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MORE CAPITAL THAN IDEAS WORTH BACKING

HOW ACADEMIC EXCELLENCE CAN HELP CLOSE THE EU VENTURE CAPITAL GAP

A REPORT BY
Institute of European Policymaking (IEP), Bocconi University, ifo Institute/Econpol, and Initiative for Productivity and Innovation (IPI), Cercle d'Economia

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ABSTRACT

This report, a joint project of IEP–Bocconi, ifo Institute/EconPol, and IPI–Cercle d'Economia, argues that the European Union's venture capital (VC) gap is not only, or even mainly, a financing problem. It also reflects a shortage of scalable ideas with strong commercialization potential, which attract the bulk of VC investment. Such ideas tend to emerge in dense innovation ecosystems anchored by a small number of world-leading universities, a model that remains less developed in Europe than in the United States. Closing this gap requires concentrating resources on academic excellence and a limited number of innovation hubs, while keeping these objectives distinct from those of cohesion policy.

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EXECUTIVE SUMMARY

Venture capital (VC) plays a central role in transforming innovative ideas into commercially scalable firms. Yet **Europe has faced a persistent VC gap relative to the United States** (US). Since the 1990s, VC investment in Europe has been only a fraction of that in the US. Despite repeated policy efforts at national and EU levels to support VC, the difference in investment intensity remains large.

This report examines the reasons for the weak development of VC in Europe, relative to both the US and smaller economies, using detailed data on venture capital deals, companies, founders, investors, and university affiliations.

The analysis shows that VC activity is highly concentrated and follows a power-law-type distribution: **a small number of deals, firms, and founders—including alumni of a small number of universities—account for a disproportionate share of total VC investment**.

This concentration points to an overlooked dimension of the VC gap beyond the usual emphasis on financing, regulatory, and market frictions: **differences in the ability to generate and scale a small number of ideas with high commercial potential**. These ideas are not necessarily of greater scientific relevance or technical sophistication. Rather, given the ecosystems in which they emerge, they are more likely to be selected, developed, and matched with capital in ways that make them commercially scalable.

Several findings **challenge the common view that Europe's VC gap primarily reflects an insufficient supply of venture capital**. European VC funding appears broadly commensurate with the investment needs of European startups, while domestic VC funds hold substantial "dry powder" that could be deployed if sufficiently attractive projects emerged. Our evidence also provides **little support for** other commonly cited explanations, including a systematic **scale-up financing gap**, the **relocation** of promising European firms to the United States, or **market fragmentation**.

Instead, the data suggest that a more important difference is spatial: **Europe lacks super-hubs** like Silicon Valley or the Boston corridor, where dense ecosystems of top universities, founders, and funders generate the commercially transformative ideas capable of attracting very large investments. Cambridge is perhaps Europe's closest analogue but remains smaller and less densely integrated than the leading US ecosystems.

This interpretation does not imply that European science or scientists are of lower quality on average. Scientific excellence and commercial scalability are distinct dimensions of innovation. Here, scientific output refers to knowledge production, as reflected in publications and citations, whereas market-oriented innovation refers to the translation of knowledge into scalable firms, products, and commercial applications. The EU produces substantial scientific output, but it is **underrepresented at the very top of academic rankings, with few universities around which the super-hubs develop** and produce ideas with the potential to transform markets.

Universities and the ecosystems surrounding them play an important role in this process. Leading institutions attract and screen talent, generate knowledge, facilitate interactions among researchers and entrepreneurs, and support the agglomeration of investors and innovative firms. The report finds a **strong correlation between the score used by academic rankings and subsequent VC outcomes**, both in Europe and the US. Evidence from Germany's *Exzellenzinitiative* suggests that the link is also causal: **highly competitive grants to boost academic excellence can raise the VC attracted by firms founded by university alumni over time**.

The policy implications are demanding. Measures aimed solely at **increasing the supply of capital or the number of startups is unlikely to close the transatlantic gap**. A more effective strategy would focus on strengthening the production and commercialization of high-potential ideas by **investing in academic excellence and reinforcing leading innovation hubs**.

Because the relationship between university ranking score and venture outcomes is highly nonlinear, spreading resources equally across institutions may have limited effects on aggregate VC formation. **Policies intended to expand the technological frontier may therefore require a greater concentration of resources in a limited number of already strong universities and innovation ecosystems**. This creates a clear trade-off between policies designed to maximize frontier innovation and those aimed primarily at reducing regional and institutional disparities.

The key conclusion is that Europe's VC gap is not only, or even mainly, a financing problem. It is also an idea-generation and commercialization problem. This calls for **policies that improve the upper tail of Europe's innovation system rather than merely expanding the volume of capital available to existing firms**.

DATA AND GEOGRAPHIC SCOPE

There is no comprehensive official source of venture capital statistics providing consistent information across countries, firms, investors, and transactions. The analysis therefore relies mainly on PitchBook, a commercial data provider with broad coverage of the global venture capital market.

