ECONOMICS – THEMATIC STUDIES

The scale-up gap

Financial market constraints holding back innovative firms in the European Union

European Investment Bank

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Executive summary

The scale-up gap: a key policy challenge for Europe

Closing the gap in finance for scale-up companies is essential for the European Union to maintain its edge in technology and thrive amid the green and digital transitions. European innovators grapple with significant constraints when seeking investment, particularly as they transition from startups to growth-stage companies. This often compels promising firms to seek financing abroad, or even relocate their operations overseas.

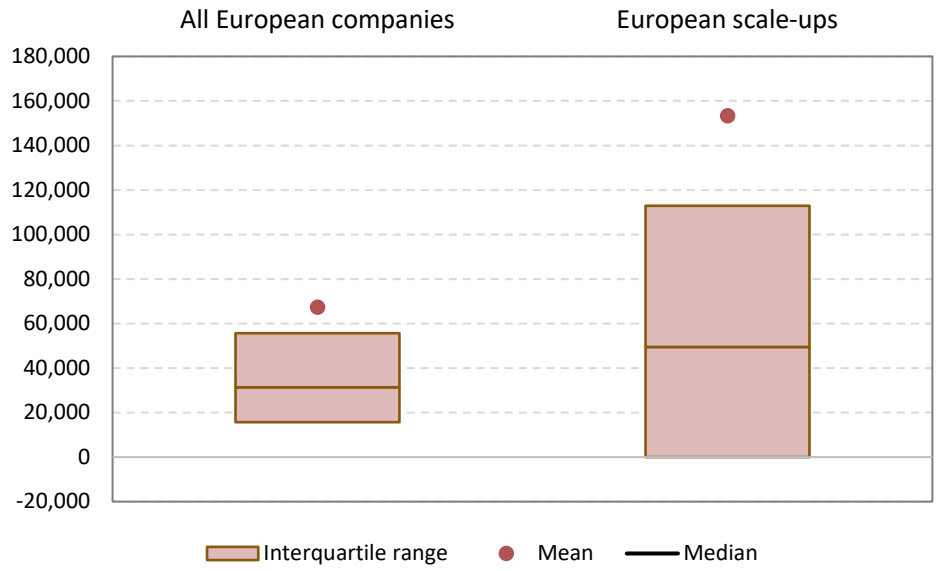
To tackle this challenge, Europe needs to bolster its support for innovation by deepening capital markets and nurturing the venture capital scene. Removing investment barriers and implementing targeted public interventions can generate a virtuous cycle, redirecting investments from institutional investors to this strategic market segment. The European Union has a strong track record of supporting business growth, using grants, business angels and seed capital, venture capital and venture debt. Programmes like the European Technology Champions Initiative (ETCI) provide opportunities to support firms in their crucial scale-up phase. The European Investment Bank (EIB) Group, known for its success in backing innovative companies and scaling up new technologies, can play a catalytic role, contributing to Europe's global competitiveness.

Addressing growth constraints to keep the European Union at the technological frontier

Innovation is Europe's path to a sustainable and equitable future. Europe's economic success has been underpinned by its industrial champions, forward-looking industrial policies and first-class education system. Now, more than ever, innovation is a priority. The twin transition to a green and digital economy hinges on advancements in key technologies, from greentech to artificial intelligence and quantum computing. But inadequate investment in innovation coupled with the ageing of mature technologies threatens to undermine Europe's competitiveness.

Scale-ups are more productive than the average EU firm

Labour productivity in the European Union: scale-ups vs. other companies (value added per employee, €)



Source: Authors' calculations based on the methodology of Maurin and Wolski (2024) and Orbis data.
Notes: Labour productivity is computed as value added per employee in 2021. The sample of scale-ups was restricted to those companies for which 2021 data were available at the time this report was written. Labour productivity is negative when value added is negative.

Ensuring that the European Union has a robust pipeline of scale-up companies delivering innovation has strategic implications for the European policy agenda. Scale-ups – young firms with high growth potential – are more productive than the average company and leaders in the development of new technologies. They frequently raise capital, making them vulnerable to cyclical economic downturns and tightening financial conditions. Supporting these firms is essential to secure Europe's edge at the technological frontier.

A new firm-level analysis sheds light on EU scale-up growth constraints

This report contains an in-depth analysis of venture capital-backed companies that reached the scale-up phase in the European Union after 2013. By tracking these firms over time, the report examines the financing they receive and the investors they attract. The analysis includes a comparison between these companies and similar firms in two major startup hubs, London and San Francisco, offering key facts and insights into the growth dynamics of successful innovative businesses. The report also examines the sources and characteristics of funding throughout a firm's lifecycle, from establishment to exit – whether through stock exchange listing or acquisition. Furthermore, it investigates the relocation trends of these innovative companies.

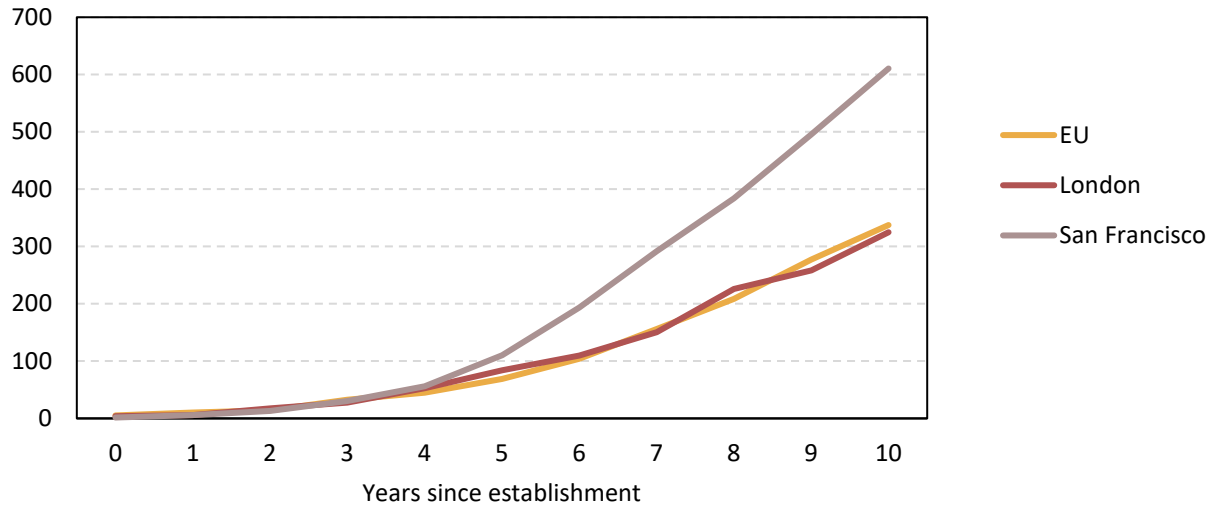
Innovative EU companies grapple with significant financing constraints, with scale-ups raising half as much capital as their Silicon Valley peers

In the European Union, as companies grow, financial constraints widen. By the time they reach ten years in operation, European scale-ups raise 50% less capital than their San Francisco peers. This capital accumulation gap persists regardless of industry, year of establishment or business cycle. The scarcity of EU investors that can provide financing at the scale-up phase pushes many EU companies to seek funding abroad and, at exit, look for a foreign buyer or get listed on a foreign stock exchange.

Lead investors play a critical role in funding rounds, attracting additional investment from less sophisticated market players due to their specialist industry knowledge and successful track records. In the European Union, viore than four out of five scale-up deals involve a foreign lead or sole investor, compared to only 14% in San Francisco.

EU scale-ups raise less capital than peers in London and San Francisco

Cumulative capital raised by scale-ups over the company lifetime (average, current $m)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: Strongly balanced panel of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

Relocating overseas offers market valuation gains for EU scale-ups, but it saps Europe's potential to retain industry leaders and develop new technologies. It also weakens the flywheel effect, in which new leaders support the next generation of startups, causing entrepreneurial brain drain and missed opportunities for the local ecosystem. This loss is particularly worrying amid global regionalisation and new strategic dependencies, particularly in highly innovative technologies with significant spillovers.

Deepening EU capital markets to unlock finance for scale-ups

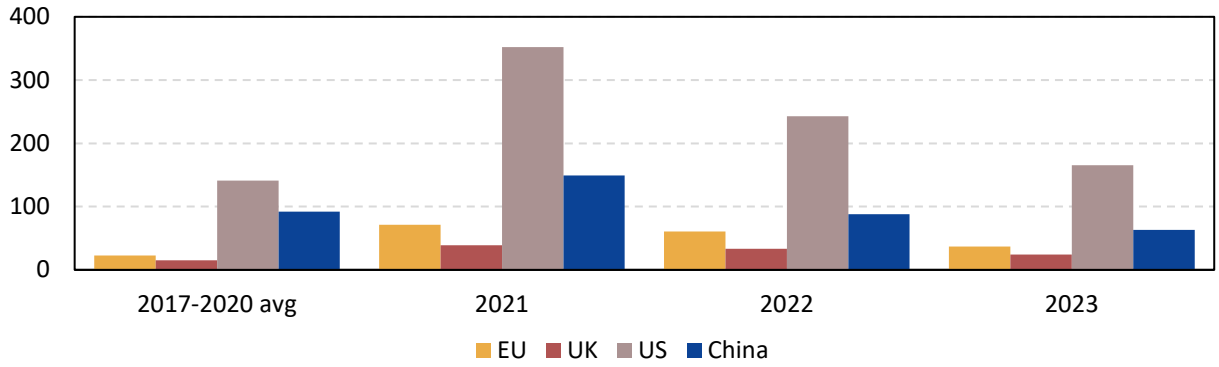
The financing constraints faced by EU scale-ups stem from the shallow and fragmented nature of European capital markets, particularly the venture capital market. Each year, venture capital investment in US companies is six to eight times higher than in the European Union, and three to four times higher than in the European Union and United Kingdom combined. While the European Union does attract venture capital investment from abroad, it is not enough to bridge this significant gap.

The European Union is still not investing enough in equity and venture capital. A large portion of EU household savings is held in cash and low-risk instruments, limiting financing options for high-risk, innovative companies. This issue is particularly evident in the venture capital market, which is highly localised: venture capital funds typically raise and invest money within their own region. That is why channelling private savings into venture capital investment in innovative companies can have an immediate, localised effect on access to finance for innovative firms.

While the EU venture capital market is expanding and developing expertise, the number of specialised and large-scale venture capital funds remains insufficient to support scale-ups. Deepening EU capital markets would make scale-ups more attractive to investors by improving their exit options. Enhancing access to capital markets for institutional investors and households would increase liquidity, expand the market and encourage more private investors, creating a virtuous cycle that helps innovative companies grow.

EU venture capital investment falls short compared to the United States

Venture capital investment in the European Union, the United Kingdom, the United States and China ($bn)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The data include total $ billion by region and year and companies from the four regions considered. The period 2017-2020 refers to yearly averages. The data have not been reviewed by PitchBook analysts.

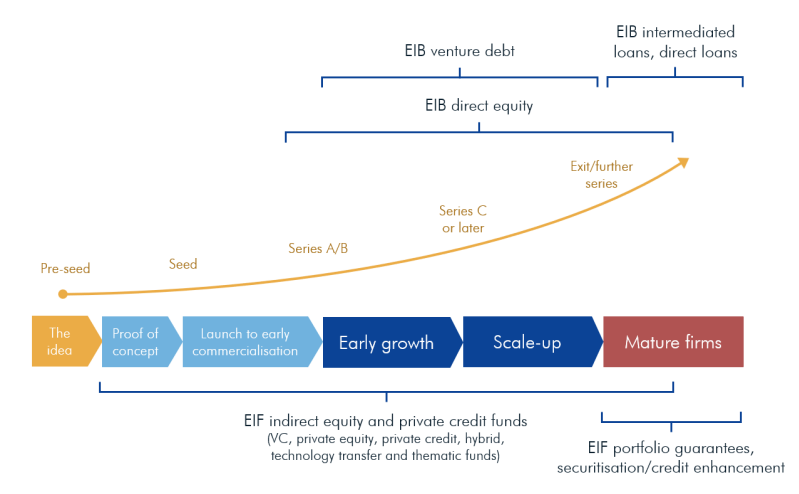
Removing investment barriers and targeting public intervention can unlock the full potential of the EU entrepreneurial ecosystem

This report summarises empirical evidence on the positive impact of public financial support for innovative companies. The public sector can catalyse private investment in innovative firms, particularly at early stages of technological development, and provide diversified funding sources where patient capital is needed. To enhance European competitiveness, EU and national policies should be coordinated within a broader industrial strategy. Regulatory and legal intervention is needed to deepen capital markets, mobilise private institutional investors towards this strategic segment of innovative firms, and develop a robust ecosystem. Finally, addressing other obstacles to growth – such as updating the EU single market, investing in enabling infrastructure, and tackling skilled labour shortages in innovative sectors – will increase returns on the investments.

Building on its successful track record, the EIB Group continues to support innovative companies and help scale up new technologies[1]

The EIB Group is successfully supporting finance for innovation across the board, from business angels to seed capital, venture capital and venture debt.

EIB Group support throughout a company's lifecycle



The European Investment Fund plays a major role in the venture capital market, acting as lead investor and mobilising private investment. The EIF prioritises cross-border venture capital firms, helping to unify Europe's fragmented venture capital markets and fostering a cohesive pan-European venture capital market. It also supports emerging investor teams and those with significant female participation, lowering barriers to entry and enhancing inclusiveness in Europe's venture capital and private equity sectors. Over the past ten years, EIF commitments have averaged 10-15% of total venture capital fundraising, and about half of public venture capital funding in Europe (including the United Kingdom). The EIF supports 40-50% of venture capital-backed startups in Europe in a typical year.

The EIB is the dominant market player for EU venture debt, a relatively rare financing instrument tailored for early-stage companies. Venture debt provides essential liquidity to businesses in between equity funding rounds. To date, the EIB has provided around €6.8 billion in venture debt to about 300 companies. This investment by the EIB Group serves as a strong signal of quality backed by rigorous due diligence and technical expertise.

In the scale-up segment, successes are accumulating. In February 2023, the EIB Group and several EU Member States launched the European Tech Champions Initiative (ETCI). With €500 million from the EIB Group and contributions from Germany, France, Spain, Italy, Belgium and the Netherlands, the initiative boasts total capital of €3.85 billion, of which, €600 million in conditional commitments. This fund-of-funds bolsters large-scale venture capital funds and provides substantial financing for Europe's innovative firms, especially those seeking to raise more than €50 million. To date, ETCI has mobilised €10 billion in investment. Initiatives like ETCI are part of a broader strategy to support scale-ups. The InvestEU programme is an excellent example of a successful EU-wide instrument with targeted interventions for key priorities, including scale-ups. Notably, the European Scale-up Action for Risk Capital (ESCALAR) programme under InvestEU targets equity investments in scale-up-focused funds. The SME IPO Fund under InvestEU helps develop a class of fund managers that are active at the pre-IPO stage, able to support Europe's promising companies on their path to public markets.

[1] *EIB Group support for EU businesses* (EIB and EIF, 2024).

1 About this report

Supporting the growth of our most innovative firms is a necessary step in Europe's quest to boost productivity, enhance competitiveness, create quality jobs and improve households' purchasing power and well-being. Europe boasts a wealth of successful entrepreneurs, high-skilled workers and innovative research. However, the growth of innovative companies has been hindered by financing constraints and other investment obstacles. Europe has yet to fully harness its deep pool of expertise and knowledge.

One persistent issue is the lack of European big champions capable of competing on a global scale. This report focuses on scale-ups, companies at a delicate stage of growth, having established a strong footing at the national level, as they prepare to scale up, expand beyond the local market and compete internationally.

Scale-ups are highly productive companies, with the potential to become the big champions of tomorrow. They can spearhead the development of the local entrepreneurial ecosystem and fuel a business environment in which new innovative companies can grow. Many top firms in the world (like Apple, Google or Facebook) were once scale-ups that resorted to venture capital to finance their groundbreaking business ideas. In addition, these companies are often active in priority industries for the digital and green transitions. For these reasons, understanding the constraints faced by this set of companies has deep implications for outcomes we care about: productivity, innovations that improve daily lives, growth, jobs and income.

This report examines the link between the depth of the European financial sector, with a particular focus on the venture capital market, and the ability of scale-ups to raise capital and grow. The speed of capital accumulation, exit outcomes and relocation choices are discussed in light of the financing constraints faced at the scale-up phase. Generally, innovative firms face greater financing constraints than the average firm. Furthermore, as companies grow and need more capital, the depth of the financial sector becomes an increasingly binding constraint on their ability to scale up.

We trace the cohorts of scale-ups established in the European Union since 2013, comparing outcomes and benchmarking them against peer firms in London and San Francisco. We use data on companies and investors from PitchBook Data, Inc.[2] This approach provides key insights into the growth dynamics of this important group of companies, their specific characteristics and the constraints they face.

One thing is clear: public sector intervention works. Initiatives by the European Union and the European Investment Bank (EIB) Group implemented so far – like ETCI, the European Tech Champions Initiative – target the financing needs of innovative companies, including scale-ups, and have proven effective empirical evidence confirms its positive impact on firms' outcomes. This report draws lessons from the past on how to shape new public support programmes in the future.

The report begins by providing context on the role of European scale-ups as drivers of growth, and presenting an overview of the cohort of firms tracked in the dataset. Next, it describes the financial constraints faced by innovative companies as they grow. The report argues that the micro-level evidence on the financial constraints faced by scale-ups directly reflects the development of the venture capital market and capital markets. It continues with an overview of the types and breadth of public sector intervention, especially by the EIB Group. It also summarises research on the impact on firms' outcomes of EIB Group intervention in the venture capital and venture debt markets. The report concludes with policy recommendations in three key areas: enhancing the capital market union, defining a role for the public sector and addressing other barriers to firms' growth.

2 Scale-ups are key drivers of growth

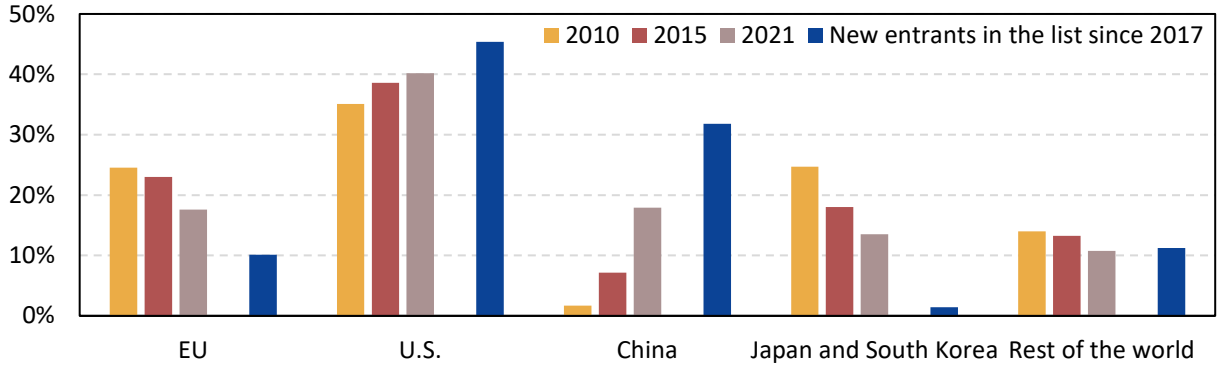
The European Union has experienced a decade of sluggish growth and a widening productivity gap. EU labour productivity, measured as real output per hours worked, was well below that of the United States (Darvas, 2023). In addition, the European Union systematically invested less than the United States. While productive investment

[2] Throughout the report, the analyses have not been reviewed by Pitchbook.

in the European Union has increased in the past few years, an investment gap remains since the sovereign debt crisis. Lower labour productivity and investment account for the lukewarm growth performance the European Union has experienced in the last decade.

The European Union lags behind in creating new technologies and scaling them up to the market. The disappointing gross domestic product (GDP) growth in the European Union is also attributable to the business sector, which is less dynamic than in the United States.[3] Entrepreneurs are less likely to start innovative firms in the European Union than in other regions like the United States or China. For example, the European Union has fewer than half the number of startups in the United States, and only one-fifth the number of scale-ups. In addition, the share of EU firms among the top global research and development (R&D) investors has been falling since 2010, but growing in countries like the United States and China (Figure 1).[4] The limited business dynamism is associated with lower productivity, as a higher business turnover allows a more efficient reallocation of resources between firms (CompNet Task Force, 2014).

Figure 1. Share of top global R&D companies by country (% firms)



Source: EIB (2024), based on the EU Industrial R&D Investment Scoreboard 2022.
Notes: Share of the total number of firms in the top R&D investors, by country. "New to the club" refers to firms that entered the list of top global R&D investors after 2017. The data have not been reviewed by PitchBook analysts.

