA	NA	No, acquired by Takeaway.com (NL) in 2020
Jellyfish (Media and Information Services (B2B))	Media and information services (B2B)	05-11-19	636.79	Merger/ acquisition	Fimalac Group	France	
Gamesys	Entertainment software	26-09-19	604.83	Reverse merger	JPJ Group	UK	Listed on LSE, but acquired by Bally's (US) in 2021
Clarivate	Consulting services (B2B)	14-05-19	600	Reverse merger	Churchill Capital Corp	USA	Yes, still listed on NYSE
Zoopla (LON: ZPLA)	Real estate services (B2C)	22-09-14	576.08	IPO	NA	NA	No, acquired via LBO by Silver Lake (US) in 2018
Funding Circle (LON: FCH)	Other financial services	28-09-18	574.62	IPO	NA	NA	Yes, still listed on LSE
ReViral	Drug discovery	06-04-22	525	Merger/ acquisition	Pfizer (Pharmaceuticals)	USA	
NaturalMotion Games	Entertainment software	11-02-14	522.15	Merger/ acquisition	Zynga	USA	
WaveOptics	Electronics (B2C)	21-05-21	510.44	Merger/ acquisition	Snap	USA	

(*Continued*)

Table 7. (*Continued*)

Company name	Primary industry code	Deal date	Total deal size (USD million)	Deal type 1	Investor name	Investor country	Still publicly listed as of Nov. 2024?
Busuu	Educational software	13-01-22	486.3	Merger/ acquisition	Chegg	USA	
Blue Earth Diagnostics	Drug discovery	01-08-19	465.68	Merger/ acquisition	Bracco Imaging	Italy	
O3B Networks	Telecommunications service providers	29-04-16	20	Merger/ acquisition	SES	Luxembourg	

Source: Author analysis based on data provided by PitchBook and company filings.
Notes: Companies that were not included in PitchBook data for unknown reasons include The Hut Group (THG) and Wise, which listed on LSE in 2020 and 2021, respectively. For BetFair, the third exit deal was included in the Pitchbook data, which was the acquisition by Flutter in 2016.

Table 8. Top 20 UK VC-backed unicorn companies as of Dec 2023.

Company name	Primary industry Group	Primary industry code	Company HQ	Company post-valuation (USD million)
Checkout.com	Software	Financial software	London, England	40000
Revolut	Software	Financial software	London, England	33000
Blockchain.com	Software	Financial software	London, England	14000
Rapyd	Software	Financial software	London, England	8750
SumUp	Computer hardware	Other hardware	London, England	8498.28
Hopin	Commercial services	Media and information Services (B2B)	London, England	7659.75
Snyk	Software	Network management software	London, England	7400
Zepz	Software	Financial Software	London, England	5000
DAZN	Media	Broadcasting, radio and television	London, England	4786.32
Monzo	Commercial banks	Other commercial banks	London, England	4596.77
Improbable	Software	Entertainment software	London, England	3600
eToro	Capital markets/institutions	Brokerage	London, England	3500
Starling Bank	Commercial Banks	Other commercial Banks	London, England	3429.23
OakNorth Bank	Commercial banks	Other commercial banks	London, England	2800
Graphcore	Semiconductors	General purpose Semiconductors	Bristol, England	2770
CMR Surgical	Healthcare devices and supplies	Surgical devices	Cambridge, England	2698.74
Getir	Services (non-financial)	Other services (B2C non-financial)	London, England	2500
ManyPets	Insurance	Other insurance	London, England	2350

(*Continued*)

Table 8. (*Continued*)

Company name	Primary industry Group	Primary industry code	Company HQ	Company post-valuation (USD million)
Gousto	Media	Information services (B2C)	London, England	2269.76
GoCardless	Software	Financial software	London, England	2100

Source: Author analysis based on data provided by PitchBook and company filings.

Table 9. Top 100 investment deals by size of three largest UK-based VC firms by AUM.

	US	UK	France	Germany	Sweden	Canada	Czech Republic	Other	Netherlands	Spain	Turkey	Australia	China	Finland	Israel	Switzerland
Index Ventures	**53**	**13**	**7**	**4**	**4**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**
	US	Germany	UK	Finland	Netherlands	Spain	Switzerland	Sweden	China	Denmark	Estonia	France	Israel	Japan		
Atomico	**32**	**15**	**15**	**9**	**7**	**5**	**5**	**4**	**2**	**2**	**1**	**1**	**1**	**1**		
	UK	US	France	Germany	Sweden	Luxembourg	Ireland	Netherlands	Turkey	Denmark	Mexico	Norway	Switzerland	Russia	Spain	
Balderton Capital	**38**	**22**	**6**	**6**	**5**	**4**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	

Source: Author analysis based on data provided by PitchBook and company filings.
Notes: We did not include Accel Partners London, because PitchBook did not provide a breakdown of investments for the London office but only consolidated investment figures for the VC firm as a whole.

Cite this article: Kampmann, D. and Peters, N. (2025) Subordinating 'alt-finance': How British venture capital became dependent on the US. *Finance and Society*. https://doi.org/10.1017/fas.2025.10016