PitchBook contains information on deals, funded companies, founders, investors, financing rounds, deal values, locations, industries, and institutional affiliations. This allows us to examine aggregate investment volumes, the number and size of deals, the characteristics of founders and firms associated with a particular deal, and the concentration of investment across universities and investors. Although no commercial database captures every transaction, aggregate patterns in PitchBook are broadly consistent with those reported by other commonly used sources.[1]

Our main sample consists of completed VC, seed, angel, and accelerator deals between 2015 and 2025. We exclude transactions classified as exits, private equity and private debt investments, as well as announced but not yet completed deals. The analysis therefore focuses specifically on equity financing provided to young and growing firms rather than on buyouts, debt financing, or the realization of existing investments.

PitchBook's coverage improves substantially from 2015 onward. Thus, while some descriptive evidence uses the longer period beginning in 1990, the main analysis focuses on 2015–2025, when comparisons across countries and over time are less likely to be affected by changes in data coverage. However, coverage remains more complete for US than for European deals, so some reporting bias in favour of the US likely remains. The results should therefore be interpreted as estimates based on recorded transactions rather than as official national statistics.

Throughout the report, we distinguish between the EU, a fixed sample of the 27 member states, and Europe as a whole. The distinction matters because the United Kingdom (UK) represents a large share of European VC activity and UK investment alone is equivalent to roughly one-third of the EU total. VC is one area where the cost of Brexit seems to be more important for the EU than the UK.

Unless otherwise stated, the analysis focuses on the EU27, reflecting the report's policy focus and ensuring that the geographic unit corresponds to the institutions and policy instruments under consideration. However, any analysis of VC financing in Europe must account for the UK's role as a financial hub and a base for many EU-focused investors.

Given its global dominance in venture capital—and the strong data coverage—we use the US as the main benchmark. The report therefore examines the

[1] For instance, Dealroom totals are similar once the UK is subtracted from its "Europe" definition: https://dealroom.co/regions/europe/; Invest Europe, which considers only VC funds rather than all categories of investors supplying capital, is also consistent: https://www.investeurope.eu/publications-policy/publications/2025/activity-data-dashboard/. Other valuable data sources, such as TrackVC, provide more limited coverage.

transatlantic VC gap in detail, comparing the EU and the US across aggregate investment, deal sizes, companies, founders, investors, and the university and innovation ecosystems from which venture-backed firms emerge.

Throughout the analysis, we distinguish between two measures of VC activity: the amount of funding startups receives, and the composition of that funding by investor type. A recurring finding is that specialized venture capital funds provide around half of the funding received by startups, with the remainder provided by "cross-over" investors, i.e., corporations, angel investors, family offices, institutional investors, and other non-VC actors that participate in financing rounds, either alongside VC funds or independently.

1. THE TRANSATLANTIC VENTURE CAPITAL GAP

Venture capital (VC) investment is generally viewed as an important engine that transforms innovative ideas into commercial applications and thereby diffuses innovation throughout the economy. Unlike traditional sources of finance, such as bank lending, VC is particularly suited to young firms characterized by high risk, limited collateral, and substantial information asymmetries. Venture capitalists provide not only risk-bearing equity finance but also screening, monitoring, managerial expertise, and access to networks, helping innovative firms develop and scale their technologies.

GLOBAL VC: A LONGER-TERM VIEW

The VC market has grown considerably over the last decade. **FIGURE 1** shows its evolution, measured by total funding received by startups in each region.

The total amount received by startups has more than doubled over the last decade reaching $450 billion in 2025. The expansion was particularly strong for the EU and the United States (US), where nominal amounts invested have more than tripled. The increase was somewhat smaller relative to GDP, but the VC-to-GDP ratio still roughly doubled in the US and the EU.