Venture capital is an important source of financing for innovative companies. What's more, venture capital investment has proven positive effects on firm growth, business creation and innovation.[5] For instance, Mollica and Zingales (2007) estimate that a $64 million increase in venture capital investment would lead to a 4-15% increase in patents and 2.5% increase in new businesses. Companies targeted by venture capital are typically highly innovative, and have high growth potential thanks to the disruptive technologies they strive to develop. Many innovative companies, including Apple, Facebook, Google, Spotify, Starbucks, Airbnb and Uber, raised venture capital funds in their early years: 62% of the companies with the highest R&D spending in the world invested in startups and scale-ups (Grassano et al., 2022). In fact, between 1995 and 2019, half of publicly traded firms in the United States received venture capital financing at some point in their growth (Lerner and Nanda, 2020).

Why target scale-ups? Innovative EU firms at all stages of growth face financing constraints and obstacles to investment that slow them down. This report focuses on those constraints typical of the scale-up phase. The number of EU startups with a valuation below $50 million between 2021 and 2023 (nearly 7 000) is already overshadowed by almost 13 000 US companies in the same valuation range. This gap grows as companies scale up: in 2021-2023 there were just 178 EU companies with a valuation of between $500 million and $10 billion, compared with 1 496 in the United States. But European scale-ups are more productive than the average company (Figure 2). This small group of companies contains important contributors to EU economic competitiveness, including Zealand Pharma, a Danish biotechnology research firm focusing on treating metabolic diseases like diabetes and obesity, and Glovo, an online platform for the purchase and delivery of food and other products; Bolt, an Estonian cab-ride service.

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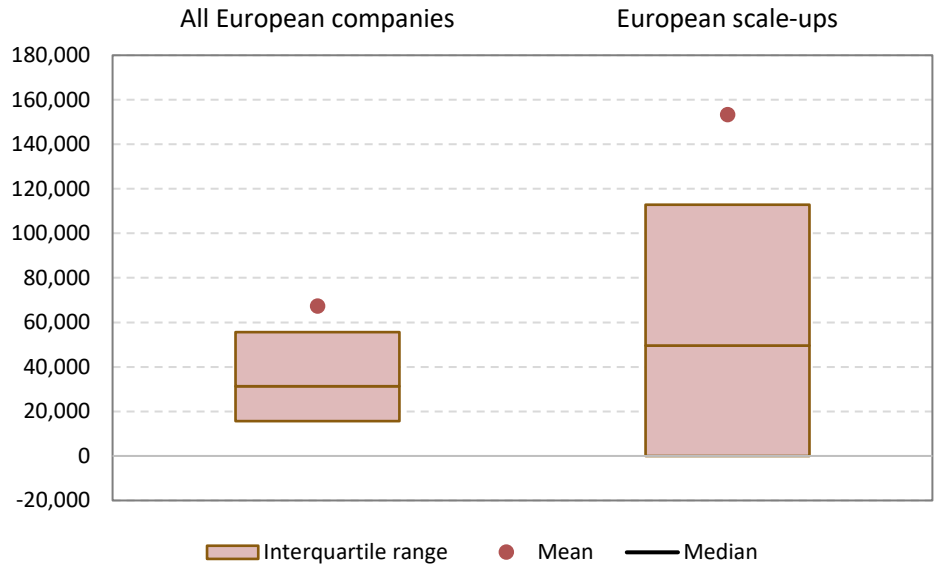
3 See, for instance, Bravo-Biosca et al. (2013).
4 For a more extensive report on how to restore competitiveness in Europe, see Berndt et al. (2015).
5 See Popov and Roosenboom (2013) and Tykvova (2000).

Addressing the scale-up funding gap will help Europe preserve its ability to compete globally and remain a technological leader. Despite being a small subset of companies, scale-ups can deliver disruptive technologies in the European Union and establish a new generation of tech champions with positive spillovers to the rest of the entrepreneurial ecosystem. Looking at the experience of companies that scaled up successfully in the past, tracking their performance from establishment onwards sheds light on the growth barriers growth faced by today's innovative companies trying to reach the scale-up phase. As scale-ups are highly innovative and productive, fast-growing companies, supporting this segment of the corporate sector boosts EU productivity through the development of key technologies. Merely reaching a large scale should not be the end goal for EU companies, but removing growth constraints and ensuring that they reach their optimal scale, without undermining fair competition, favours the European Union's strategic autonomy and international competitiveness, and has positive spillovers for the entire ecosystem. The next few sections discuss the cohort of European scale-ups, its features and its financing constraints.

Figure 2. Labour productivity in the European Union: scale-ups vs. other companies (value added per employee, €)



Source: Authors' calculations based on the methodology of Maurin and Wolski (2024) and Orbis data.
Notes: Labour productivity is computed as value added per employee in 2021. The sample of scale-ups was restricted to those companies for which 2021 data were available at the time this report was written. Labour productivity is negative when value added is negative. The data have not been reviewed by PitchBook analysts.

3 Examining European scale-ups

3.1 PitchBook data

The analysis relies on deal-level data from PitchBook. PitchBook is widely used in the industry and in the policy arena thanks to its coverage and the quality of the data provided. It tracks venture capital and private equity investment deals by relying on a combination of proprietary technology, such as machine learning, and a dedicated team of experts. Sources include direct surveys of companies and investors, publicly available information gathered from the web and cleaned using large language models (LLMs), regulatory filings and Freedom of Information Act (FOIA) requests. The PitchBook quality assurance team uses preventive validations and manual reviews to vet all of the information gathered. PitchBook's primary unit of analysis is deals, rather than the companies themselves. Deal-level data include information on the type of deal – such as venture capital financing rounds, private equity transactions, debt issuance or even exits, including initial public offerings (IPOs) and buyouts. PitchBook information includes deal size, announcement date and deal date, in addition to all the characteristics of the investors involved in the transactions. Information at the company level includes industry classification, the amount of capital raised to date and its current financing status, along with a set of key financial variables such as turnover, net income and valuation. PitchBook deal-level data include information on companies' valuation at the time of a deal.[6] Valuation data are either gathered from a variety of public sources and direct company outreach, or are estimated by a group of researchers and vetted when new information becomes available. PitchBook has also adopted an automatic quality assurance process that flags the need for additional attention from a senior valuation specialist.[7]

3.2 A longitudinal study of scale-ups

A working definition of scale-ups is companies that have reached valuation of between $500 million and $10 billion. Piaskowska et al. (2021) "propose to define scale-ups as high-growth firms at an intermediate stage of organisational development (situated between the startup and mature firm stage in the organisational life cycle), which pursue strategies that prioritise the attainment of economies of scale." The literature has offered different ways of formalising this concept, but there is no single established definition to date. For the purpose of this report, we define scale-ups as companies that have successfully concluded a deal with a post-money valuation of between $500 million and $10 billion. Although relying on market valuation makes the definition vulnerable to swings in companies' market value, this approach has been used for other definitions widely accepted in the literature, such as that of a unicorn (a company with a market valuation above $1 billion).[8]

We follow cohorts of European companies that became scale-ups between 2013 and 2023. Our analysis considers cohorts of companies reaching scale-up status at different points in time. Companies identified as scale-ups in PitchBook are associated with their full deal history, from foundation until 2023, and data on venture capital investors' characteristics during their scale-up phase. The analysis considers scale-ups with legal headquarters in the European Union.[9] To provide a benchmark, we also gathered data on scale-ups located in San Francisco, California, United States, and London, United Kingdom, the most prominent startup hubs in the United States and United Kingdom. The rest of the section provides summary statistics to describe the cohorts of scale-ups used throughout the report.

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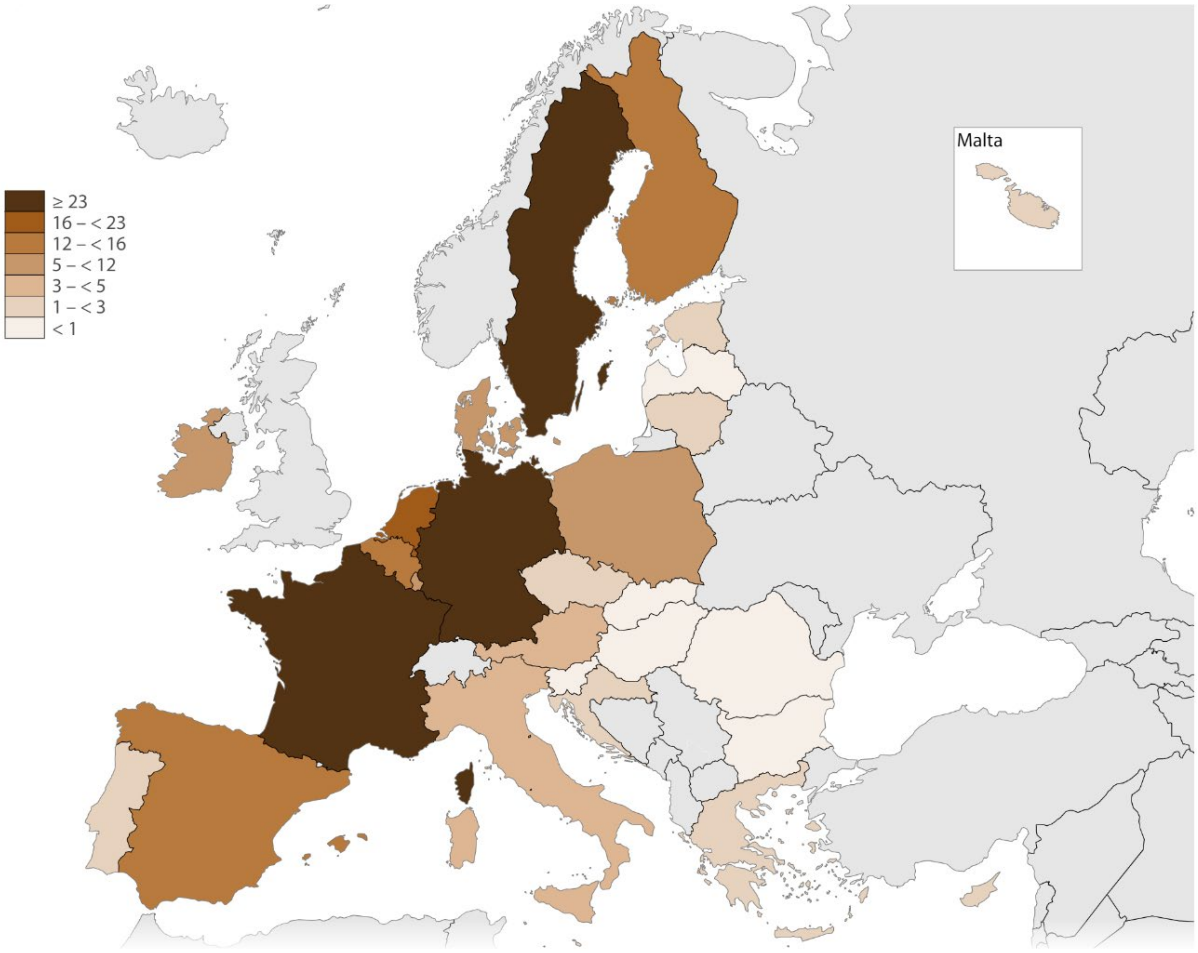
6 The market valuation is generally an equity valuation. For unlisted companies, this is often based on the price of the shares acquired when the deal takes place.

7 The data on the scale-up cohorts were downloaded from the PitchBook platform in September 2023. The rest of the data, including aggregate data on the venture capital market, were downloaded in April 2024.

8 The European Commission and Organisation for Economic Co-operation and Development use the Eurostat definition for high-growth enterprises: "(non-micro) SMEs with 10-249 employees that grow in employment or turnover at an average yearly rate of 10% or more for three consecutive years" (Ministry of the Economy Belgium, 2024). This definition is less appropriate for companies with a non-traditional business model. Our definition emphasises the attainment of a high market valuation, in line with Startup Genome, which uses a $50 million threshold to define tech scale-ups (Startup Genome, 2023). For an overview of other definitions for scale-ups, see Coad et al. (2024).

9 In the sample, 5% of the companies had two headquarters. In this case, one headquarters' location was allocated, based on the information provided by PitchBook.

Figure 3. Geographical distribution of EU scale-ups included in the sample



Source: Authors' calculations based on data from PitchBook Data, Inc. Map generated using Eurostat's IMAGE.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

Table 1. Number of scale-up companies and completed deals

	EU	San Francisco	London
Number of companies	261	248	70
Number of completed deals	2 058	2 019	557

Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

An initial description of the data – the size of the sample. PitchBook data include all companies headquartered in the European Union, San Francisco and London that concluded at least one deal between 2013 and 2023 with a valuation of between $500 million and $10 billion. Table 1 reports the number of companies and the deals they completed throughout their lifetimes. The sample consists of 261 scale-ups in the European Union, 248 in San Francisco and 70 in London.[10] These figures refer to scale-ups involved in deals between 2013 and 2023, but may not capture all existing scale-ups within that timeframe. In particular, the sample did not include companies that were not involved in any deal in the period considered. The sample also excludes companies whose valuation before 2013 was higher than $500 million or that exceeded the $10 billion market valuation. For instance, Apple's market valuation exceeded $10 billion before 2013, so it is included in the sample. But Uber, with a market

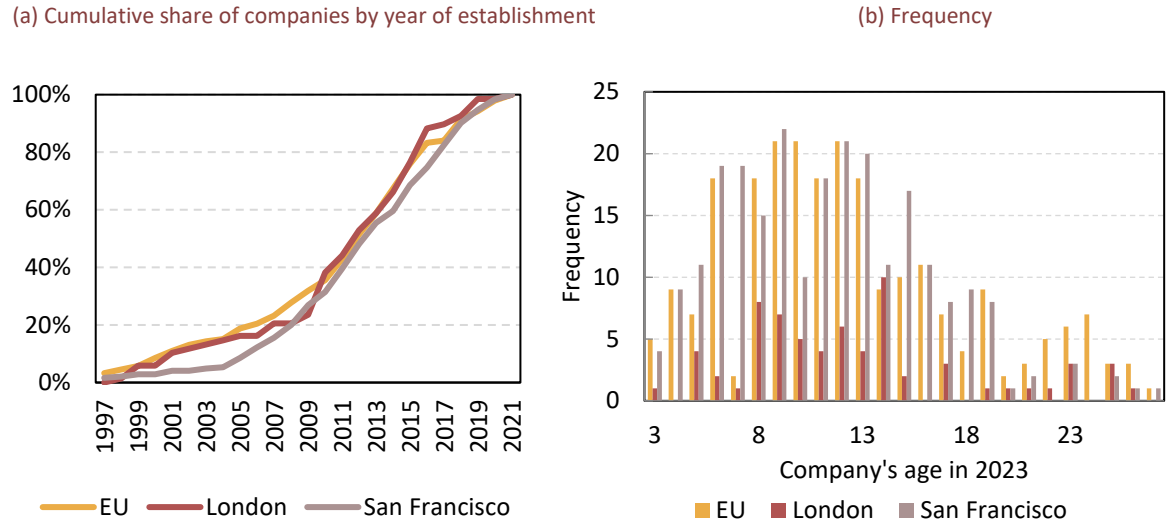
[10] Information on the geographical distribution of the EU scale-ups is provided in Figure 3.

capitalisation currently exceeding $150 billion, had a market valuation below $10 billion in the earlier years of the sample period, so it is included in the sample.

The age distribution is comparable across regions. Figure 4a reports the cumulative share of companies by year of establishment for the three different locations examined. On average, European scale-ups are slightly younger than their equivalents in London and San Francisco: 20% of EU firms reaching scale-up status between 2013 and 2023 were established before 2005, while 20% of San Francisco scale-ups were established before 2008. This is also confirmed by Figure 4b, which reports the age distribution of scale-ups considered in this analysis. Scale-ups in San Francisco have average and median ages of 12 and 11 years, respectively. The age distribution across regions is remarkably similar, and it does not drive the results presented in the report, including those correlated with the age, like exit outcomes.

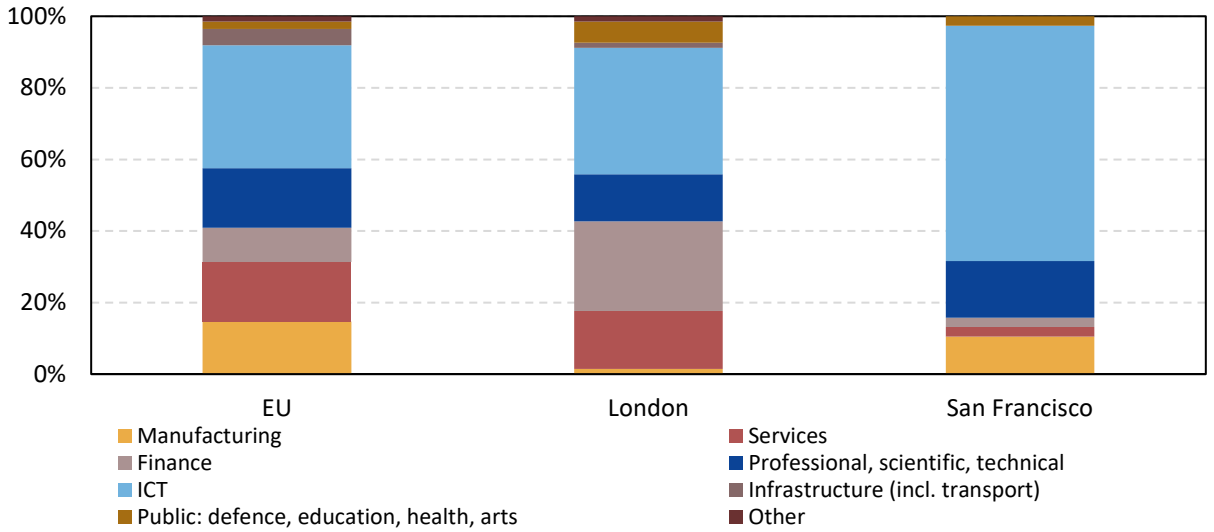
The sectoral distribution of scale-ups differs across regions. In San Francisco, information and communications technology (ICT) scale-ups dominate the market (66% vs. 34% in the European Union and 35% in London, Figure 5). About one-quarter of London-based scale-ups are active in the finance industry, reflecting the industrial specialisation of that ecosystem; this is compared with 10% in the European Union, and is approximately eight times more than in San Francisco. As for manufacturing scale-ups, the share is larger in the European Union than in London or San Francisco. Whenever possible, the results in this report explicitly control for differences stemming from the industrial composition of the sample.

Figure 4. Age distribution of companies



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. In panel (a), four companies established before 1993 have been dropped. The data have not been reviewed by PitchBook analysts.

Figure 5. Sector classification of scale-ups by region

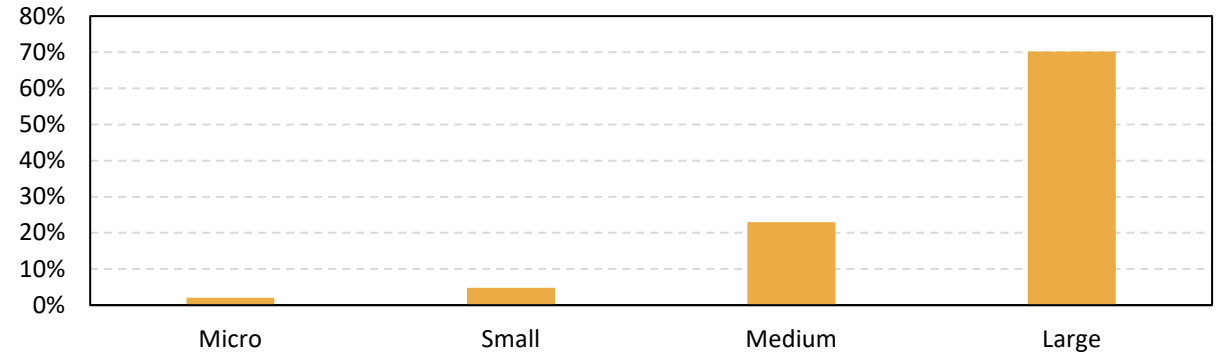


Source: Authors' calculations based on PitchBook and Orbis data.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. Sector classifications were based on grouping of NACE sectors. The data have not been reviewed by PitchBook analysts.

European companies in the sample are large today (Figure 6). More than 20% of them currently have between 50 and 250 employees, and 70% of them have more than 250 employees. Fewer than 10% have less than 50 employees. Hence, the majority of the European scale-ups can be classified as mid-caps or large companies.