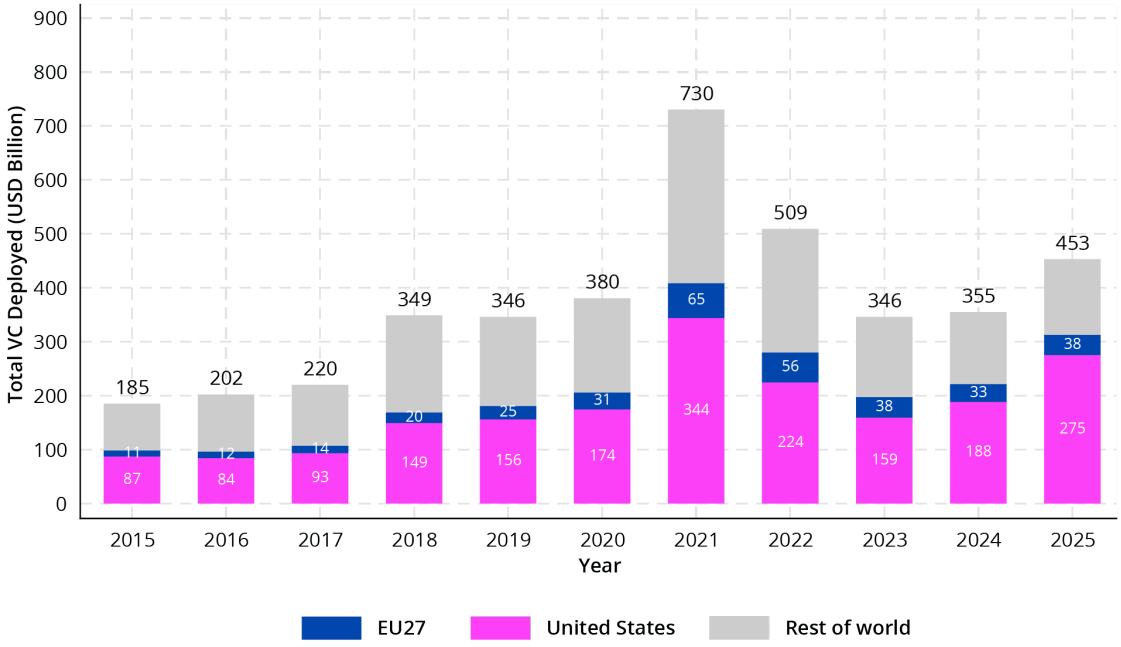
The VC market is subject to strong cycles. The boom through 2021 was followed by a retrenchment as rising interest rates and broader macroeconomic uncertainty weighed on venture investment. Growth subsequently resumed in 2025, particularly in the US, where investment in the first half of 2026 alone surpassed every previous full-year total, driven largely by a small number of exceptionally large AI-financing rounds.[2]

The dominant role of the US is apparent throughout the entire period, with US startups receiving about half of the global total against only 8% for the EU. The transatlantic gap remains large even if one accounts for the difference in the size of the two economies. In 2025, VC investment accounted for about 1% of GDP in the US, against less than 0.2% of GDP in the EU.

Figure 1 also shows that the EU does not lag only the US in terms of VC, but also the rest of the world. Today China accounts for one half of the rest the world, but the data show that VC investment in the rest of world has been consistently more than 4 larger than that in the EU-27 although the combined GDP of that group of countries is smaller than that of the EU. We concentrate on the transatlantic gap, but in reality, the problem is rather a generalized weakness of VC in continental Europe. The share of the EU in VC is much smaller than its share in global GDP.

[2] See https://pitchbook.com/news/reports/q2-2026-pitchbook-nvca-venture-monitor?utm_source=chatgpt.com. We do not consider the year 2026 due to incomplete sample coverage.

Figure 1. The global VC market.



Sources: Authors' calculations based on PitchBook.

DECOMPOSING THE TRANSATLANTIC VC GAP

Total VC investment is given by the product of the number of investments (deals) and the average value of each deal. TABLE 1 shows the transatlantic gap in these two dimensions using data from the last decade, 2015–2025.[3] The US has 2.3 times the number of deals and 2.5 times as much funding per deal. The product of the two margins (number of deals and their size) is approximately 6, which is the total relative VC gap with each margin accounting for about one half.[4]

Table 1. Decomposing the transatlantic VC gap.

Region (2015-2025)	Number of deals	Average funding per deal	Deals per funded company	Founders per funded company
US	**152,450**	**$12.66m**	**1.89**	**2.36**
EU-27	**66,272**	**$5.14m**	**1.83**	**2.58**
Ratio	2.3	2.5	1.0	0.9

[3] One source suggests that "Europe" leads in the number of "deep-tech" startups, e.g., https://www.htgf.de/wp-content/uploads/2026/05/Global-Deep-Tech-Report-2026.pdf. Yet these figures include not only EU27 countries, but also other important hubs such as the United Kingdom and Switzerland. It is also not clear whether the figure includes startups financed by private equity and debt, in addition to VC—which is the focus of this report.

[4] The total is equal to the product 2.3 times 2.5, i.e., roughly a factor of 6.

Sources: Authors' calculations based on PitchBook.

While the US has a clear lead in the number of deals and their average size, two other ratios are remarkably similar. The number of deals per funded company is close to two in both regions.[5] Less than 2 deals over ten years seem low. But many may simply stop growing or need no further financing during the sample period for other reasons.

The number of co-founders per company is also very similar. Startups have on average slightly more than two co-founders on both sides of the Atlantic.

THE INTENSIVE AND EXTENSIVE MARGIN OF THE VC GAP

We first examine the intensive margin of the VC gap: differences in the amount of capital invested per deal. VC returns are highly concentrated, with a few successful investments offsetting losses on many others. Since these successful startups also absorb a large share of VC funding, differences in average deal size may conceal important differences in the distribution of investments.

Appendix Figure 1 plots the complementary cumulative distribution function (CCDF) of deal size in the EU and US, focusing on deals exceeding USD 1 million. Two patterns emerge. First, the distributions have similar shapes, but the US curve is shifted to the right by approximately 0.8 log points, implying that US deals are more than twice as large at comparable points of the distribution. Second, in the extreme right tail (the top 0.1% of deals), the EU distribution bends downward, indicating a scarcity of megadeals relative to the US, whose tail remains closer to a Pareto distribution.[6]

However, since megadeals account for only 15% of total VC investment, the intensive-margin gap is driven primarily by systematically smaller EU deals across the distribution, rather than by the absence of a few exceptionally large deals. Although market size is a possible explanation, Chapter 2 finds no clear positive correlation between market size and VC intensity. Chapter 3 instead explores the role of top universities as generators of entrepreneurial ideas.

We next examine the extensive margin: differences in the number of startups receiving VC financing. Closing the VC gap through this margin alone would require an implausibly large expansion of European entrepreneurship. In 2025, holding average funding per company constant, the EU would have needed more than 26,000 additional startups, increasing the total from 4,210 to approximately 30,500. At 2.6 founders per startup, this would imply roughly 80,000 founders, almost three times the estimated 28,000 founders of US startups.

Given that the EU and US produce similar numbers of STEM graduates (Draghi,

[5] The number of deals per funded company-year decreases to 1.08 and 1.06, respectively.

[6] A Pareto distribution is characterized by a power-law tail, meaning that the probability of observing a value larger than a given threshold declines as a constant power of that threshold. This implies a relatively high frequency of extreme observations, such as exceptionally large VC deals.

2024), closing the gap through the extensive margin would require a substantially higher rate of entrepreneurship in Europe. Using the ratio of startup founders to annual STEM graduates as a proxy, we estimate an entrepreneurial intensity of 8% in the US. Closing the VC gap solely through additional startups would require the EU to reach 21%, more than twice the US rate. This suggests that the EU–US VC gap cannot realistically be closed by increasing the number of startups alone: larger investments per startup are also essential.

THE IMPORTANCE OF GEOGRAPHIC VC HUBS

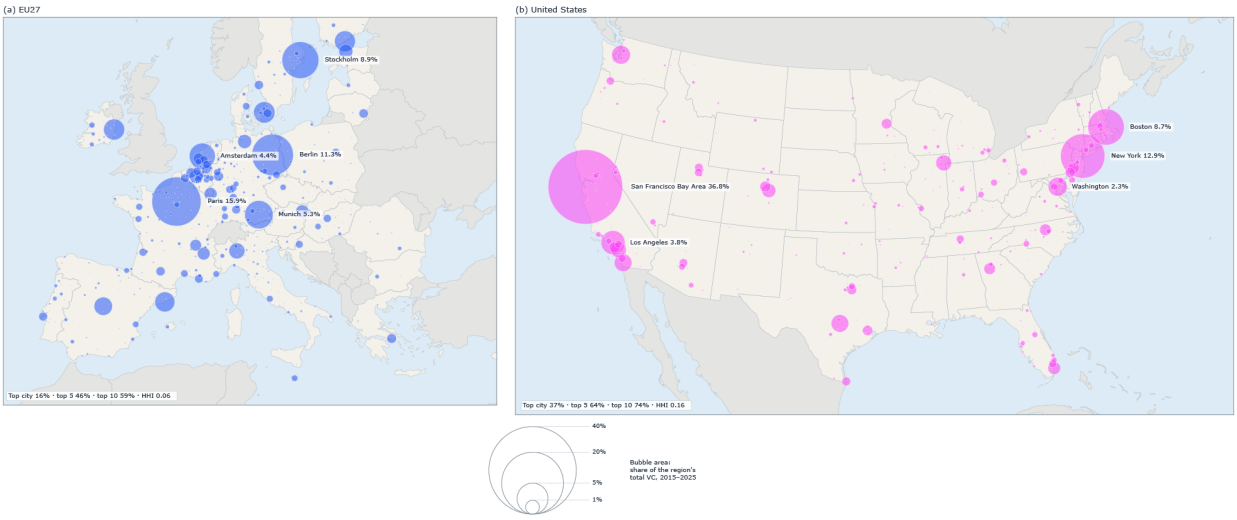
VC activity is highly concentrated in the US. Companies headquartered in Silicon Valley alone account for almost 40% of all VC capital invested in the US. Boston and New York accounts for more than 20%.

Geographic concentration is also visible in the EU, but to a much lesser extent than in the US (**FIGURE 2**). Paris, Berlin and Stockholm (see Box 2), the major EU hubs, together are roughly as large as Silicon Valley. Moreover, VC concentration in the EU has declined steadily since the early 2000s, while in the US it has increased and it will spike further with AI mega-rounds.[7]

The greater concentration of VC activity in the US relative to the EU can also been seen in Appendix Figure 2. The largest metropolitan areas account for 37% in the US and 16% in the EU; the fifth for 64% and 46%; the tenth for 74% and 59%.