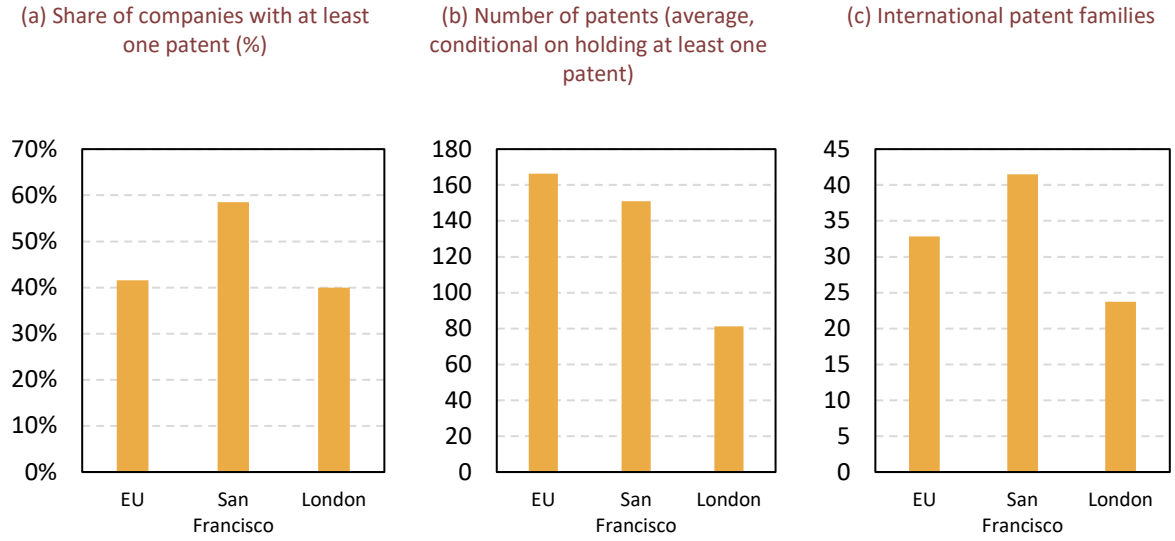
The scale-ups in our sample are innovative companies (Figure 7). Looking at the number of patents currently held by the companies in the sample, 40% of EU scale-ups hold at least one patent, in line with London (40%), but lower than San Francisco (58%). Among the companies that hold at least one patent, EU scale-ups on average hold more patents than in the other regions (166 in the European Union, 151 in San Francisco and 81 in London), but fewer total patent families (33 in the European Union, 42 in San Francisco and 24 in London).

Figure 6. EU companies in the sample by number of employees they currently have (%, 2023 or latest year available)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of EU companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. Micro companies are defined as companies with fewer than ten employees, small companies have between 11 and 50 employees, medium companies have between 51 and 250 employees and large companies have more than 250 employees. The data have not been reviewed by PitchBook analysts.

Figure 7. Summary statistics on patents held by the companies in the sample (2023 or latest year available)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The numbers of patents and international patent families refer to the current portfolio. An international patent family is defined as a set of patent applications in various countries in relation to the same or similar technical content or invention. The data have not been reviewed by PitchBook analysts.

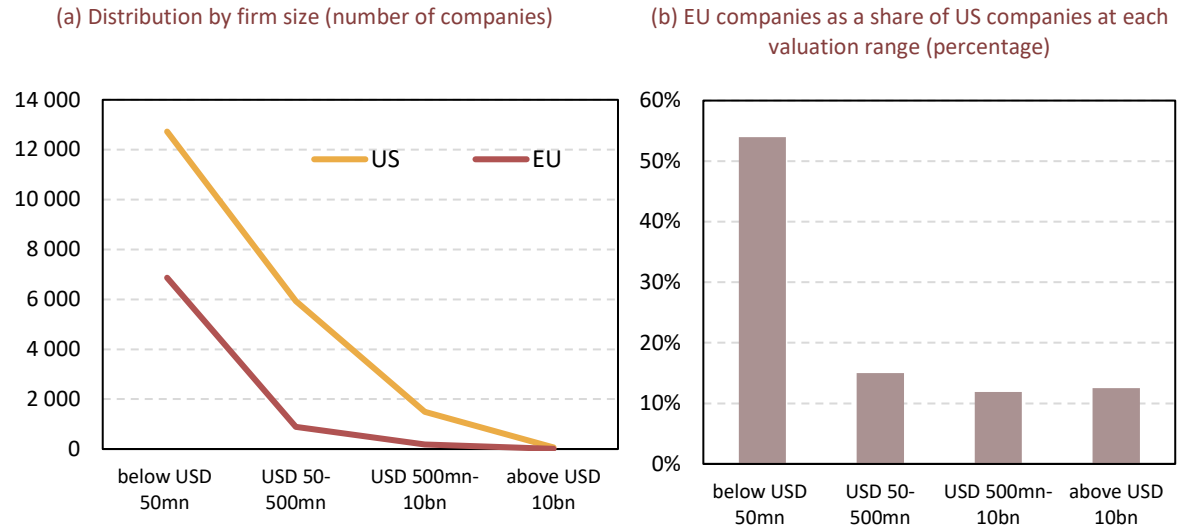
4 Financial market constraints are holding innovative firms back

European companies are more likely to suffer from insufficient access to finance compared to US peers. According to the EIB Investment Survey 2023 (EIB, 2023), in 2023 4% of EU firms interviewed sought external finance but were rejected, compared with only 1.7% in the United States. These constraints affect firms at all growth stages. This report focuses in particular on the financial constraints faced by companies as they scale up. It documents EU scale-ups' slower capital accumulation and more difficult exit environment. The severity of these financial constraints is also confirmed by a recent survey by the European Investment Fund (EIF), according to which 66% of the venture capital fund managers interviewed said there were insufficient financing opportunities for companies to scale up in Europe (Kraemer-Eis et al., 2023). The lack of suitable funding has limited the speed of capital accumulation and stunted firms' growth, productivity and employment.

Though still smaller than the United States, the EU startup ecosystem is catching up, fuelled by incubators and accelerators fostering expertise, financing and networks. The European Union has 50% fewer companies with a market valuation below $500 million than the United States (Figure 8). EU incubators are smaller and more fragmented than US incubators, but they still play a pivotal role in pre-seed and seed investments. Financing from incubators and accelerators also comes with technical assistance, in the form of intensive courses for founders to support technological growth and the validation of the startup business structure, as well as access to a network of other founders, mentors, subject matter experts, corporate financiers and investors.

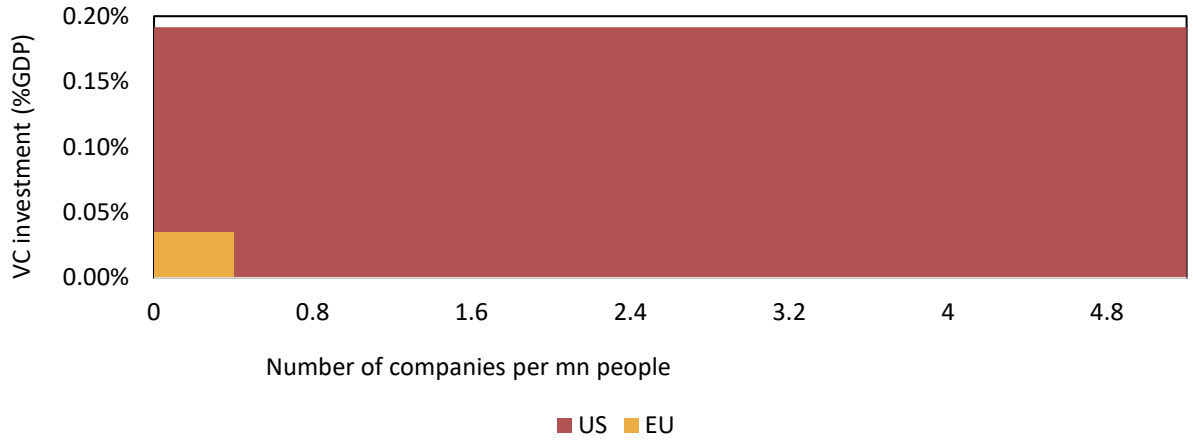
As they scale up, companies face increasingly severe funding constraints. As companies grow, their funding needs change accordingly. Scale-ups require a combination of different sources of funding, from equity funding to bank debt. This is also the stage at which firms may have to choose between selling, going public or staying private. Ample options for exit are necessary to incentivise earlier-stage investments. The financing gap becomes more severe for EU companies reaching later-stage growth, because their risk level remains high even as they need increasingly large amounts of cash to finance their working capital requirements and capital expenditures. At this stage, companies need to diversify their sources of financing to include solutions that sit between traditional venture capital and project/corporate finance.

Figure 8. Size comparison of EU and US ecosystems by companies' market valuation



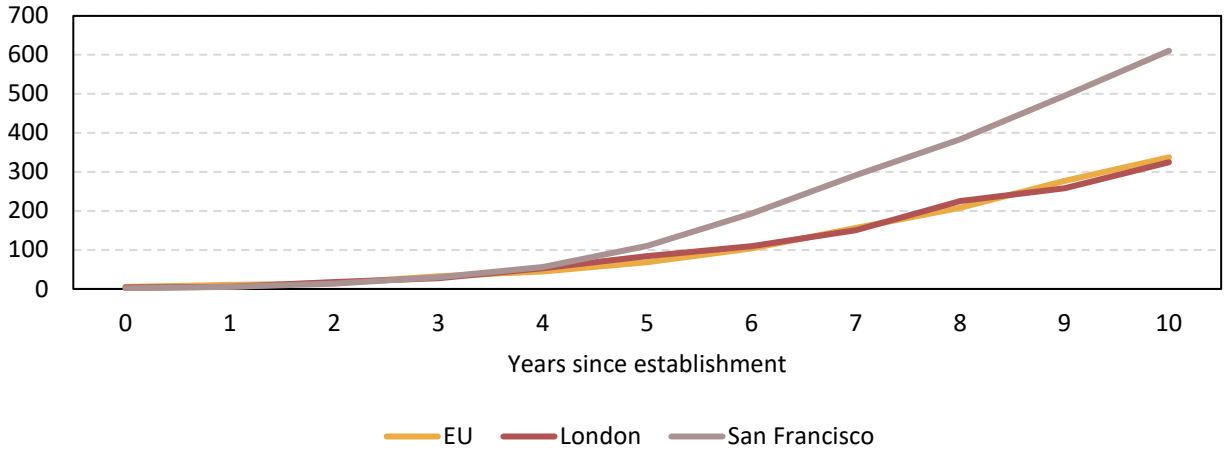
Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample includes venture capital-backed or formerly venture capital-backed companies with at least one deal completed between January 2021 and December 2023 with market valuation in the brackets included. The sample does not include companies that completed a deal during that period for which no data on market valuation were available. Companies may be included in more than one market valuation bracket. Therefore, the sum of the brackets is not equal to the total number of companies active in the respective locations. The data have not been reviewed by PitchBook analysts.

Figure 9. Size of the scale-up ecosystem



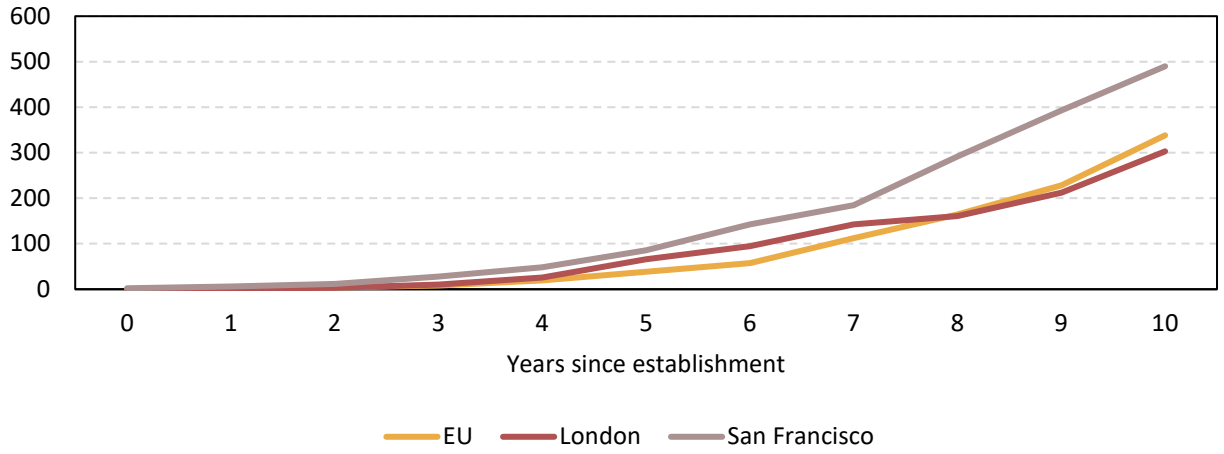
Source: Authors' calculations based on data from PitchBook Data, Inc. and World Bank data on population.
Notes: The number of companies refers to the number of venture capital-backed companies headquartered in the European Union and United States that completed at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. Venture capital investment is the aggregate amount invested in those companies during the sample period. Number of companies and venture capital investment were rescaled by the population of the two regions. The data have not been reviewed by PitchBook analysts.

Figure 10. Cumulative capital raised by scale-ups over the company lifecycle (average, current $m)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of a strongly balanced panel of companies that are at least ten years old with at least one completed deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

Figure 11. Cumulative capital raised by scale-ups. Analysis restricted to the IT sector (average, current $m)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of a strongly balanced panel of companies in the IT sector that are at least ten years old and have at least one completed deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

The EU scale-up ecosystem is relatively small. Venture capital investment in the EU has been only 0.03% of its annual gross domestic product (GDP), compared with about 0.19% in the United States.[11] Less capital invested in scale-ups translates into fewer deals and thus fewer scale-up firms in the European Union (Figure 9).[12] The lower availability of later-stage financing is reflected in the size of the ecosystem. While the European Union has 50% of the number of companies with a market valuation below $500 million that the United States has, at higher market valuations this share falls to 10-15% (Figure 8).[13] For companies valued between $50 million and $500 million, the European Union has only 15% as many companies as the United States. For the group of companies focused on in this report, companies valued at between $500 million and $10 billion, the European Union has only 11% as many companies as the United States.

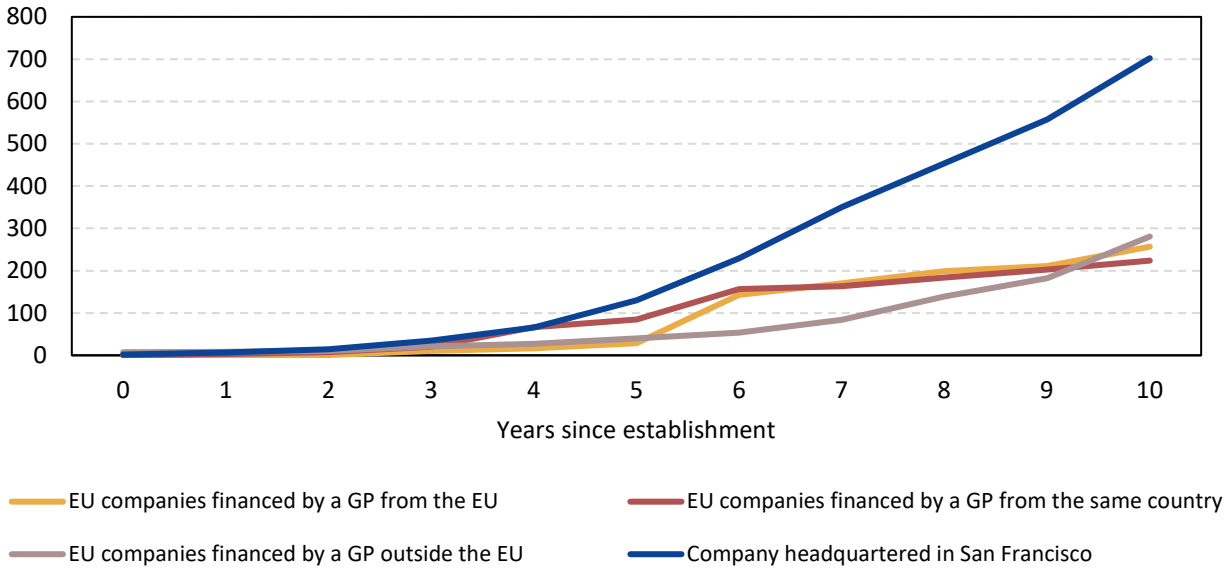
Ten years after establishment, EU scale-ups have raised, on average, 50% less capital than their US counterparts. Figure 10 plots the average cumulative capital raised by scale-ups from inception onwards for the European Union, San Francisco and London. For this analysis, the sample is restricted to companies at least ten years old in order to obtain a strongly balanced panel. Until year five, the average amount raised is similar across the three regions. After this point, San Francisco scale-ups raise capital faster than EU scale-ups. Robustness checks, including a regression controlling for industry, year of establishment and calendar year, allow us to conclude that the results do not depend on industry composition or the moment in the business cycle. Figure 11 shows the same chart, but restricting the sample to companies in the IT sector.

[11] The figure is based on PitchBook data and refers to venture capital investment deals involving scale-up companies.

[12] Other European companies also suffer from reduced access to finance. According to the latest EIB Investment Survey, the share of financially constrained firms was 6.1% in 2023 (EIB 2023). In particular, mid-caps (companies with 250-300 employees, a category to which scale-ups often belong), are less likely to be targeted by government for financial support than SMEs, while also being less likely to tap into capital markets than large firms (Maurin et al., 2024).

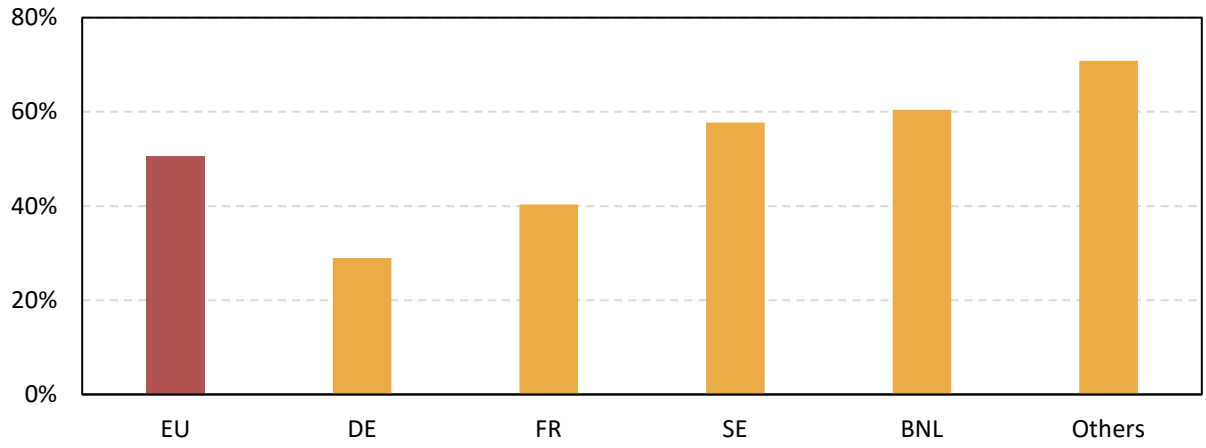
[13] Other authors using different data and methodologies reach similar conclusions. For instance, using Dealroom data, Qas et al. (2022) reported that later-stage venture capital financing is 84% of the total in the United States, but only 71% in the European Union. Ambrosio et al. (2021) estimated that increasing EU venture capital financing to US levels (adjusting for GDP differences) would increase the number of scale-ups by 20%.

Figure 12. Cumulative capital raised by scale-ups by source of financing (average, current $m)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of a strongly balanced panel of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The nationality of the general partner (GP) refers to the deal in which the company reached at least a $500 million market valuation. The data have not been reviewed by PitchBook analysts.

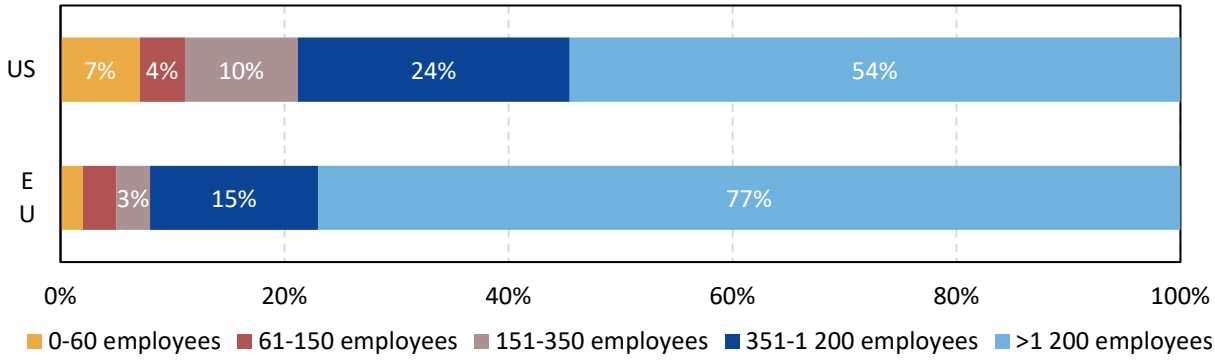
Figure 13. Gap in cumulative capital raised after ten years (relative to San Francisco average)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The financing gap is expressed as the percentage difference between average cumulative capital raised in the first ten years since establishment by scale-ups in a region, TC_i, and average cumulative capital raised by firms located in San Francisco, TC_{sf}, namely $(TC_i - TC_{sf})/TC_{sf}$. Others includes the remaining countries in the sample. The sample consists of a strongly balanced panel of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts. BNL is Benelux; DE is Germany; FR is France; SE is Sweden.

The speed of capital accumulation does not depend on the source of the funding. It's possible that companies with access to funding from abroad are able to accumulate capital faster than those using only the local market. We therefore looked at the nationality of the general partner in the deal through which the company reached a $500 million valuation (Figure 12). However, this was not correlated with the speed of capital accumulation. EU companies financed by domestic and foreign general partners raise capital at a similar speed.

Figure 14. Share of venture capital capital invested by firm size



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The data have not been reviewed by PitchBook analysts.

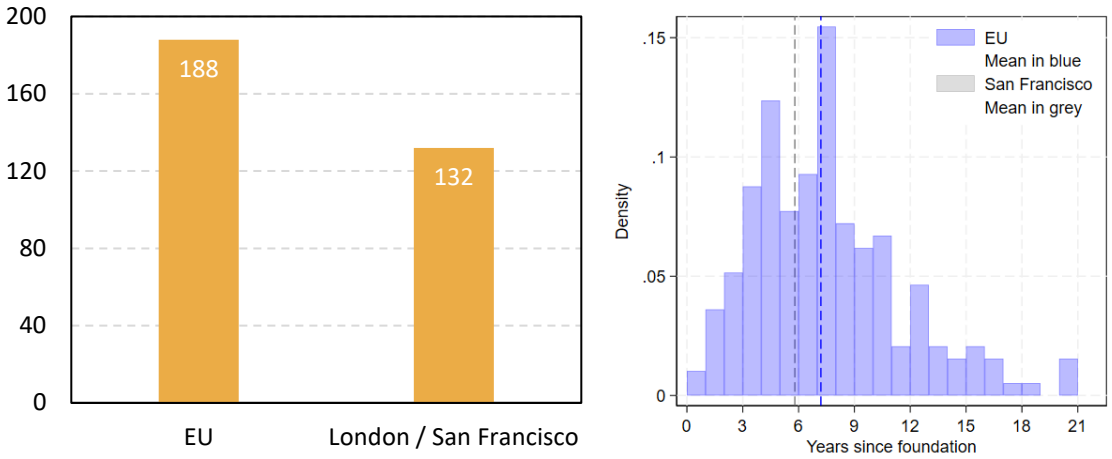
The scale-up gap affects, to varying degrees, even the larger ecosystems. Even scale-ups in the EU countries with the largest ecosystems raise less financing than those in San Francisco. The size of the gap ranges from 29% in Germany to 60% in the Benelux area (Figure 13). There is not a strong correlation between the number of scale-ups in the country and the size of the scale-up gap.

The EU financing gap is even larger when considering firm size, as EU venture capital investment is more skewed towards larger companies than in the United States. While around 21% of US scale-ups involved in venture capital investments employ less than 350 employees, this is only 8% in the European Union. Figure 14 reports the distribution in the number of employees for scale-ups located in the United States and in the European Union. A larger share of venture capital is invested in EU scale-ups with more than 1 200 employees relative to the United States (77% vs. 54%). This could be partly attributable to the fact that the EU firms take slightly longer to reach scale-up status than their US counterparts (six years, versus 7.1 years; Figure 15b) and are therefore larger when they arrive at the scale-up phase (a median of 188 employees in the European Union, compared with 132 in the United States; Figure 15a).

Figure 15. Employment and age upon reaching the scale-up status

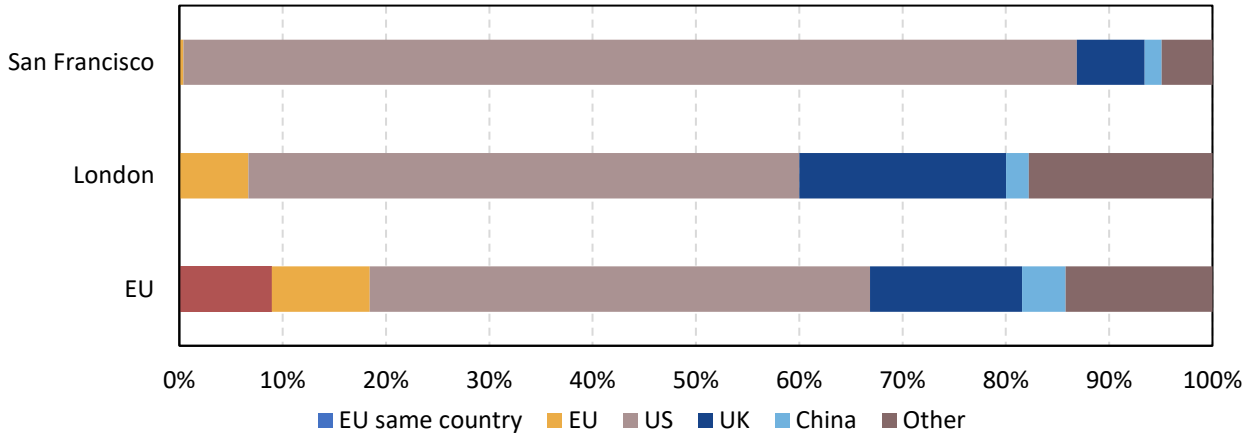
(a) Median number of employees upon reaching scale-up status

(b) Years since foundation upon reaching scale-up status



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

Figure 16. Nationality of lead/sole investor in scale-up deals



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion, when information on a lead or sole investor was available on PitchBook. The data have not been reviewed by PitchBook analysts.

Table 2. Distribution of scale-ups by last known valuation or current market capitalisation (%)

Valuation	EU	San Francisco	London
Below $500 million	10	7	16
Between $500 million and $10 billion	56	51	57
Above $10 billion	2	6	1
Missing	31	35	26
Total	100	100	100

Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. Data are missing whenever the information on the last deal the company completed did not include market valuation. The data have not been reviewed by PitchBook analysts. Numbers may not sum up due to rounding.

EU scale-ups are more likely to resort to foreign financing than their peers. Lead investors play a key role in financing deals. They are responsible for coordinating the funding round and negotiating the terms. The presence of a lead or sole investor in the current or previous rounds, often leveraging specialised industry knowledge, provides a signal of the quality of the company, catalysing additional investment from less sophisticated investors. In Figure 16, we restrict our attention to the scale-up deals – the deals in which the companies in our sample reached the $500 million valuation mark. European scale-ups rely heavily on foreign investors for finance: 82% of scale-up deals in the European Union involved a foreign lead/sole investor, compared with 80% in London and only 14% in San Francisco.[14]

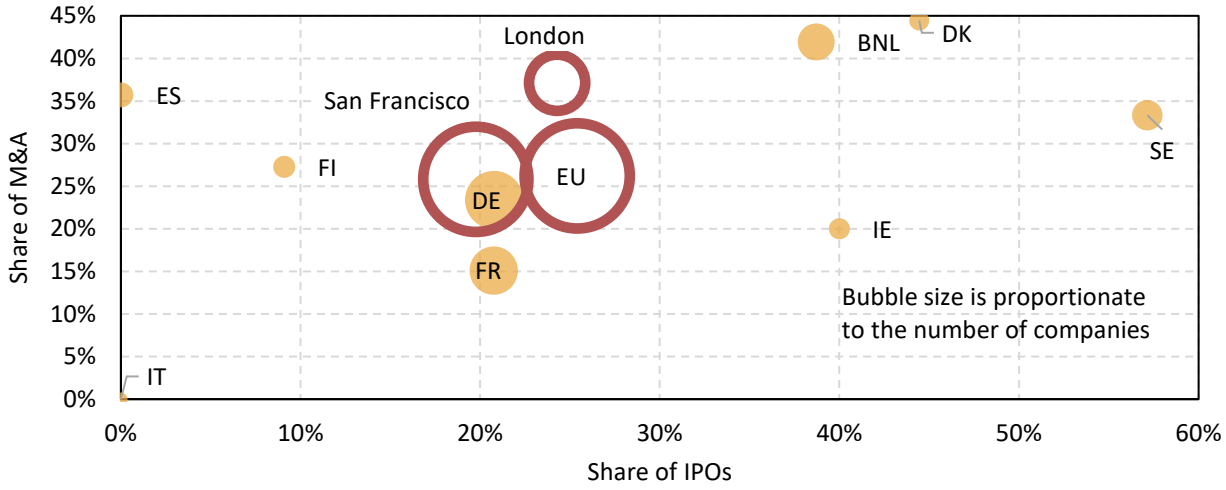
Scale-ups in San Francisco are less likely to lose value and more likely to increase in value than European peers. All companies in the sample reached a market valuation of between $500 million and $10 billion between 2013 and 2023. Table 2 reports information on the current market valuation for these companies. About half of the companies in the sample maintained their market valuation within the same range ($500 million-$10 billion). However, some subsequently completed a deal that drew them below the $500 million market valuation threshold. This share is 10% in the European Union and 16% in London, higher than in San Francisco (7%). A small share of firms could either complete a deal with a market valuation of above $10 billion or reach a market capitalisation above $10 billion: 2% in the European Union (1% in London). However, this falls short of the corresponding share in San Francisco (6%).

[14] The presence of a lead/sole investor was reported in only a subsample of deals. Please see Figure 43 in the appendix for the share of deals per region.

At exit, European scale-ups are just as likely to be acquired or listed as their US counterparts. When a company reaches a certain stage of growth, it is faced with the choice of going public, being acquired or remaining private. The first two options are particularly valuable for investors, who are able at that stage to exit their investment and monetise their returns.[15] High returns are a metric of success for investors, which affects their ability and willingness to invest in similar ventures in the future. Once companies reach the scale-up phase, European firms are as likely as their foreign counterparts to exit (Figure 17): 25% of the EU firms in our sample underwent an IPO, compared with 25% of those in London and 20% of those in San Francisco; 26% of the EU firms had a merger/acquisition (M&A), compared with 37% in London and 26% in San Francisco. However, the aggregate figure hides a high degree of heterogeneity between Member States, with countries like Sweden, Denmark and the Benelux countries significantly outperforming their peers in London and San Francisco in M&As and IPOs.[16]

However, European scale-ups are likely to be acquired by a foreign buyer. European companies that manage to grow are forced to look beyond the local capital market, as domestic exit opportunities are limited and the pool of potential buyers is smaller. Among the EU scale-ups that were acquired, the share of foreign buyers is high, above 60% (Figure 18), with most foreign buyers being concentrated in the United States (the corresponding share for the scale-ups in San Francisco is 13%). Figure 19 suggests the presence of a positive correlation between the share of scale-ups with a foreign general partner in earlier funding rounds and the share of scale-ups acquired by a foreign buyer.[17] Scale-ups that were supported by a foreign general partner in the deal in which it attained a $500 million market valuation are also more likely to be acquired by a foreign buyer.

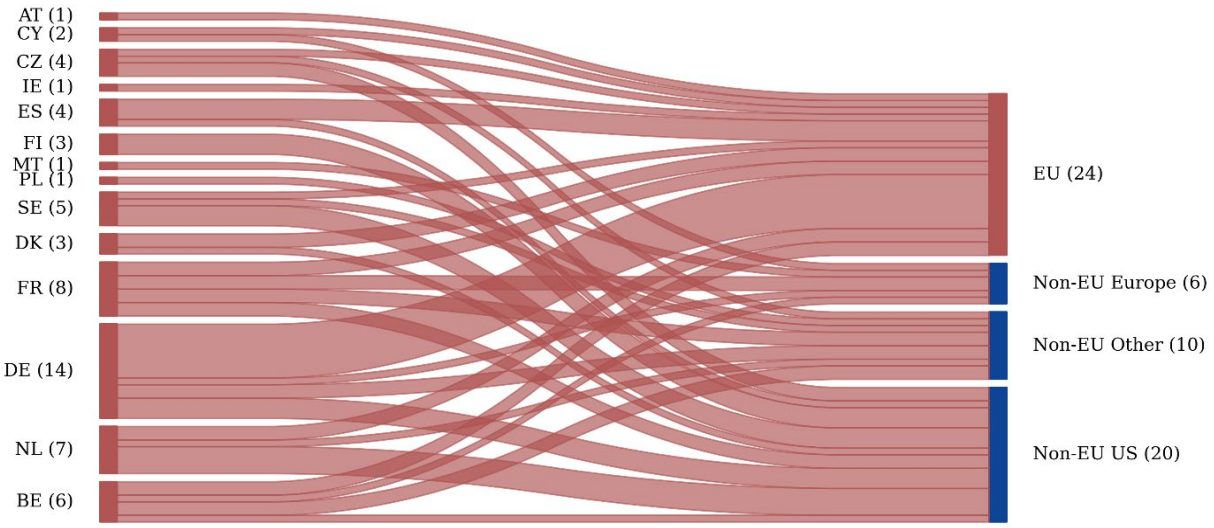
Figure 17. Exits among scale-ups



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with a deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The country refers to the country where the company has its headquarters. The data have not been reviewed by PitchBook analysts. BNL is Benelux, DE is Germany; DK is Denmark; ES is Spain; FI is Finland; FR is France; IE is Ireland; IT is Italy; SE is Sweden.

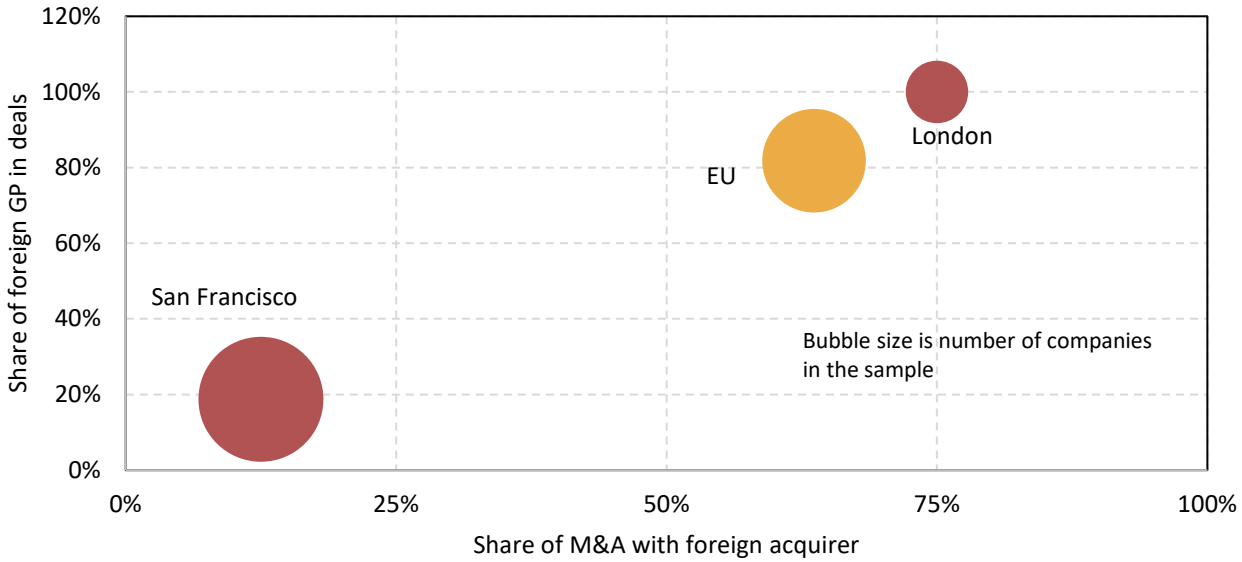
[15] On the choice between staying private or exiting, see for instance Hellmann and Thiele (2023) and Duruflé et al. (2017).
[16] Failure rates were extremely low in the sample of scale-ups (zero in the European Union and London, 0.4% in San Francisco). However, it is possible that the sample might suffer from survivorship bias.
[17] Weik and Braun (2021) estimate that roughly one in ten early US venture capital investments leads to a relocation of the European startup financed.

Figure 18. Location of EU scale-ups that underwent an M&A between 2013 and 2023 (left) vs. location of the acquirer (right)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of EU companies with a deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion and that had an M&A. The data have not been reviewed by PitchBook analysts.

Figure 19. Correlation between foreign financing and foreign acquirer in an M&A



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of EU companies with a deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion and that had an M&A. In the case of the European Union, a foreign acquirer refers to an acquirer outside of the European Union. The data have not been reviewed by PitchBook analysts. GP is general partner.

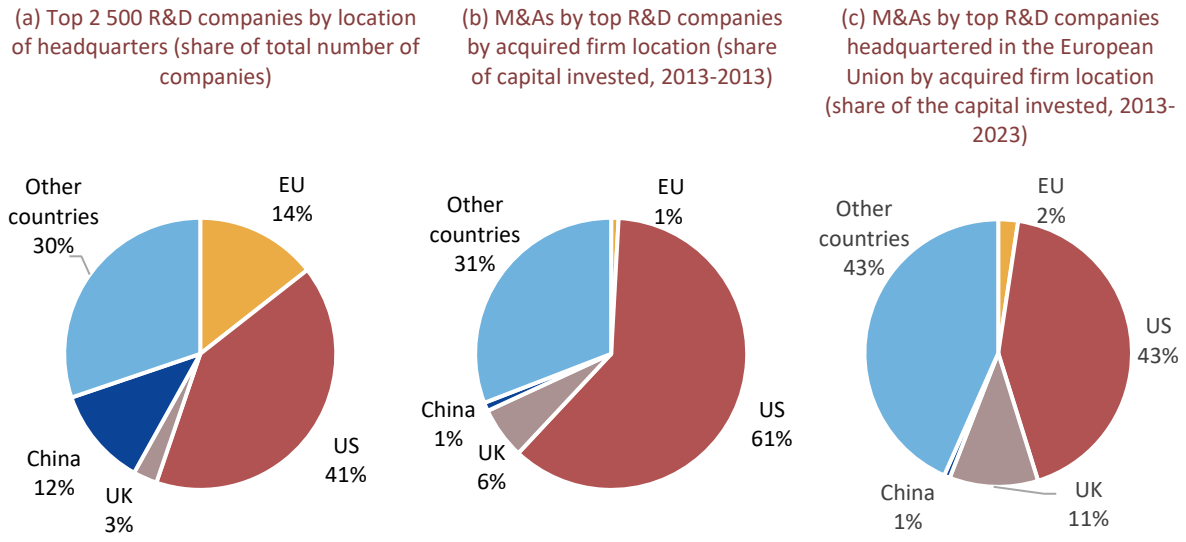
The EU companies that invest the most in R&D are more likely to acquire companies abroad than in the European Union. Scale-ups and venture capital investors often complain of a lack of EU strategic acquirers as viable exit option. To gain a better understanding on this aspect, we looked at the companies that invest the most in R&D in the world: 17% of these companies are headquartered in the European Union, compared with 46% in the United States and 3% in the United Kingdom (Figure 20a). When analysing acquisitions by the top R&D investors, it emerges that these are more than proportionally directed towards companies in the United States. In fact, only 1% of the M&As concluded by the top 2 500 R&D investors between 2013 and 2023 involved

an acquired company headquartered in the European Union (Figure 20b). Even when restricting the attention to the top EU R&D investors, this figure is only 2% (Figure 20c).

EU scale-ups often list in US stock exchanges. Firms' choosing to list on a US stock exchange is another sign of the cost to Europe of having capital markets too shallow for scale-ups to grow. In our sample, 62% of EU scale-ups chose to list in Europe, predominantly in Germany (Figure 21). However, the remaining 38% of IPOs occurred on stock exchanges abroad, with the United States being the preferred destination. Although relocating or listing abroad might be optimal for investors and entrepreneurs, this results in a brain drain, which is detrimental to the development of the ecosystem. Hellmann and Thiele (2023) developed a model of an open economy in which companies that do not get acquired by foreign buyers become buyers themselves, helping develop the local ecosystem. In fact, Jeng and Wells (2000) find that "IPOs are the stronger driver of venture capital investing."[18]

EU scale-ups listed abroad have higher market valuations at IPO than those listed in the European Union, despite raising less capital during the IPO. In the sample investigated, the annualised growth rate in market valuation among firms that underwent an IPO is slightly higher for EU companies than for those in San Francisco (42% vs. 40%, Figure 22a). However, this is likely because US market valuations incorporate the impact of an IPO at earlier stages of funding. To corroborate this hypothesis, Figure 22b reports the median equity multiples for companies located in the European Union and San Francisco. Equity multiples are computed as the ratio between the market valuation and the capital raised from establishment until the IPO. This measure relates the value of a company to the amount of money invested in it. A high equity multiple could be equally explained by more liquidity in the market or firms' higher productivity and growth prospects. Equity ratios are significantly higher among the San Francisco companies than the EU ones. Finally, when comparing EU companies that choose to list in the European Union with those that choose to list abroad, a pattern emerges: EU companies listed abroad have higher increases in market valuation at IPO, despite generally raising less capital.