[7] We use the Herfindahl-Hirschman Index to measure VC concentration. The trends hold with alternative versions of the index. See IPI (2026a) for a detailed geographic analysis of venture capital in the EU27 and the United States.

Figure 2. Map of VC agglomeration by region.



Note: Each bubble is a company-HQ metro. Bubble area is the metro's share of all VC deployed in its own region (EU27 or United States) over 2015–2025, counting completed venture-capital deals with a positive reported size. Shares are therefore comparable across the two panels although total US VC is 5.7 times total EU27 VC.
Sources: Authors' calculations based on PitchBook.

The large transatlantic difference in the size of the VC market is thus to a very large extent driven by three geographic hubs in the US: the Bay Area, New York and Boston.[8]

The transatlantic gap narrows considerably once startups in these three US super-hubs are excluded (**TABLE 2**). The aggregate VC US/EU ratio falls from 5.75 to 2.35. The US advantage in the number of deals is reduced to about 40%, and average deal sizes remain only about 60% larger. This implies that the extensive and intensive margins still account for roughly the same share in the remaining gap.

Yet the distribution of deals (the CCDF) by size now almost overlaps, as shown in **APPENDIX FIGURE 3**. The two distributions still differ on the extreme right tail, but much less than in **APPENDIX FIGURE 1**. The figure also shows that the major US hubs account not only for tail deals but also for the differences along the entire distribution.

Moreover, despite the extensive margin accounting for a similar share of the gap as the intensive margin, dividing deal counts by population shows that the US excluding these hubs has about twice as many deals per person as the EU (

[8] IMF (2025) finds that labour productivity increases less steeply with employment density in European production hubs than in their US counterparts, suggesting that Europe has substantial untapped potential to benefit from agglomeration economies.

APPENDIX TABLE 1). Several factors can account for this fact, including differences in entrepreneurial culture across the Atlantic.

Geographic concentration may itself foster an entrepreneurial culture. Dense hubs expose potential founders to entrepreneurs through social and professional networks, making entrepreneurship more visible, legitimate, and easier to learn. This may create a self-reinforcing process of knowledge spillovers in which more entrepreneurs encourage further entry.[9] Successful exits can recycle capital, experience, and talent into new ventures while making entrepreneurship more visible and attainable (Defort et al., 2025). Weaker feedback between capital markets and entrepreneurial success may also discourage venture-scale entrepreneurship.

These concentration patterns suggest that expanding Europe's VC market is unlikely to result from a broadly distributed increase in VC activity across the EU, but rather from the emergence and scaling of a limited number of high-density innovation and investment hubs.

Table 2. Decomposing the transatlantic VC gap excluding Bay Area, New York, and Boston.

	EU27	US excl. hubs	Ratio
Deals	**66,719**	**93,984**	**×1.41**
Avg. funding per deal (USD millions)	**5.12**	**8.59**	**×1.68**
Total VC deployed (USD millions)	**341,543**	**807,169**	**×2.36**

Sources: Authors' calculations based on PitchBook.

[9] Giannetti and Simonov (2009) show that individuals in more entrepreneurial communities are themselves more likely to become entrepreneurs, while Guiso et al. (2021) find that people raised in areas with greater firm density enter entrepreneurship more often and adopt better managerial practices.

2. THE TRANSATLANTIC VC GAP: COMMON EXPLANATIONS

A common view is that the EU's weakness in venture capital stems from domestic frictions that hinder the development of its VC market and push its most promising startups to relocate to the US. This chapter examines four potential sources of friction: (1) capital supply constraints; (2) market fragmentation; (3) limited opportunities for scaling up; and (4) returns at exit. It then investigates the relocation of European startups to the US.

THE LACK OF CAPITAL NARRATIVE

Many official EU documents and programs are based on the narrative that the transatlantic VC gap is due to a lack of funding, which justifies the many public-sector financing vehicles created over the years, both at the national and EU levels (Box 1).[10] Public support in the EU is very large relative to the size of the EU VC market, and also relative to the US. Yet the US market has continued to grow at about the same pace without significant government funding vehicles[11], and the US-EU VC gap has persisted for more than 25 years (**APPENDIX FIGURE 4**).

NET VC FLOWS

If the funding from EU VC investors were insufficient for all EU startups one would expect that the capital deployed by domestic investors was lower than the capital raised by domestic startups, in other words, the EU should be a net importer of VC.[12]

FIGURE 3 depicts the net cross-border position, defined as capital deployed abroad minus capital received from abroad, as a share of GDP; positive values mark net exporters, negative values net importers.[13]

If the story were one of capital shortages—more profitable opportunities than funding available—one would expect the EU to be a net importer of VC funding. Instead, over 2015–2025, the EU exhibits a broadly balanced net position, very similar to the US. In levels, over this period US investors put $65.2 billion into EU27 startups, compared with $58.7 billion flowing in the opposite direction, leaving the EU27 a small net recipient of $6.5 billion from the US (5% of gross bilateral flows).[14]

The EU's nearly balanced net VC position suggests that a simple shortage of aggregate capital supply may not be the binding constraint. European investors—

[10] Policies aimed at boosting capital supply are advocated in policy reports such as Angeloni and Cavallini (2026).