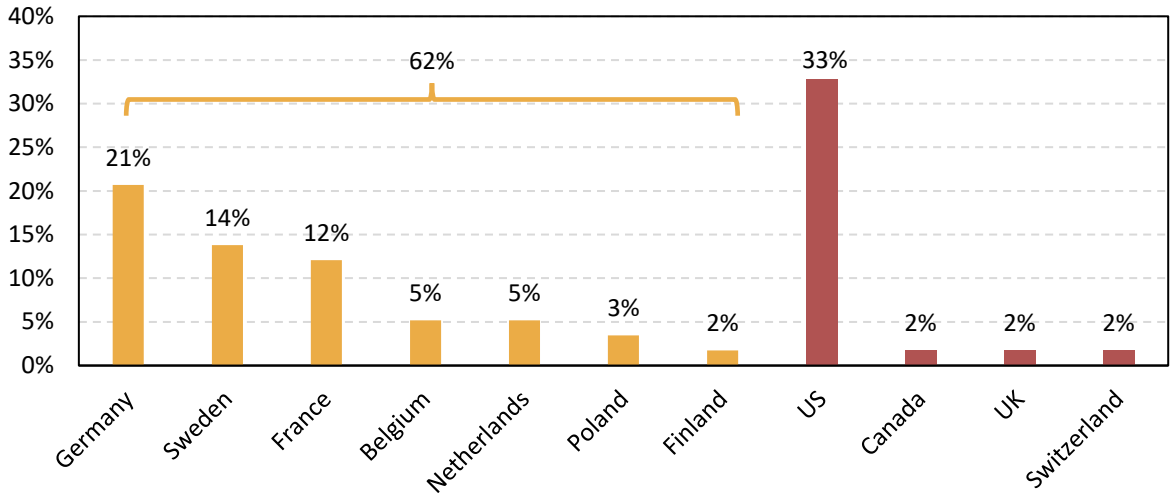
Figure 20. Investment patterns by the top 2 500 R&D companies



Source: Authors' calculations based on EU Industrial R&D Investment Scoreboard 2022 and PitchBook data.
Notes: The data have not been reviewed by PitchBook analysts.

[18] See, more recently, de Haan Montes et al. (2023). Ito et al. (2019) show an association between the importance of companies along the global value chain and the increase in innovation as measured by patent applications.

Figure 21. Stock exchange location for IPOs involving EU scale-ups

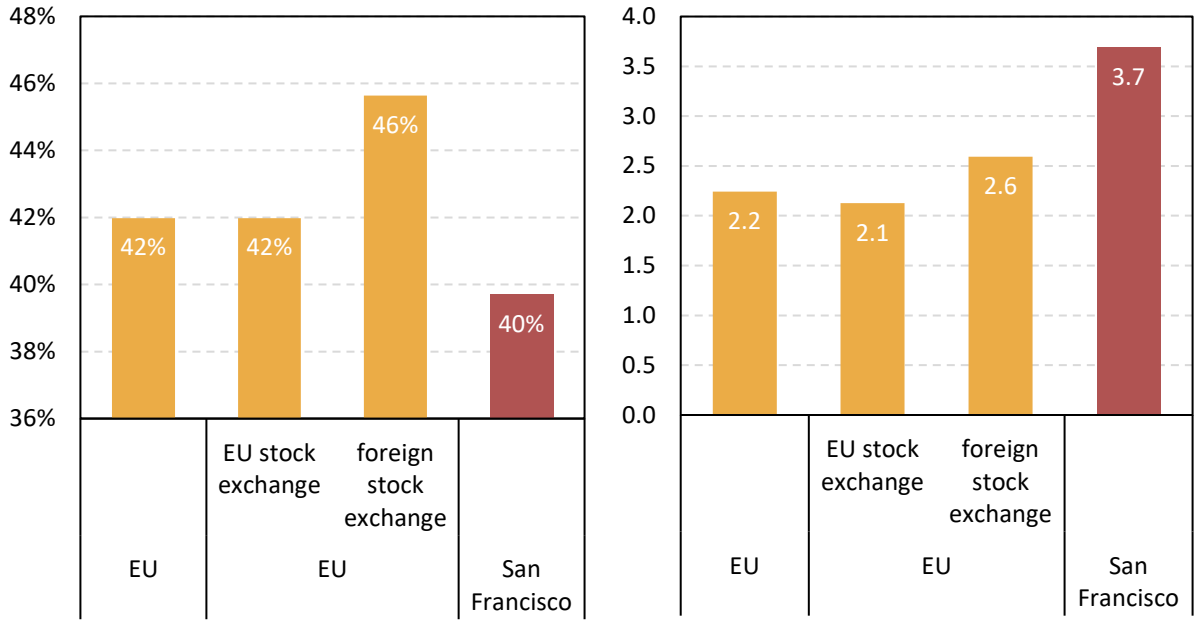


Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of EU companies with a deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion and that had an M&A. The data have not been reviewed by PitchBook analysts.

Figure 22. Financial returns at IPO

(a) Market valuation growth rate (annualised, median)

(b) Equity multiple at IPO (market valuation to cumulative capital raised, median)



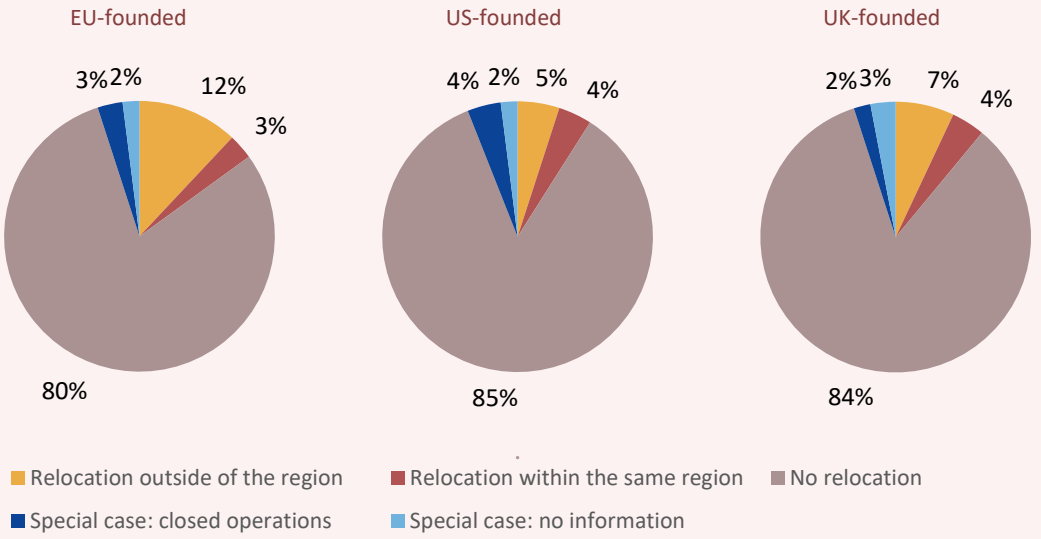
Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of EU companies with a deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion and that had an M&A. The data have not been reviewed by PitchBook analysts.

Box A. Scale-ups and relocation abroad[19]

Relocations of EU firms abroad have economic costs in the form of the entrepreneurial brain drain and missed opportunities for the local ecosystem. Firms that relocate can tap into a wider pool of capital, which can enhance their exit outcomes. However, when a successful firm relocates, it reduces the positive spillovers to other firms in the ecosystem. From a policy perspective, providing economic support to companies that eventually relocate to another jurisdiction might be an inefficient allocation of resources. Given widespread concerns and anecdotal evidence of EU firms relocating to other regions, especially to the United States, this box illustrates key relocation patterns among the cohorts of scale-ups identified in this report.

EU scale-ups are slightly more likely to relocate than their peers. 15% of EU scale-ups have relocated, compared with 9% of US scale-ups and 12% of those founded in London (Figure 23). In about half of cases, relocations take the form of the company opening a second headquarters in a new country. Overall, EU scale-ups have a higher propensity to relocate outside of the region (12%).

Figure 23. Relocation frequency by region where firm was founded



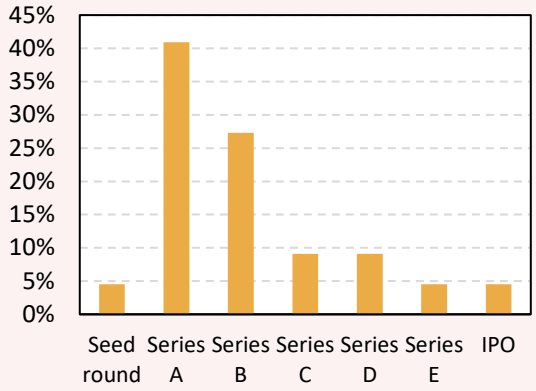
Source: Patzig et al. (2024).
Notes: Relocations within the same region refer to relocations within the EU for EU-founded firms and relocations within the same country for US- and UK-founded firms.

While US-founded firms generally relocate within the United States, EU-founded firms are more likely to relocate abroad, most notably to the United States. In 74% of the relocations of EU firms, the destination was a country outside the region (the European Union), compared with 52% for US-founded firms and 50% for London-based firms. The most popular US destinations were San Francisco, New York and Boston, while Ireland, Luxembourg and the Netherlands were the top EU destinations.

[19] Box A is based on a CAPSTONE project, under the supervision of Béatrice Dumont and staff of the EIB Economics department. The authors of the box are Niklas Patzig, Silvère Claisse, Duarte Borrego, Michele Gentile, Robin Shackleton and Emilie Kieler, all from the College of Europe. The project created a new, unique dataset collecting information from publicly available sources on firms' relocation decisions, acquisitions and IPOs. The sample of scale-ups used is the same as in this report.

The EU firms that relocate often operate in the software, tech or biotech/pharma, reach series A or B, and more often receive a mix of financing from foreign and EU investors. About 30% of EU firms in software, 23% in tech and 17% in biotech/pharma have relocated. EU-founded firms mainly relocate after series A or series B funding rounds (Figure 24). In general, EU-founded firms rely on a mix of EU and non-EU lead investors, and only 3% rely on EU-only lead investors. Interestingly, the dependence on non-EU lead investors is greater for EU firms that relocate than for those that do not. In contrast, most relocations of US firms happen directly after the seed round.

Figure 24. Last financing round before relocation among EU firms (share of companies)

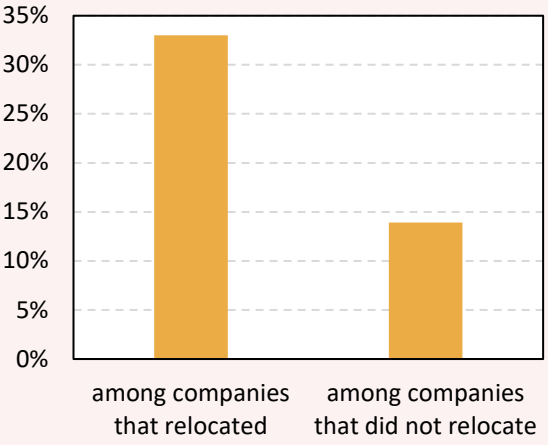


Source: Patzig et al. (2024).

Firms tend to relocate right after a funding round. Relocations mostly happen one year after the last funding round. However, it takes longer after relocation before the firm receives funding again, most often one or two years. This shows that firms might relocate to establish themselves in a new environment and have access to new investors, but not because relocation is directly a necessary condition for funding.

Acquisitions are closely linked to decisions to relocate. Firms that relocate are more likely to be acquired. While 15% of EU-founded firms that do not relocate are acquired, 30% of those that do are acquired (Figure 25). In addition, among the companies that relocate and are acquired, in 73% of cases the relocation and acquisition occur in the same year. Furthermore, in 38% of cases, the relocation destination is the same as the location of the acquirer.

Figure 25. Share of firms that are acquired



Source: Patzig et al. (2024).

Firms that have relocated are also more likely to get an IPO. 32% of EU-founded firms that relocated had an IPO, while only 23% of EU-founded firms that did not relocate had one. Firms undergoing an IPO were likely to open headquarters in the country where they were listed: in 55% of cases the stock exchange and the new headquarters were in the same country.

Companies that choose to relocate have better exit outcomes. Relocations are associated with a higher likelihood of completing an M&A or undergoing an IPO. Companies often relocate early in their lives, before undergoing a series C funding round. These findings are consistent with the narrative of companies relocating for better access to finance and financing conditions. Helping these companies meet their financing needs at home, at each stage of their development, will ensure the highest returns on early-stage public support for successful companies.

Box B. Enterome, a leading pioneer in the microbiome biotech industry

Enterome is a pioneering clinical-stage biotech company founded in Paris in 2012. It is developing transformational cancer treatments and innovative therapies based on the interaction between the gut microbiome and the immune system. Enterome is a technology leader in building new industry standards in quantitative and functional analysis of the gut microbiome. This is key to developing an industry that can produce personalised therapeutic treatments based on the microbiome to satisfy unmet medical needs.

Enterome was established in Paris to develop the discoveries made by the metagenomic platform of INRA (the French National Institute for Agricultural Research, as it was known in 2012), and is a world leader in the field. As it sought to move to clinical trials for applications of its research, a number of EU investors stepped in to finance its scale-up in series A to F funding rounds, for a total of around €210 million. To date, the company, headquartered in Paris, employs 83 people, mostly in research. Clinical trials were yielding positive results for several oncological applications as of late 2023.

Enterome was able to grow rapidly from 2016, when it received its first series C financing of €14.5 million from a group of French, Danish and Swiss investors, followed by a further €32 million in series D support in 2017. In 2018, the company received €40 million in a venture debt funding initiative from the EIB, providing a substantial supply of patient capital to finance its costly clinical trials. This EIB financial support was instrumental to Enterome's receiving other forms of financing, offered a longer maturity and lower interest rate than other sources, and was combined with expert financial and technical assistance for the company. Further rounds of support have come from venture capital investors and strategic investors.

5 Deepening European capital markets can unlock finance for scale-ups

Underdeveloped and fragmented capital markets are at the root of the constraints on innovative firms. This section provides evidence for the link between the financial constraints faced by innovative firms and the size, depth and concentration of EU capital markets, and the venture capital market in particular.

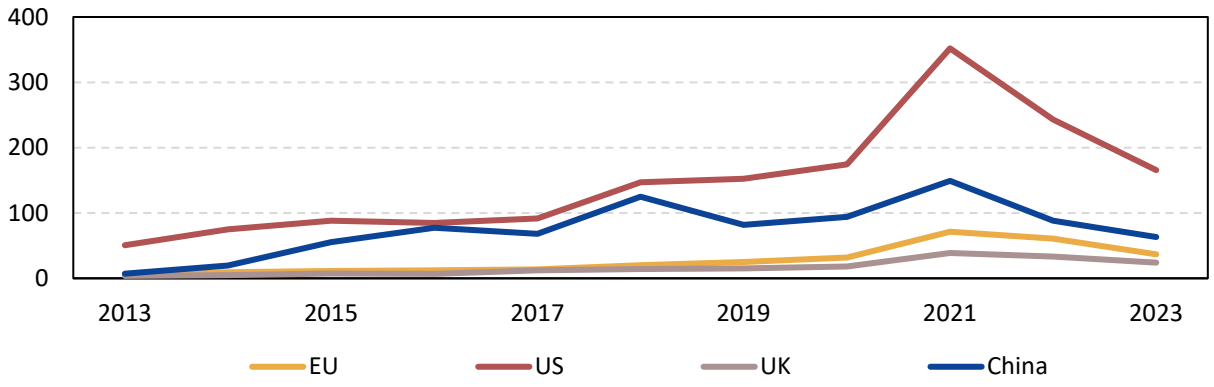
Annual venture capital investment in the European Union is approximately six times less than in the United States (Figure 26). EU venture capital investment grew rapidly during the last decade, increasing five-fold between 2013 and 2023. Yet, the market share in European Union remains a fraction of what it is in the United States. For instance, venture capital investment in EU companies in 2023 was just 20% of that in the United States.[20]

The European Union is attractive for venture capital funds from abroad. In the past ten years, 8.1% of the global capital raised from venture capital funds has been invested in EU companies, while only 5% of global venture capital funds' capital has actually been raised in the European Union (Figure 27). Foreign venture capital funds are more likely to invest in the European Union than EU venture capital funds are to invest abroad, and net venture capital flows into the European Union are positive. This has been the case for most of the past decade.

However, the European Union does not invest enough of its savings in venture capital funds. The share of global venture capital funds' capital raised in the European Union is only 5%, compared with 52% in the United States, 40% in China and 3% in the United Kingdom. Controlling for population and GDP differences, the EU share is disproportionately low, and it has generally remained stable in the last ten years (Figure 28).

More broadly, the insufficient size and depth of the venture capital market are a reflection of household spending behaviour and the size of the financial sector. The EU stock of household financial assets amounts to only 2.3 times the EU GDP, while the US stock is over five times the US GDP, reflecting the European Union's higher reliance on public pensions and social security.[21] Moreover, EU households store more of their savings in cash or highly liquid assets (30%) than US households do (only 12%; Figure 29). As a result, the European Union has a very large banking sector (bank assets are 300% of GDP in the European Union and 85% in the United States), but small capital markets (listed equity is 68% of GDP in the European Union and 170% in the United States), and few hedge funds and private equity funds.[22]

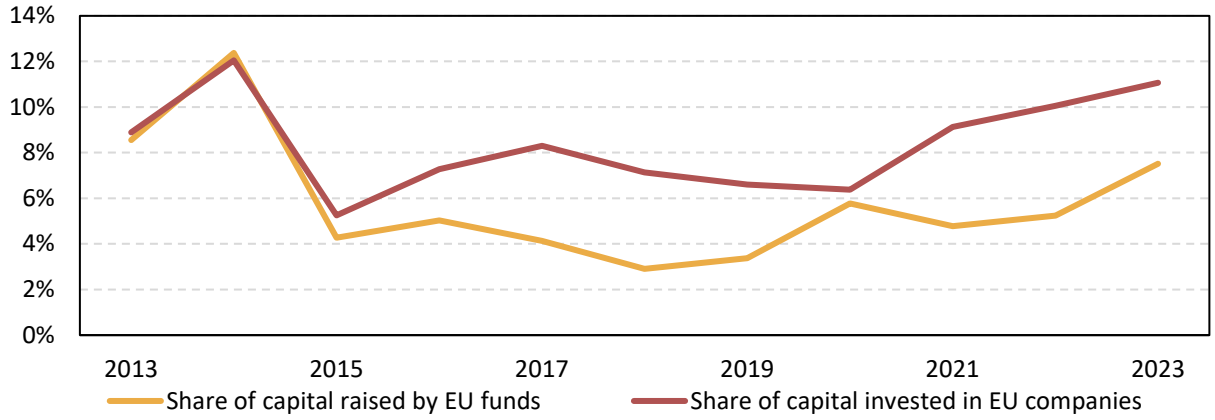
Figure 26. Venture capital investment ($bn)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The data have not been reviewed by PitchBook analysts.

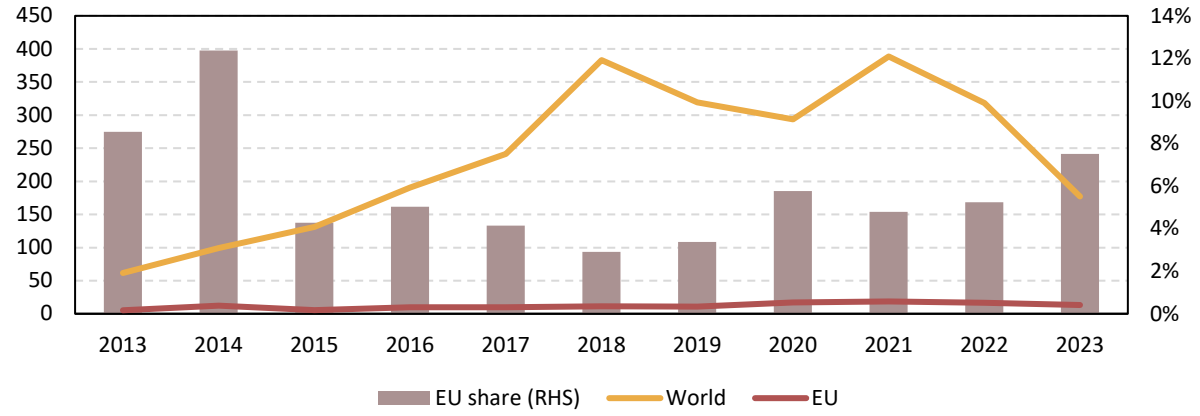
[20] For a description of the status of venture capital investments in the European Union, see Bellucci et al. (2021) and Kraemer-Eis et al. (2023).
[21] Bathia et al. (2019).
[22] Ibid.