[11] Direct public venture-capital provision is very limited in the US, where federal support for innovative firms relies more heavily on non-dilutive R&D programs such as the Small Business Innovation Research (SBIR) program and on indirect mechanisms such as the Small Business Investment Company (SBIC) program, which provides government-backed leverage to privately managed investment funds.

[12] Appendix B explains the construction of the bilateral VC flow dataset.

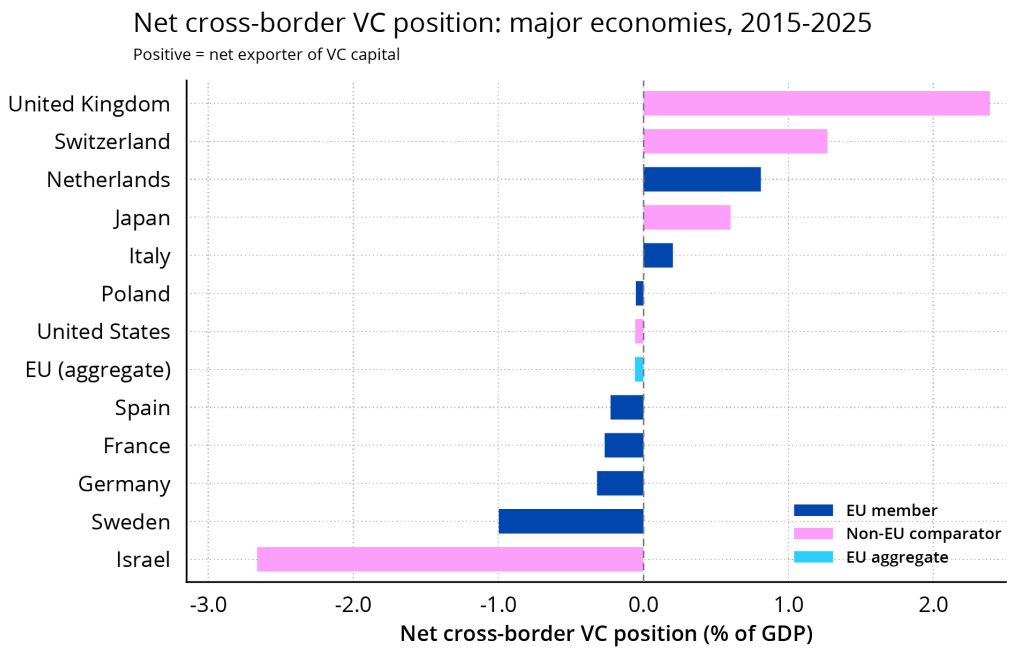
[13] Only cross-border flows enter the measure—domestic VC is excluded by construction, so the figure does not depict total market size.

[14] Adding the UK reverses the direction: $102.5 bn west to east against $116.8 bn east to west, because UK-domiciled investors alone sent $63.9 bn into US startups (e.g., SoftBank as a large UK-domiciled investor), more than all 27 member states combined.

including, but not limited to, traditional VC funds—do not deploy all their capital domestically; on average, roughly 20–30% is invested abroad. That share would be expected to be much lower if there were many attractive European startups starved of capital and offering superior returns.[15]

Figure 3. Selected VC net exporters & importers (2015-2025)

Sources: Authors' calculations based on PitchBook.



Net = (deployed abroad − received from abroad) / average GDP × 100.
Domestic (within-country) VC excluded. Value-covered deals only.
GBR treated as non-EU (post-Brexit period).

DRY POWDER

To further investigate the lack of capital narrative, we examine the amount of unused capital, or "dry powder," available to European VC funds. Dry powder refers to committed capital that has not yet been invested.[16] European VC funds appear to hold substantially more dry powder relative to investment activity than their US counterparts.

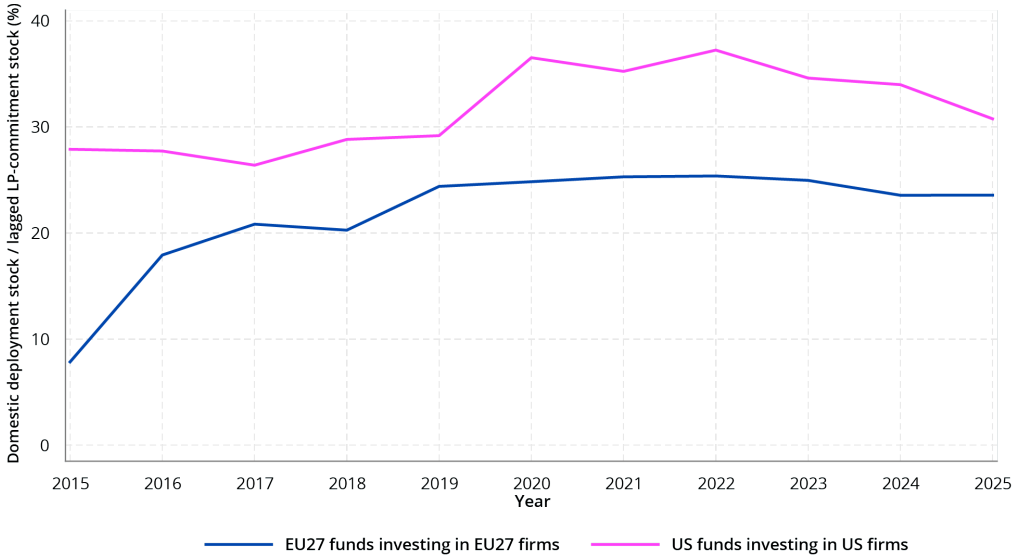
FIGURE 4 compares cumulative disclosed domestic investment (excluding investments abroad) by VC funds with the capital committed to those funds, separately for the EU and the US. In year t, both measures cover funds closed at least five years earlier.

[15] The aggregate patterns we document do not rule out funding shortages in specific countries and sectors. They do, however, suggest that a generalized shortage of venture capital at the EU level is unlikely to be the main explanation for the overall EU-US gap.

[16] Committed capital is the amount that limited partners (LPs)—the fund's investors—contractually pledge to provide and that the fund can draw down over time for investments.

The EU ratio is consistently lower than the US ratio, suggesting that there are more domestically unspent funds in the EU, consistent with a lack of investment opportunities, rather than a lack of available funding.

Figure 4. Dry powder: ratio of VC investment to capital raised by funds.



Note: At year t, numerator and denominator cover funds closed by t−5. Numerator = cumulative disclosed domestic investment through t. Denominator = observed LP commitments, assigned to the fund's final-close year. The sample includes funds closed between 2010 and 2025. This ratio is not a direct accounting measure of uncalled commitments.
Sources: Authors' calculations based on PitchBook.

CROSS-OVER INVESTORS

A common view of Europe's VC gap is that European VC funds are too small to provide the funding needed by EU startups. However, the role of VC funds should not be over-rated the funding received by EU startups is supplied in roughly equal measure by VC funds and by other ("cross-over") investors, including asset managers and mutual funds, hedge funds, private equity and growth-equity funds, corporate investors, sovereign wealth funds, pension funds, and family offices (**APPENDIX FIGURE 5**). The contribution of cross-over investors is somewhat lower in the United States, but comparable.

Corporate VC (CVC) activity provides another test of the hypothesis that VC investment in Europe suffers from a lack of capital. Large European corporations with VC investment arms have good access to capital markets. EU evidence (Grassano et al., 2022) shows that over 80% of CVC investment by EU-based companies targets US-based startups.

APPENDIX FIGURE 6 presents the net flow restricting to CVC. The figure shows that the EU is a net *exporter* of corporate venture capital, while the US and UK are net recipients. This strongly suggests that the EU faces a shortage of investment

opportunities rather than a shortage of funds available for VC.

SURVEY EVIDENCE OF VC SHORTAGE?

The evidence provided so far does not point to a generalized shortage of VC financing in the EU. At first sight this seems to be inconsistent with perception-based assessments of financing conditions reported by VC fund managers, which paint a less favorable picture than the macro figures presented so far (e.g. EIF, 2025).[17]

However, it is important to distinguish between difficulties faced by startups in accessing capital and difficulties faced by VC funds in attracting investment from institutional investors. The EIF survey reflects fund managers' perceptions of both issues, rather than founders' direct experiences. Moreover, fund managers identify a strong track record and attractive risk-adjusted returns as a key factor in encouraging greater institutional investment in European VC, suggesting that limited investor appetite may also reflect insufficient expected returns.

We attribute therefore more weight to market-based indicators, rather than survey perceptions alone, which show lower returns in the EU as discussed more in detail below.

REASONS FOR SUPPORTING EU BASED VC FUNDING

There are two reasons why, from an EU policy perspective, a larger domestic VC supply is desirable. The first is the hope that a higher availability of EU funding will raise also startup activity. The evidence provided here does not support this view, but it is widely accepted in policy circles. The second reason is more geopolitical in that more EU funding sources might displace US and other foreign sources and thus keep control over new technologies in the EU.

We agree that it is preferable for European startups to raise capital *within* Europe, for reasons of control, retention, and spillovers. Nevertheless, a shortage of financing does not appear to be the main obstacle to more VC investment in Europe. Our findings suggest that the supply of ideas, or commercially scalable projects is the more important factor limiting the development of VC in Europe. Consistent with this interpretation, Brandao-Marques et al. (2026) find that reforms aimed at increasing the availability of investable innovative projects, particularly through higher education and improvements in the business environment, have substantially larger estimated effects on VC activity than measures addressing capital-supply constraints and cross-border financing frictions.