Figure 27. Venture capital fund capital raised and invested in the European Union (as a share of global)



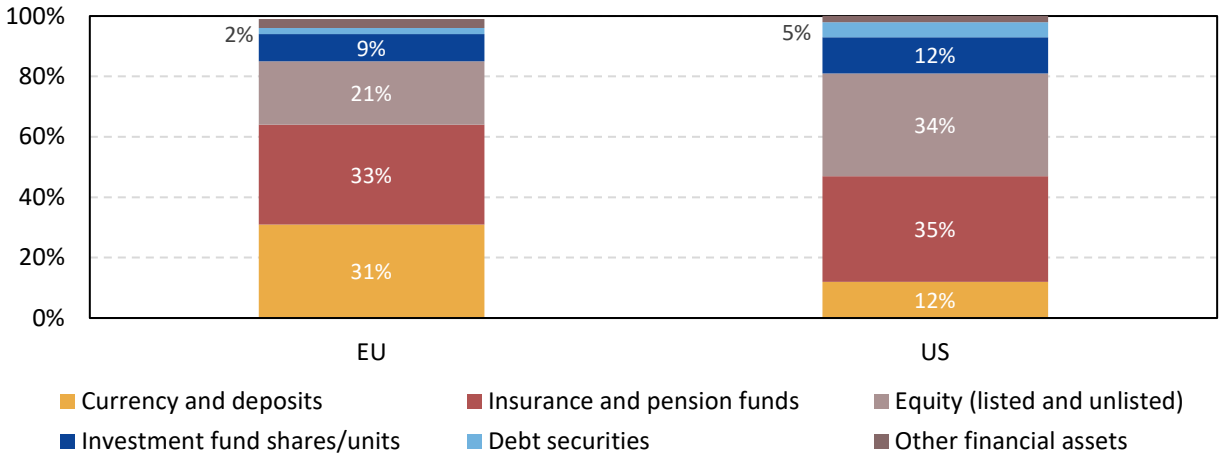
Notes: EU share of global capital raised and invested, 2013-2023. Capital raised by EU funds refers to capital raised by venture capital funds located in the European Union, while capital invested in EU companies refers to venture capital investments in companies headquartered in the European Union. The data have not been reviewed by PitchBook analysts.

Figure 28. Capital raised by venture capital fund location ($bn)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The lines show capital raised by venture capital funds located in the European Union and worldwide. Bars refer to EU capital as a share of global capital raised. The data have not been reviewed by PitchBook analysts.

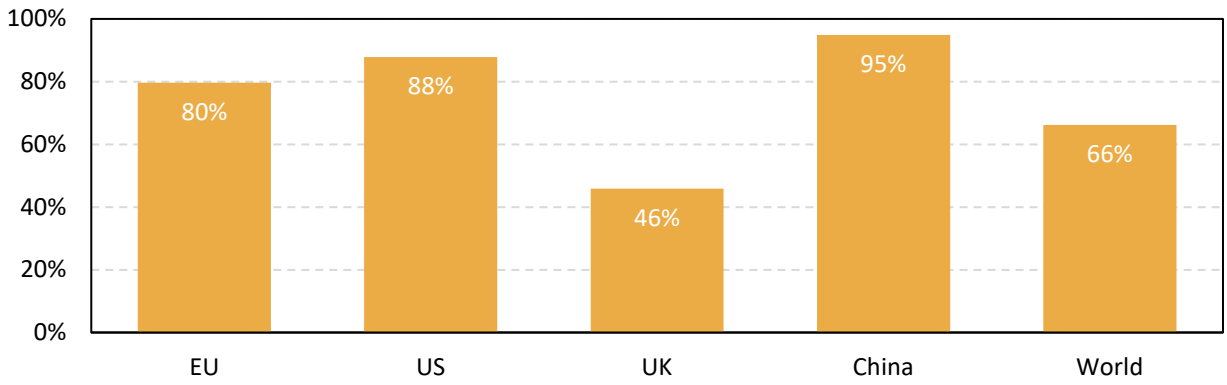
Figure 29. Households' financial assets (percentage of total financial assets, average 2015-2020)



Source: Thomadakis et al. (2022) based on data from Eurostat and Federal Reserve Economic Data.
Notes: For the European Union, Other financial assets includes other accounts receivable, financial derivatives and loans; for the United States, it includes other miscellaneous assets and loans.

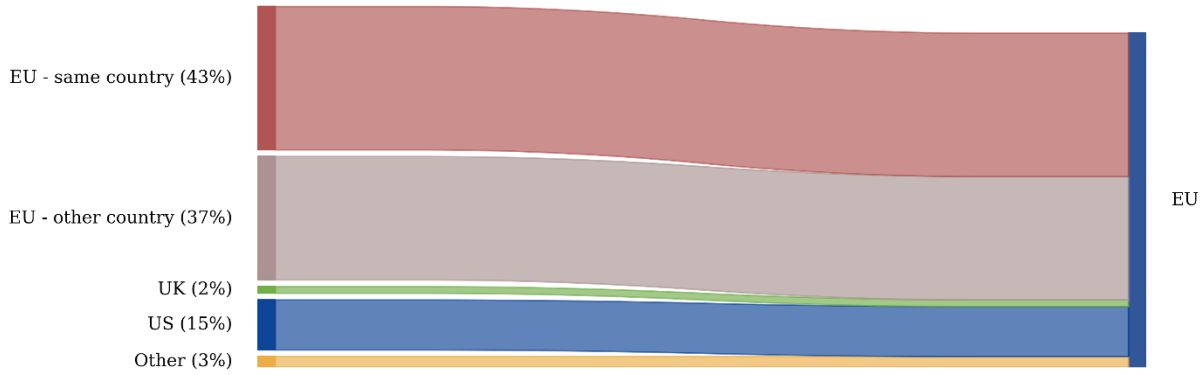
The amount of venture capital raised locally is a strong predictor of the amount invested locally. There is a strong body of evidence documenting the preferences of venture capital funds for investing locally.[23] Moreover, we show a strong correlation between the location of venture capital funds and the origin of capital they raise – the location of the limited partners. Taken together, these factors highlight the importance of developing the local venture capital market and incentivising investment of local savings. Globally, 66% of the capital raised by venture capital funds comes from limited partners in the same country as the venture capital fund they invested in (Figure 30). This percentage is even higher in the United States or China (88% and 95%, respectively). The European Union is a special case: Only 43% of this capital is raised in the country of the venture capital fund (Figure 31). Almost as much (37%) is raised in another EU country. Overall, 80% of the capital raised by venture capital funds in the European Union is raised from limited partners located in the European Union. From this point of view, the European Union more closely resembles a unified geographical entity than a collection of individual countries, thus providing a positive example of capital market integration in this area.

Figure 30. Percentage of capital raised locally by venture capital fund location (2013-2023)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: This analysis was based on 10% of the total capital raised by venture capital funds. The data have not been reviewed by PitchBook analysts.

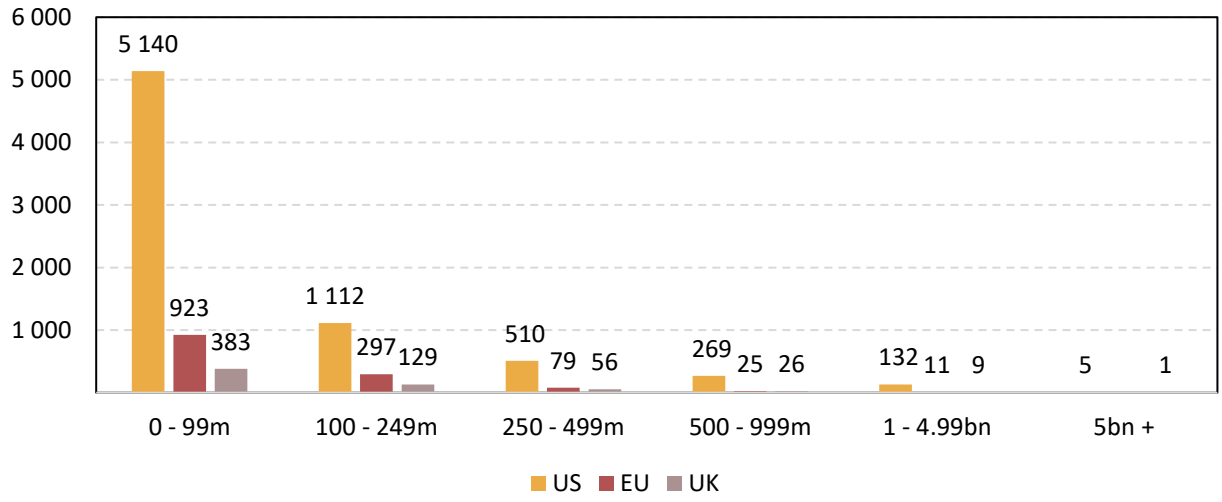
Figure 31. Capital raised by EU venture capital funds, by country of the limited partner (shares, 2013-2023)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: This analysis was based on 10% of the total capital raised by venture capital funds. The data have not been reviewed by PitchBook analysts.

[23] See, for instance, Sorenson and Stuart (2021).

Figure 32. Number of venture capital funds by fund size (2013-2023)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: Total number of venture capital funds opened between 2013 and 2023. The data have not been reviewed by PitchBook analysts.

The limited availability of large-scale venture capital funds in the European Union makes it harder for EU scale-ups to raise capital. Average venture capital fund size is similar in the European Union and the United States. However, this hides an important difference: the United States has relatively more small and large venture capital funds (Figure 32). In particular, between 2013 and 2023, there were 137 venture capital funds larger than $1 billion in the United States compared with only 11 in the European Union and ten in the United Kingdom. This poses challenges for supply of scale-up finance: to build a portfolio of large investments (for example, €50 million), funds must be large in order to allow for enough risk diversification. EU-based companies struggle to find EU investors with the ability to write big tickets in a large capital funding round. This also explains why scale-up deals in the European Union are more likely to involve foreign lead investors than in other countries and, at exit, are likely to be acquired by a foreign company.

5.1 The impact of cyclical downturns

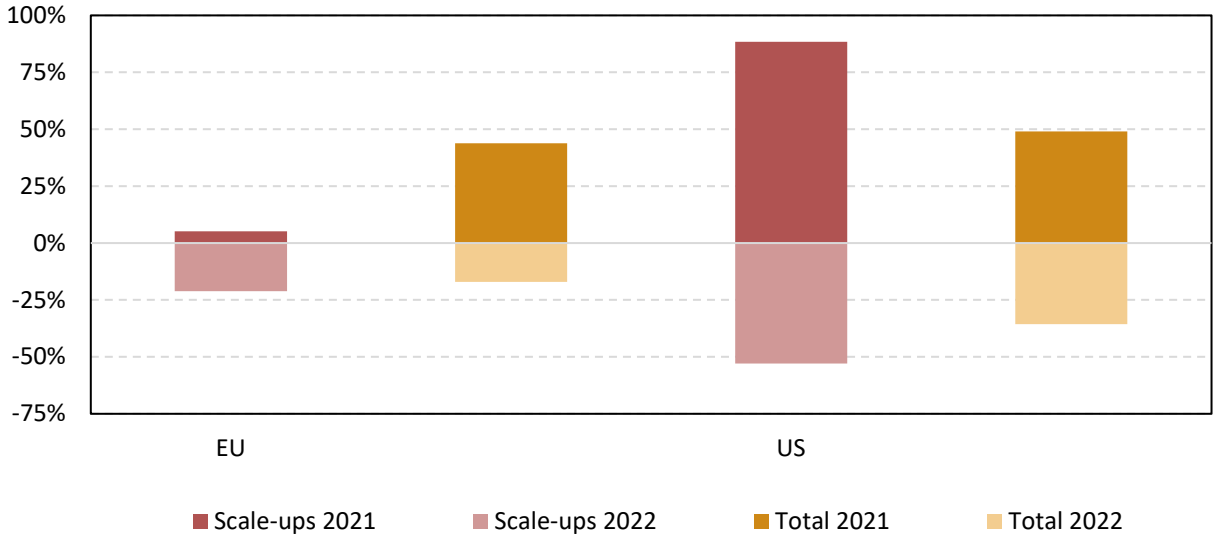
The recent monetary policy cycle has heavily affected venture capital investment. Spurred by abundant and cheap liquidity, venture capital boomed in 2021, growing by 44% in the European Union and 49% in the United States, accompanied by inflated market valuations. In the European Union, the boom came with an increase in investment inflows from venture capital funds from abroad. However, the market has undergone a sharp correction since 2022, with a contraction of 17% year on year in 2022 in the European Union (36% in the United States), driven by higher financing costs and a reduced risk appetite connected to the increased monetary policy rates. This contraction continued into 2023.

The fast contraction in venture capital investment disproportionately affected EU scale-ups. Scale-ups experienced a smaller than average expansion in venture capital investment in 2021 and a larger contraction in 2022 (Figure 33) as investor preferences moved away from large deals. On the financing side, the number of venture capital funds specialising in later-stage deals decreased dramatically after 2021, indicating that this growth stage could continue experiencing reduced financing availability in the next few years (Figure 34). The tightening of financing conditions has been reflected in a worsening of exit options, disproportionately affecting scale-ups, as global IPO activity fell by 76% in 2022 in the wake of market turbulence and remained at about the same level in 2023.

Although temporary, a cyclical downturn in the venture capital market is likely to have a long-term impact. Companies in our sample underwent a round of venture capital financing once a year on average (Figure 35), with many raising capital even more frequently. This is true of the companies headquartered in the European Union and those in San Francisco, with virtually identical distribution of the time between venture capital deals for the two sets of companies. Therefore, even a temporary downturn in the venture capital market will have

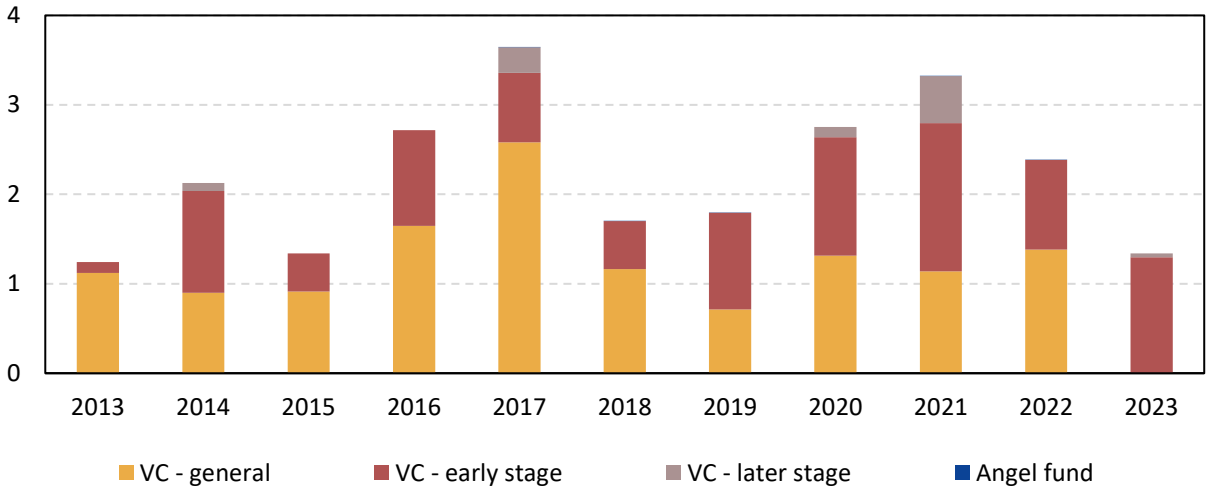
funding implications for the average scale-up. In instances of short-term misalignments from fundamentals, the public sector can step in to avoid long-term consequences for growth and competition.[24]

Figure 33. Venture capital investment by company growth stage (% change from a year earlier)



Source: EIB Investment Report (2023/2024), based on data from PitchBook Data, Inc.
Notes: Growth rate from previous year by growth stage and location. The data have not been reviewed by PitchBook analysts.

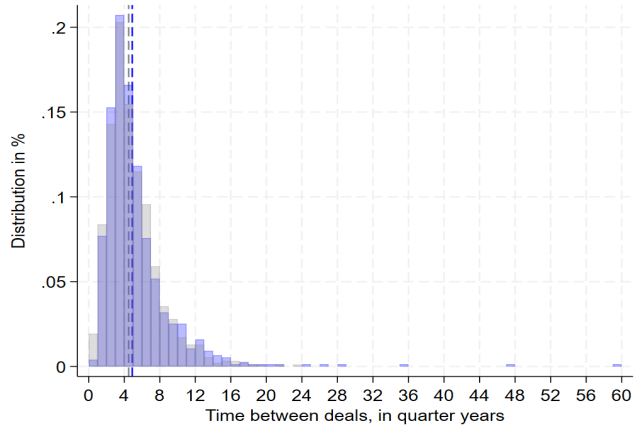
Figure 34. Venture capital funds investing in Europe between 2013 and 2023 ($bn)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The data refer to venture capital funds with a declared geographical preference for the European Union or individual Member States. They include closed, open and evergreen funds. The data have not been reviewed by PitchBook analysts.

[24] Providing evidence on how a temporary condition affecting the stock of firms leads to long-lasting effects, the Organisation for Economic Co-operation and Development estimates that a 20% decline in the number of new firms leads to an employment loss of 0.7% after three years, and 0.5% after 14 years (OECD, 2020).

Figure 35. Time between two consecutive venture capital deals where capital was raised (in quarter years)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The sample consists of companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion. The data have not been reviewed by PitchBook analysts.

Box C. A skills gap hits EU high-growth firms

Skills shortages are one of the biggest investment barriers to firms involved in innovation. While this is a global phenomenon, it is especially relevant in the European Union (Reypens et al., 2020), where technological progress has created a gap between the skills demanded by businesses in emerging industries and the skills present in the workforce. For example, the European Commission estimates a shortfall of skilled workforce in greentech, with a potential gap of 180 000 skilled workers in hydrogen and 66 000 in solar photovoltaic power by 2030.

Portfolio firms view recruitment of high-quality professionals as one of the main challenges, cited as a challenge by around 42% of venture capital portfolio firms (Kraemer-Eis and Croce, 2023). In addition, an EIB thematic study on EU scale-ups shows that 34% of high-growth startups reported a lack of skilled staff as a major obstacle to investment in 2019. In the European Union, venture capital portfolio firms say they are held back by high competition for talent, a shortfall in IT skills, insufficient marketing and sales professionals, and a lack of C-level personnel to complement founders (Kraemer-Eis et al., 2023). The largest skills gap, however, remains that for the recruitment of top-tier managers with a strong technical background in life sciences and in greentech. The United States remains the preferred working destination for talented professionals, although Europe is also able to attract tech talent from abroad.

Attracting skilled workers and incentivising specialisation in the fields of STEM, business and finance will be crucial to meet the labour demand of high-growth firms. Education/training sectors, employers, social partners and governments will need to cooperate, enhancing their coordination and fostering partnership to identify skills needs and ensure sufficient investment in education and training. Targeted tax benefits to reduce the labour wedge are powerful tools to attract talent from abroad. European universities, with their high quality programmes and low tuition fees, are becoming more attractive for foreign students. Developing instruments to facilitate labour market access for high-performing students would alleviate brain drain and ensure higher social returns from education investment.

To address labour and skills shortages, the European Commission has presented an action plan[25] setting out key labour market measures that could help unlock EU growth potential, with positive impacts on investment and competitiveness. The proposals include actions that can tackle the labour shortage faced by scale-ups – including increasing STEM graduates and fostering entrepreneurial and transversal skills –

[25] European Commission (2024).

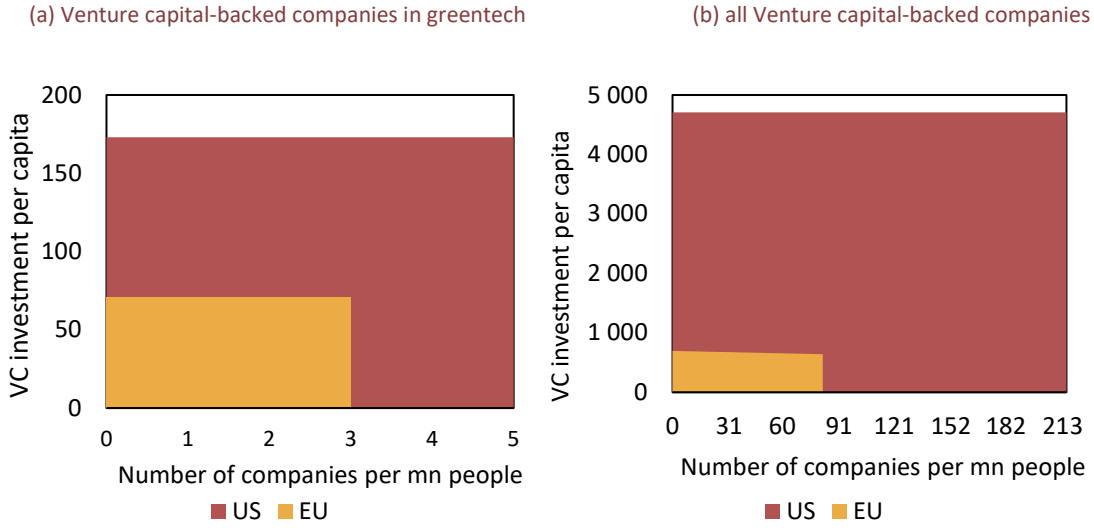
attract talent from outside the European Union and support skills development and education. Part of this is aimed at improving intra-EU mobility of workers and learners. In addition, the European Commission has also recommended a set of measures to simplify and speed up the recognition of skills and qualifications of third country nationals.

5.2 Greentech

The scale of venture capital investment in greentech in the European Union is comparable to that in the United States, the only segment in which this is true. This is thanks to increased policy focus, large one-off investments, government regulations and subsidies supporting greentech sectors. As a result, venture capital investment in greentech benefited from the global expansion in venture capital financing in 2021 but, unlike in other industries, was also resilient in 2022 and 2023. A comparison between the European Union and United States illustrates how the gap in size between the US and the EU greentech sector is much smaller than the rest of the venture capital market, for both investment levels and the number of companies (Figure 36).[26]

The greentech sector in the European Union has benefited from robust research and strong domestic demand, driven also by an ambitious decarbonisation agenda. The European Union is among the main contenders in the race for greentech innovation (Figure 37).[27] The demand for renewable energy in the European Union has steadily increased in recent years, thanks also to the European Green Deal, pursuing one of the world's most ambitious policy objectives for reaching climate neutrality. As a result, a disproportionately large share of greentech venture capital investment is directed to EU firms. Energy storage, circular economy and agtech are particularly promising areas of development.

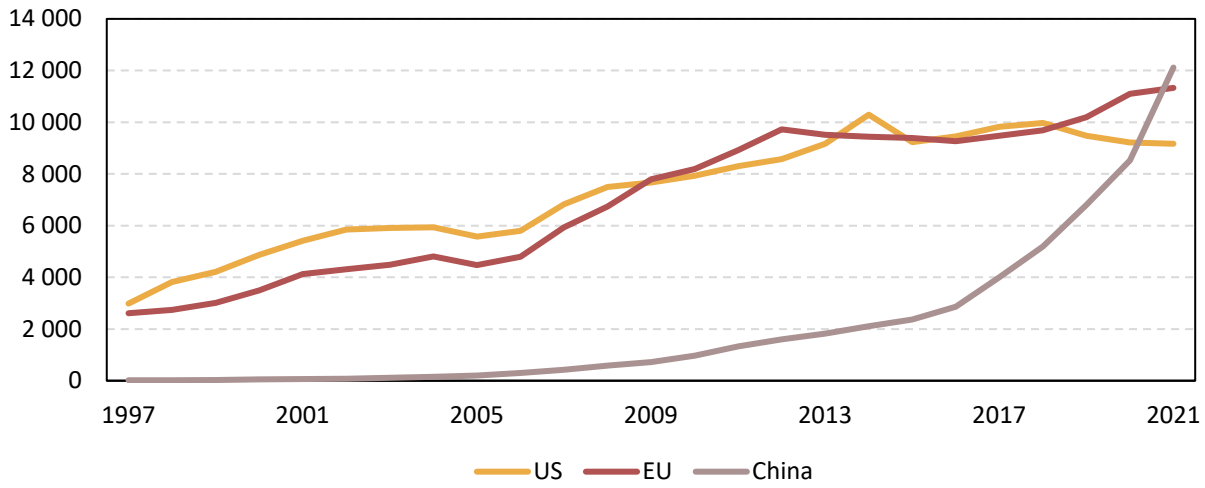
Figure 36. Venture capital investment in greentech in 2023



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: The number of companies refers to the number of venture capital-backed companies headquartered in the European Union and the United States that completed at least one deal between 2013 and 2023. Venture capital investment is the aggregate amount invested in those companies during the sample period. Number of companies and venture capital investment were rescaled by the population of the two regions. The data have not been reviewed by PitchBook analysts.

[26] See also Bioret et al. (2022) and Kraemer-Eis et al. (2023) for an overview of the green startup ecosystem in the world and in the European Union, respectively.
[27] See EPO and EIB (2024).

Figure 37. Number of international patent families in cleantech by country



Source: EPO and EIB (2024).

However, greentech companies face even more financing constraints than other innovative companies.[28] Greentech technologies are typically capital intensive and have higher technological and regulatory risks and longer time to market. For these companies, the "death valley" is longer and deeper.[29] The novelty and high level of specialisation required to develop and understand the technology being developed worsen the asymmetric information inefficiencies between investors and investees. Moreover, positive externalities linked to the social and economic benefits of green technologies lead to suboptimal levels of investment. Despite greentech companies generally requiring more time and patient capital than the average firm to be successfully brought to the market (Cumming et al., 2016), EU greentech scale-ups raise funding comparable to other EU venture capital-backed companies (Figure 38), suggesting that financing constraints are more binding in the sector due to the factors mentioned above. Technological risks, regulatory risks and uncertain future demand increase financing costs. In line with this fact, respondents to the survey in the EPO and EIB report (2024) cite a lack of finance as a major obstacle for the commercialisation of clean and sustainable technologies as often, or more often, than other innovative companies.

To be successful, the venture capital model must adapt to the specific needs of the greentech industry. A successful green transition requires the mobilisation of large amounts of capital. The European Commission estimates that to achieve a path of decarbonisation consistent with the Fit-for-55 scenario, the European Union must invest an additional €477 million annually.[30] To support the green transition, innovation requires deep pockets, technical expertise and the ability to navigate a complex regulatory environment and fierce competition from incumbents domestically and abroad. Venture capital financing remains of paramount importance for the sector, as it combines large pockets of unutilised capital with a propensity to take on risky projects and financial expertise. However, financing must come from a variety of sources. The supply chain areas must be identified in which venture capital can be more most impactful. For example, while electricity transmission operators are natural monopolies, the components of their daily activities constitute a much more dispersed market, more open to technological disruptions.[31]

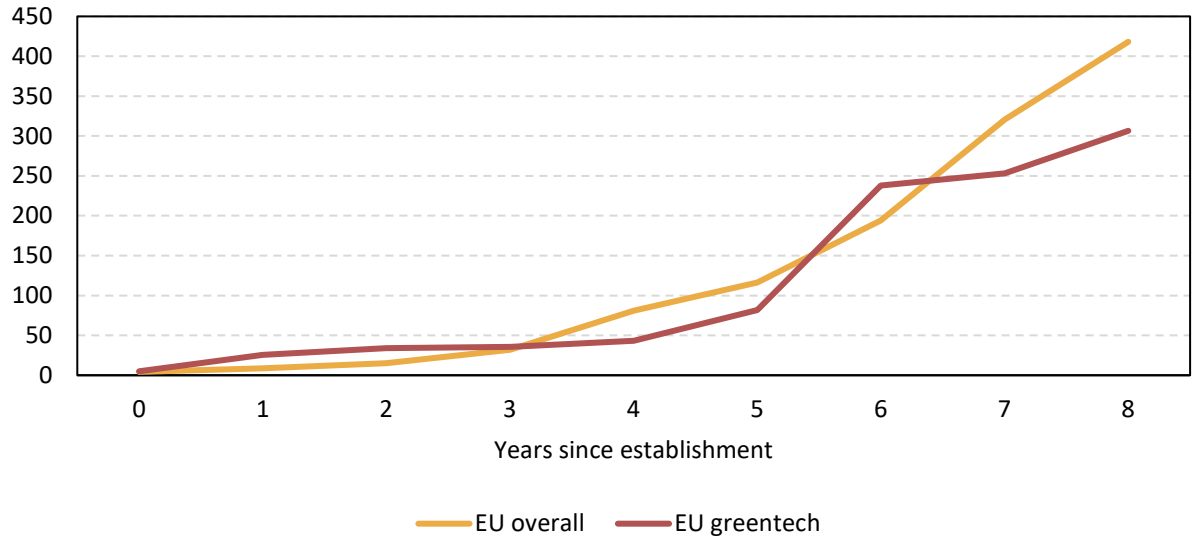
[28] For a discussion of other barriers to investment in renewable energy and climate adaptation, see the EIB reports on investment barriers (EIB, 2018, 2021).

[29] Death valley represents a crucial phase in a startup's journey, characterised by a substantial decline in valuation before it has secured an additional funding round. typically occurs after the initial investment and before reaching the next significant milestone.

[30] See European Commission (2023).

[31] See Demertzis et al. (2024) on the role of EU instruments for the support of cross-border investments.

Figure 38. Cumulative funding raised by sector (average, $m)



Source: Authors' calculations based on data from PitchBook Data, Inc.
Notes: Strongly balanced panel including companies with at least one deal between 2013 and 2023 with a market valuation of between $500 million and $10 billion, and at least eight years of data. In the sample there were 170 companies for the European Union overall, and 13 for greentech. The data have not been reviewed by PitchBook analysts.

Box D. The importance of the EU single market

Fragmentation of consumer markets and differences between national ecosystems limit the ability of EU firms to scale up quickly. Regulatory, legal and linguistic differences across countries create a fragmented goods and services market, and make it difficult for companies to expand across national borders. The absence of a well-functioning single market for many products and services holds back the development of innovative industries due to a lack of market scale, making the United States a more attractive destination for scale-ups.

EU laws can be tools for directing investment towards strategic sectors and stimulating demand, while ensuring that European safety and social standards are respected. Take the example of net-zero investments. Most small and medium-sized enterprises (SMEs) see the European Union as their key market for future growth.[32] Feed-in tariffs, renewable energy certificates, carbon pricing mechanisms and regulation to generate demand for renewables, such as the Industry Decarbonisation Deal, help mobilise capital. For the green transition, to minimise adjustment costs for businesses, legislation should be approved and implemented in ways that provide clarity and predictability for market actors. For cross-country projects like the electrification of the road network, higher returns from private investments could be achieved by harmonising administrative procedures, speeding up permitting processes, ensuring more effective interaction between different levels of government, and creating clear and speedy procedures for land acquisition and access to the grid network (EIB, 2018).

[32] See EPO and EIB (2024).

Box E. Umicore, combining cleantech research and artificial intelligence

Umicore is a Belgian company and a leader in the development of circular material technology, such as recycling, emission control catalysts, materials for rechargeable batteries, and photovoltaics. Initially a mining company, it is now primarily focused on building sustainable production processes, and has almost 4 000 active patents in its portfolio for technologies related to electric elements, inorganic chemistry and chemical processes, among other fields.

Umicore exemplifies the complementarities between the digital and the green transition. Most recently, the company signed an agreement with Microsoft to use artificial intelligence and machine learning techniques to conduct research on battery materials. Despite high energy consumption levels, artificial intelligence has such potential to facilitate and accelerate greentech research that it is understood to enable the green transition.

Now listed on Euronext with a market capitalisation of around €5 billion, Umicore has benefited from EIB support to implement its projects. In 2020, it received an EIB loan for €125 million for the construction of a manufacturing facility in Poland for cathode material, a component of the high-tech lithium-ion batteries primarily produced for the electrical vehicle market. The facility launched production in 2022. In 2023, Umicore signed a new loan with the EIB for €350 million to develop electrification-focused projects in Belgium and Finland related to rechargeable battery materials, next-generation battery materials and battery recycling solutions.

6 Building momentum in scale-up finance: The catalytic role of public intervention

The European Union and national governments have strong policy agendas aimed at bridging the scale-up gap and supporting economic growth.[33] According to the EIB Start-up and Scale-up Survey 2019,[34] 49% of high-growth startups benefited from public funding in 2023, compared with only 28% in the United States (Figure 39). According to Kraemer-Eis et al. (2023), based on data from InvestEurope, the contribution of government agencies to venture capital fundraising between 2010 and 2021 was 25-30% – in most years, it was also higher than that of any other investor type, including banks, corporate investors and asset managers. Concessionary capital, such as the Innovation Fund, or accelerator programmes in the European Union are good sources of funding for industrial startups. The European Innovation Council, introduced by the European Commission under Horizon Europe with a budget of €10 billion, supports game-changing innovations throughout the company life cycle, from early-stage research to the financing and scale-up of startups and SMEs. Several lessons on how to implement future programmes can be drawn from past experience with public sector interventions.

Public intervention improves firms' outcomes. The next sections summarise the empirical evidence on EIB support for businesses. According to this research, the EIB Group's intervention in the venture capital and venture debt markets has a statistically significant impact on exit outcomes, innovation and access to finance.

Public funding for startups is patchy. The success of these programmes would be further enhanced by speeding up access, linking it to next-stage financing to ensure that projects reach completion, improving the stability and predictability of the funding, and increasing coordination between EU and national initiatives. For instance, one advantage of US Inflation Reduction Act tax credits over EU initiatives is that this government support is predictable, and investors can incorporate this financial benefit in business plans and investment decisions.

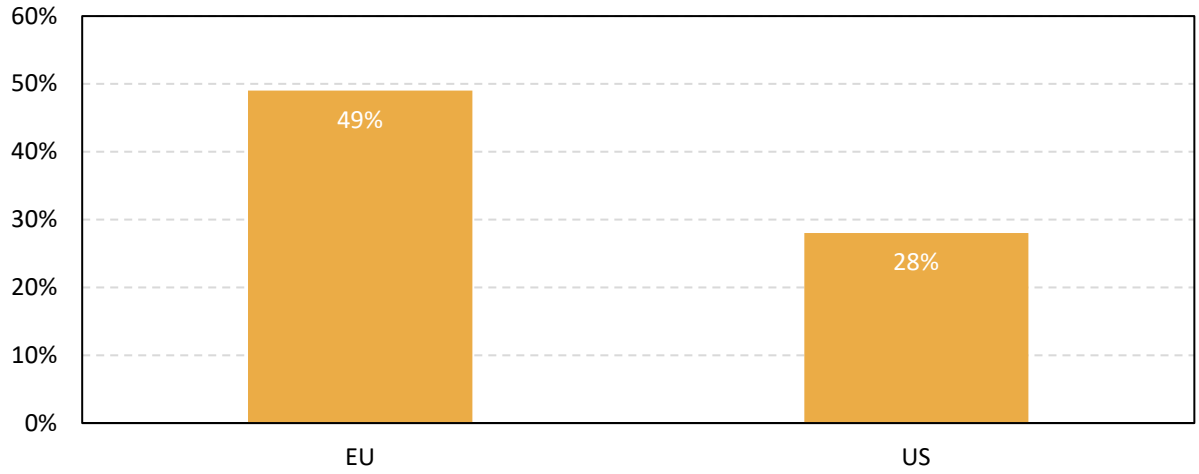
The public sector can help create markets for new technologies. The EIB Group is a large investor in the venture capital market. Over the period 2007-2018, the EIF contributed between 8% and 10% of total EU and UK venture capital fundraising, through either its own capital or mandates. The past decade has also seen the emergence of EIB Venture Debt – a novel equity-type risk financial instrument that has become a key part of the venture debt market.

The public sector can be catalytic when it combines funding and technical expertise. Public support is most effective when it is EU-wide and catalytic. The EIB has the technical expertise to signal the high quality and low risk of an investment, thus catalysing private investment. Thanks to its thorough due diligence process and an extensive pool of technical and financial experts, the EIB has a competitive advantage in identifying good investment opportunities and leading other generalist investors.

Countercyclical public intervention has protected venture capital in the European Union during downturns. Innovative firms are typically more vulnerable to cyclical downturns than other firms. In the latest readjustment in the venture capital market, following the tightening of financing conditions, the report documented that European scale-ups were particularly affected. Countercyclical public support can mitigate the long-term effects of short-term downturns.

[33] For an extensive description, see Quas et al. (2022).
[34] See EIB (2019).

Figure 39. High-growth startups benefiting from public funding

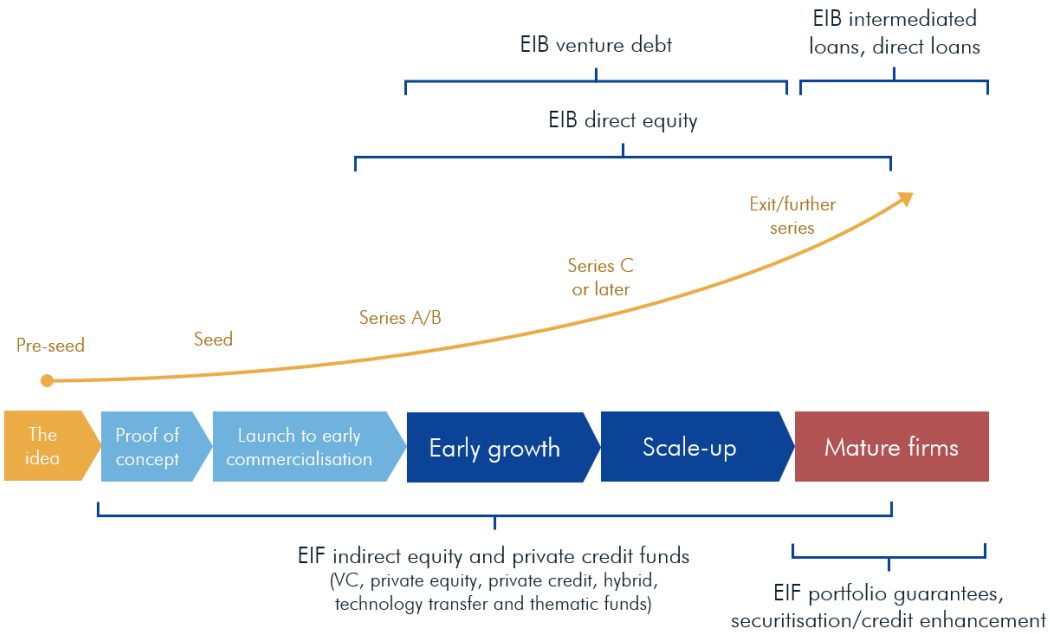


Source: Reypens et al. (2020).
Notes: Share of high-growth startups benefiting from public funding (such as subsidised loans or publicly sponsored venture capital). A high-growth startup is defined as any young firm that reported an average turnover growth of > 60 % over the last three years in the EIB Start-up and Scale-up Survey 2019 (EIB, 2019).

6.1 The EIB Group and the initiatives targeting scale-ups

The EIB Group is also instrumental in the implementation of EU policy priorities, complementing national initiatives. Leveraging its own capital base, as well as specific mandates, and issuing bonds on the markets as an AAA-rated institution, the EIB Group provides financial resources in the event of market failures and catalyses private investment to support companies throughout their lifecycle (Figure 40). In 2023, with called capital of €22.2 billion and a balance sheet of €572.4 billion, the EIB Group signed €88 billion of financing in the European Union, supporting a total of €320 billion in investment, with a strong catalytic effect. EIB Group lending in 2023 is expected to increase EU GDP by 1.03%, creating 1 460 000 jobs by 2027. For an overview of the financial instruments the EIB deploys to support EU businesses and their impact on firms' outcomes, see the EIB Group publication *EIB Group support for EU businesses* (EIB and EIF, 2024).

Figure 40. EIB Group support throughout a company's lifecycle



The EIB is the European Union's lending arm. With outstanding bond issuances of around €430 billion, the EIB is one of the European Union's primary issuers of bonds, prized for their liquidity and predictability. Furthermore, as one of the biggest global financiers of sustainable development in general, and of climate action and environmental sustainability in particular, the EIB Group plays an essential role in making Europe carbon neutral by 2050. Since introducing the EIB Venture Debt instrument almost ten years ago, the EIB has financed close to 300 companies with around €6.8 billion. In 2023, the EIB signed almost €1 billion in venture debt. The EIB has used growth capital in the form of venture/scale-up debt funding (supported by public guarantees) to fill the financing gap between traditional venture capital and project/corporate finance, with a focus on cleantech, life sciences, deeptech and digital.

The EIF is the largest public investor in European venture capital funds. It provides risk finance to SMEs across Europe to support entrepreneurship and social change. It delivers funding in the form of equity, debt and microfinance via a broad network of financial intermediaries. This allows the EIF to provide investment and funding solutions throughout a company's life cycle, from the pre-seed stage to later stages of development. Through its catalytic effect, the EIF supports 40-50% of venture capital-backed startups in Europe in a typical year. In 2023, it invested around €5.6 billion in equity, of which €2.8 billion was in venture capital (50% of all EIF equity commitments). It is a cornerstone around which private market players invest, confident in its thorough due diligence, investment and monitoring processes. The EIF's activity in the equity sphere also includes the launch and extension of new initiatives.[35]

Several initiatives have already been implemented by the EIB Group to address the scale-up gap.

The European Tech Champions Initiative (ETCI) mobilises significant resources to support large venture capital funds. ETCI is a fund with capital of €3.85 billion[36], launched in February 2023 by the EIB Group and six Member States to channel much-needed late-stage growth financing to promising European innovators. By making significant investments in large-scale venture capital funds, ETCI helps deepen the venture capital markets for later-stage companies, a section of the market that is especially far behind in Europe. It thus provides critical funding for scale-ups, helping them compete globally and supporting technological innovation, growth and the development of Europe's tech ecosystem.

Thanks to ETCI, large venture capital funds have been able to support ambitious European projects. To date, the ETCI has mobilised €10 billion in investments in the investee funds, a significant share of total venture capital investment in the European Union (for comparison, in 2023, European scale-ups received about €30 billion in venture capital investment). So far, ETCI has supported eight scale-up technology funds, including Kembara Fund I, Atomico Growth VI, FSI II and Keensight Nova VI. Thanks to ETCI contributions, these funds raised or are on their way to raising more than $1 billion each, a size seldom achieved by EU venture capital fund.

The European Scale-up Initiative provides alternative financing tools for scale-ups. Under this initiative, which complements ETCI, the EIB provides venture debt to allow companies to scale up.

Under the umbrella of InvestEU, several initiatives specifically targeting scale-ups have been implemented. The InvestEU programme, active since 2014, provides long-term funding and helps mobilise private investment for EU policy priorities, including the green and digital transitions. The EIB Group is the programme's main implementing partner. InvestEU consists of three key components: the InvestEU Fund, the InvestEU Advisory Hub and the InvestEU Portal.

The ESCALAR programme provides an asymmetric risk return structure with the goal of attracting new categories of investor to the venture capital market. Through ESCALAR, launched in 2020 under InvestEU, the EIF is expected to provide up to €300 million to increase the investment capacity of venture capital and private equity funds, triggering investments of up to €1.2 billion. ESCALAR supports fund closing by committing up to 50% of the size of the fund, thus mobilising private capital.

The SME IPO Fund supports funds at the juncture between private and public markets, to ensure a smooth transition between the two. This EIF initiative under InvestEU fosters the development of a class of fund managers that are active at the pre-IPO stage and can support promising EU companies on their path to listing on EU-based venues.

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[35] See Kraemer-Eis et al. (2023) for details.

[36] Of which, €600 million in capital commitments.

Under InvestEU, the EIB provides quasi-equity financing to scale-ups and other innovative companies. As part of the Scale-up Initiative, the EIB has recently agreed to a €90 million loan to Rohlik, a leading Czech e-grocery business that operates across central and eastern Europe, to bolster the company's digital advances and growth prospects.

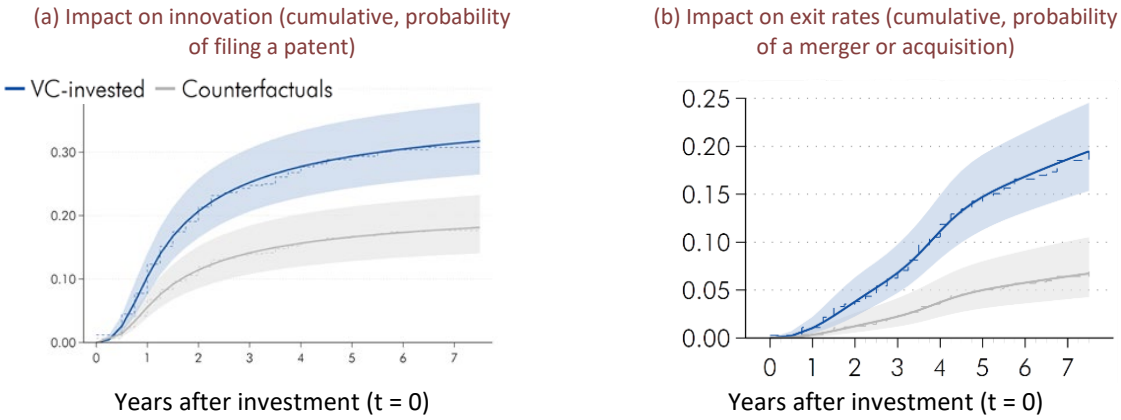
EIB Advisory provides advisory support to scale up companies and improve the availability of scale-up capital in Europe. Through an ongoing advisory assignment, EIB Advisory seeks to quantify the near-term demand for scale-up financing in key EU technologies and to identify barriers, potential solutions and companies currently in need of scale-up capital. EIB Advisory is also developing an investment readiness checker platform that will provide feedback to companies, including scale-ups, on their investment readiness and guide them to relevant financial products and process support.

6.2 Empirical evidence on the impact of EIB Group intervention in the venture capital and venture debt markets

6.2.1. EIF venture capital financing spurs innovation and successful exits

EIF-supported venture capital investments have had a positive impact on the growth of startups.[37] EIF-supported firms have better financial outcomes than other firms, in terms of higher capitalisation, assets, revenues and employment growth. EIF-supported firms also issue more patents (Pavlova and Signore, 2021). Stronger firm growth and innovative performance spurs successful exits (Figure 41a). EIF support also increases the likelihood of exit via M&A or IPO (Figure 41b).

Figure 41. Impact of venture capital investment



Source: Pavlova and Signore (2021).
Notes: Bands are 95% confidence intervals.

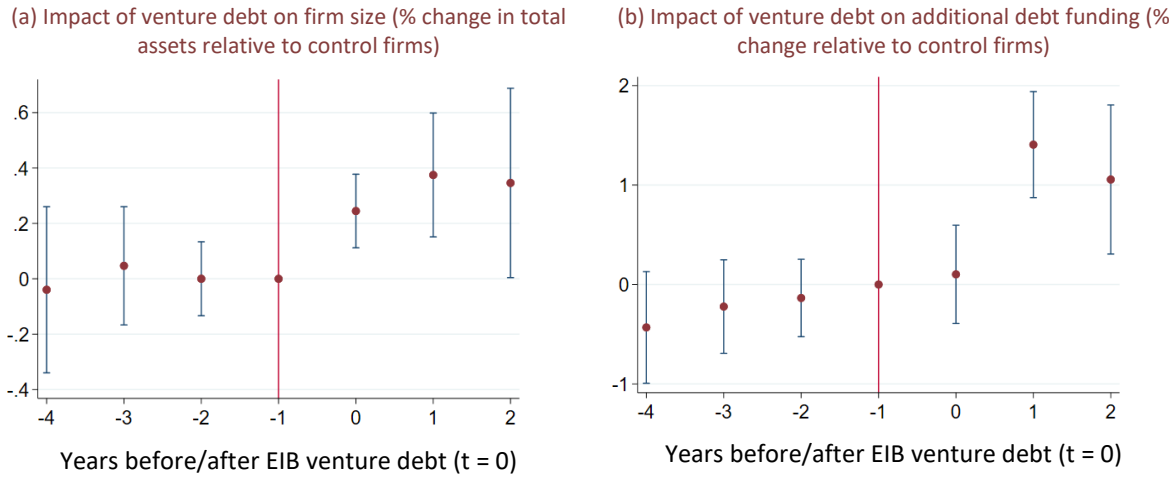
[37] See Pavlova and Signore (2019).

6.2.2. EIB venture debt crowds in private investment

Venture debt is an alternative source of funding for innovative firms. This type of financial instrument allows for lower dilution, thus preserving founders' incentives. Furthermore, thanks to a longer maturity than other private venture debt providers, it bridges financing gaps between funding rounds.

Venture debt investments support beneficiaries' performance and crowd in further debt financing. Gatti et al. (2022) found a strong, positive impact of EIB venture debt on beneficiary firms' asset growth (Figure 42a). The increase in total assets is partially driven by additional debt issued in the years following the receipt of venture debt finance (Figure 42b). These results suggest that EIB venture debt beneficiaries experience higher growth due to crowding in additional debt, with the effect of asymmetric information countered by the effect of the instrument in signalling creditworthiness to financial markets.

Figure 42. Impact of venture debt investment



Source: Gatti et al. (2022).
Notes: The graphs report the time-varying effect of venture debt. Coefficients were normalised with respect to the year prior to loan signature (t = –1) and can be interpreted as the cumulative effect of venture debt with respect to this baseline.

7 Recommendations on how to close the scale-up gap

This report has described the financial constraints faced by innovative companies as they scale up, linking them to the size and depth of the EU financial markets. In this way, it assesses the market gaps in this important segment of the corporate sector, detailing the implications for productivity and growth. The next section presents proposals for a way forward, linking policy actions to the market gaps described so far.

7.1 Complete the Capital Markets Union as a key priority to provide finance to innovative companies

Pursue a fully unified IPO market. Sounder IPO markets in the United States and United Kingdom often lead EU firms to seek public listing there. Good exit options are important for increasing returns and incentivising private investment. EU scale-ups' preference for foreign stock exchanges exemplifies the need to make progress in this area. EU equity markets are too small and less liquid than in the United States, with the lack of a secondary market affecting the small caps market segment in particular. A less fragmented EU stock market base could, through scale, improve visibility and attractiveness to investors, building on the domestic investor market for EU companies. The limited participation of large institutional investors, such as pension funds, and the effect of regulatory changes made after 2008, have contributed to a high equity risk premium in the euro area, making it more expensive to raise equity through IPOs/secondary markets. But there are positive developments in lowering administrative costs: the European Union recently reached a provisional agreement to reduce the administrative burden on companies seeking to list on European stock exchanges.[38] The cost of listing is also being reduced by relaxing disclosure requirements and research investment rules. Further progress towards a fully unified IPO market would require the development of common rules and standards.[39]

Mobilise institutional investors. An important component of addressing the scale-up gap is leveraging domestic savings. Private pension funds and insurance companies, the European Union's second largest market segment, are an important source of potential investment for innovative companies and the capital market. Relaxing regulations on these categories of investors while ensuring financial soundness would mobilise national private savings. However, in 2022, just 0.024% of EU pension fund assets under management were invested in European venture capital.[40] While investments in equities are not capped in most Member States,[41] liquidity concerns linked to the introduction of the Solvency II regime limit institutional investors' ability to enter these markets in practice (European Commission, 2019). And, unlike mutual funds, pensions cannot be sold all over the European Union under a single authorisation. Measures to increase liquidity, including building the conditions for the development of a liquid secondary market, would increase incentives for institutional investors to participate. As recently proposed, the creation of an EU-wide, long-term, trustworthy and low-service charge savings product could be a way to stimulate retail investment and allow greater investment to flow to private equity, private debt funds and other long-term investment schemes in the European Union (Letta, 2024). This would contribute to a more productive allocation of European savings (Letta, 2024).

Financial integration would benefit from further harmonisation of tax systems, corporate governance rules and insolvency regimes across Member States. Major differences in insolvency regimes and their application in multi-country operations pose an obstacle to cross-border investment. Tax and corporate governance rules also remain largely national, contributing to the fragmentation of the capital markets.[42] In 2024, a proposal called the Debt-Equity Bias Reduction Allowance (DEBRA) was approved to alleviate the debt-equity bias and reduce firms' over-reliance on debt.

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38 Listings on European stock exchanges: Council and Parliament agree on new act.
39 See Thomadakis et al. (2022).
40 See Atomico (2023).
41 See, for instance, the Annual Survey of Investment Regulation of Pension Providers (OECD, 2023).
42 See Lehmann (2023).

The EIB Group helps strengthen EU capital markets. The EIB provides pan-European financial instruments, and mobilises public and private funds in the areas of green finance, housing, insurance and digital bonds. The EIB Group also has longstanding experience in the green bond market, with one of the largest outstanding portfolios in the world. It has also pioneered the issuance of digital bonds leveraging on blockchain technologies. Furthermore, the EIB Group has engaged in the securitisation market for more than 20 years, contributing to the liquidity and depth of this financial market segment.

7.2 The role of public support: catalyse private investment, de-risk early innovation and provide patient capital

Building on its long experience, the EIB Group is well placed to help new technologies scale up. Expanding ETCI and increasing the EIB Group's venture capital and debt activities can go some way to closing the capital gap for scale-ups. EIB intervention strives to mobilise private capital, diversify financing tools and support the development of strategic technologies and industries, consistent with the EU policy priorities.

Use public intervention primarily to mobilise private capital, particularly longer-term capital, and provide de-risking tools to scale up new technologies. In times of private capital scarcity, it is tempting to use policy instruments that crowd out the private sector – but on the contrary, the primary goal of public sector resources should be to mobilise private sector capital. One way to attract private investors to the venture capital market is through funds-of-funds, or having government and private investors co-invest in venture capital funds (Acevedo et al., 2016). For example, ETCI uses public money to co-invest in large-scale venture capital funds alongside private investors. The EIB and EIF serve as lead investors, instilling confidence with their thorough diligence, investment and monitoring processes. The investment horizon for the private sector is sometimes too short given the time to market for new technologies. Public support can bridge this financing gap by deploying patient sources of financing (for example, as the EIB does with its venture debt instrument) and/or providing public guarantees to cover technology risk, adoption risk and regulatory risk. Public sector guarantees and the expansion of the securitisation product offering, as done with the European Guarantee Fund, could incentivise investors with a lower risk appetite to use this market.

Lead the development of strategic markets. The EIB Group provides several examples of public intervention that have helped create or significantly expand new markets, such as venture debt, venture capital and green bonds. Success stories are often the best advertisement for attracting private investment. Building on the success of innovative companies that were originally small startups, many successful ecosystems have developed. The public sector can serve to spearhead investment in strategic technologies (energy transition, digitalisation, agriculture and bio-economy, etc.) and catalyse private investment in them. On the financing side, the public sector can act as a leader in the issuance of new financial instruments (as the EIB Group does for green and digital bonds).

Prioritise enabling infrastructure. Enabling infrastructure increases returns from private investment. Closing investment gaps in freight rail will promote cross-border trade. Upgrading the electrical grid will support the green transition.[43]

Increase funding for basic research and early-stage innovative R&D. Early-stage innovations are more vulnerable to technological risks, regulatory risks and competition from more mature technologies. Targeted support must be provided for technologies the European Union deems instrumental to achieving its policy goals when private investors consider the risk too high or the time to market too long. For this reason, governments need to expand direct investment to scientists and innovators for R&D, and enhance synergies between industry and research centres and universities. Funding through grants and equity-like instruments will give new technologies time to develop and enable losses to be tolerated at this early stage.

Bolster innovation hubs and incubators. Incubators and accelerators often serve as coordinators among investors and investees. They provide business know-how and support companies at the very early stages of their development. The European Union already has some success stories here, particularly when EU incubators develop strong ties with the innovation activities of universities and research centres (such as PoliHub or KU Leuven Kick). Yet, these initiatives remain small and too fragmented. EU institutions can help create EU-wide incubators by encouraging international collaboration without forgoing their sectoral focus. For example,

[43] See also Pinkus et al. (2024) on the importance of EU-wide projects as policy priorities.

EIT RawMaterials, an EU co-founded incubator, has six innovation hubs conveniently located to offer physical proximity to more than 120 partners in leading business, universities, and research and technology organisations from over 20 EU countries.

Make support clear, predictable and easy to access. Straightforward, highly visible and predictable public support allows companies to fully incorporate fiscal incentives into their business plans. Public procurement can help align companies involved with EU policy priorities and standards and can be a lever for innovation.

Coordinate EU-wide policies under a broader industrial strategy to enhance EU competitiveness. EU and national policies should be coordinated and consistent with an EU-wide strategy. The use of EU-wide, rather than national, instruments would ensure that strategic investments are prioritised and sufficiently funded, and would reduce geographical fragmentation. Reliance on national funding often leads to ineffective innovation programmes biased by an individual country's industrial structure, fiscal space and preference for certain technologies.

7.3 Develop a strong EU domestic market and focus on skills

Further integrate the EU single market. The absence of a well-functioning single market for many products and services holds back innovative industries, due to lack of market scale. For instance, as scale-ups look to expand internationally, relocating to the United States allows them to easily access a large, unified market in which they can grow. Pushing forward the integration of the financial, energy and electronic communications markets will prevent the European Union from falling further behind the United States and China.[44]

Promote standards and unify regulatory frameworks, including intellectual property rights. Regulation can create new markets and stimulate investment in strategic industries and technologies. This has been the case for the European Green Deal, which has provided incentives for companies to green their production processes and develop clean alternatives. At the same time, regulation that constrains entrepreneurship and increases uncertainty can also be a burden, creating risks for businesses and investors. Simplifying bureaucracy – including expediting approval processes and providing clarity and certainty in regulations and their implementation timelines – and harmonising legislation across countries will further promote private investment. Despite the recent progress made, intellectual property protection in the European Union remains fragmented. For example, while trademarks, design protection and patents have gradually turned into EU-level property rights, copyright has not.

Tackle the green and digital skills gaps by reinforcing Europe's social infrastructure. Rapid digital technology advances and the shifting needs of decarbonising economies are causing a gap between labour demand and the skills of the available workforce. Adjusting education and training programmes to close this gap is becoming an urgent imperative. Investing in STEM (science, technology, engineering and mathematics) education is critical, as is the development of tools to retain domestic talent and attract talent from abroad. Finding workers with the specific skills for new green and tech jobs is becoming a challenge for specific segments. For example, the European Commission projects a shortfall of 180 000 skilled workers in hydrogen production and 66 000 in solar photovoltaic power production in 2030. Global competition for talent exacerbates the problem. Investment in the areas of education, training, upskilling and reskilling, health, and energy efficient and affordable housing increases productivity and fuels economic resilience and sustainable growth.

[44] See Letta (2024).

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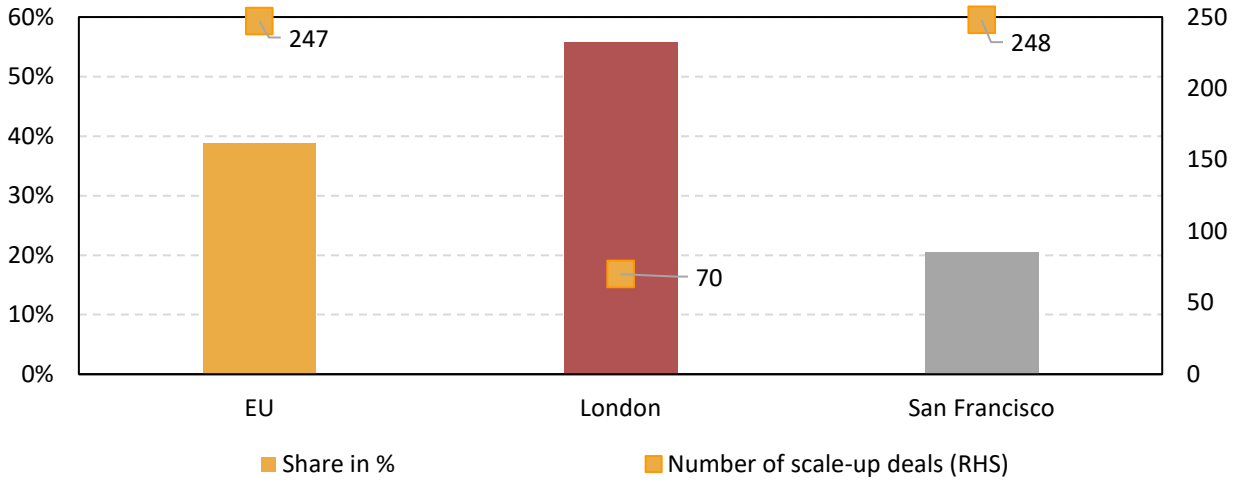
Appendix

Additional results

Figure 43. Share of scale-up deals with no lead/sole investor (% all deals)



Sector definitions

The greentech selection is based on selected industry segments, supplemented by the use of specific keywords in the description of the business activity. Industry segments are filtered as follows: Energy > Energy Services > Energy Storage, Energy > Smart Grid, Energy > Carbon Capture, Energy > NextGeneration Battery Technology and Energy > Hydrogen Energy. Keywords and their variants employed for the greentech selection encompass: “renewable energy”, “smart grid”, “hydrogen”, “green hydrogen”, “decarbonisation”, “wastewater treatment”, “plastic recycling”, “insects feed”, “battery”, “circular economy”, “clean transportation”, “green transportation”, “solar energy”, “smart metering”, “lithium recycling” and “fertiliser alternative”.

List of tables and figures

The scale-up gap

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European Investment Bank

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