[17] Importantly, the survey evidence from the European Investment Bank (EIB), shows that between 2023 and 2025 the share of financially constrained firms was slightly higher in the US (8.2% on average) than in the EU (6.2%). This comparison, however, refers to firms as a whole and therefore does not rule out financing constraints specifically affecting young, innovative startups, which face greater risk, information asymmetries, and more limited access to traditional bank finance. The survey results can be found here: https://www.eib.org/files/publications/20250216-141025-econ-eibis-2025-eu-en.pdf.

The many national and EU measures to support VC financing detailed in Box 1are thus valuable, but they are unlikely to lead to a significant increase in startup activity.

BOX 1. EU AND NATIONAL SUPPORT FOR VC DEVELOPMENT

The European Investment Fund (EIF), part of the European Investment Bank Group, is the EU's principal institution for supporting access to finance for small and medium-sized enterprises.[18]

The EIF operates mostly as a "fund of funds", i.e. it invests as a limited partner in European VC funds, usually taking a minority stake (10–20%). It does so in two ways. First, it invests from its own, relatively modest balance sheet, through which it has accumulated almost €2 billion in private equity investments, mostly in VC funds. This is equivalent to about 1% of total European VC investment. The much more important role of the EIF is to invest on behalf of the EU and, in some cases, national governments. This activity does not appear on its balance sheet. It is so large that the EIF claims to support 40–50% of Europe's VC-backed startups in a typical year and reports having managed more than €35 billion in cumulative commitments to VC, private equity and private credit funds over more than 25 years.[19]

The scale and reach of the EIF represent an important achievement in the development of Europe's VC infrastructure. Its presence across a large share of the European VC ecosystem has helped create a financing platform on which private fund managers and investors can operate. In many cases, the EIF acts as lead investor and, through its due diligence, provides confidence to other investors, thus multiplying its impact.

More generally, the public sector plays a much larger role in financing the European VC industry than in the US. This can be seen from the composition of the limited partners (LPs) that provide capital to VC funds.[20] Recent ECB evidence shows that government entities account for around one-third of the EU VC investor base, compared with only about 4% in the US, where pension funds and foundations play a much larger role.[21]

The EIF's current InvestEU Equity mandate envisages deploying an additional €6.5 billion during the 2021–2027 EU budget cycle, about €1 billion per year.

Another EU instrument is the European Innovation Council (EIC), which provides startups with "blended finance" under its Accelerator program. Blended finance means that the company receives a grant to undertake a specific research project and, at the same time, the EIC Fund, the VC arm of

[18] See https://www.eif.org/.

[19] https://engage.eif.org/investeu/equity

[20] "Limited" refers to the limited liability of the partners.

[21] https://www.ecb.europa.eu/press/fie/box/html/ecb.fiebox202605_04.en.html

the EIC, buys an equity stake.[22] In this way, it provides patient equity and grant financing to European startups and scaleups, with the dual objective of addressing financing gaps and attracting private co-investment.

The EIC Fund's emphasis is on co-investment rather than stand-alone public financing. According to the EIC Impact Report 2026, it has mobilised around €5 billion from private investors, corresponding to approximately €3.5 for each euro invested by the Fund, and 80% of its deals involve cross-border investment flows.

National public-VC programmes are also substantial. Germany's *Zukunftsfonds* plans to provide approximately €10 billion through 2030, while Bpifrance's *Capital Innovation* manages around €9 billion. Italy's *CDP Venture Capital* manages approximately €3.8 billion and aims to reach €8 billion by 2028, whereas Spain's *Fond-ICO Next Tech* has a €4 billion public envelope. However, these amounts are not comparable because many of the national funds do not provide exclusively, or even primarily, VC funding and not all of them require private co-investment to ensure commercial returns.

MARKET FRAGMENTATION

There is evidence of substantial home bias within the EU's VC market. Around 60% of investors in EU startups come from the startup's home country, compared with about 30% from the home state in the US (IMF, 2025). This pattern is commonly interpreted as evidence of substantially lower regional integration in the EU VC market.

However, there is no evidence that this fragmentation is the root cause of the VC gap. **FIGURE 5** shows that there is no clear correlation between the size of an economy—measured by its GDP—and VC intensity. Indeed, countries such as Singapore, Israel, South Korea, and Switzerland account for substantial shares of the global VC market despite their relatively small economic size. The same holds within Europe.

More systematic econometric evidence in

Metric	U.S. excluding hubs	EU-27	U.S./EU ratio
Deals per $1 billion of GDP	**4.71**	**3.99**	**1.18**
Deals per million people	**312.81**	**149.25**	**2.10**

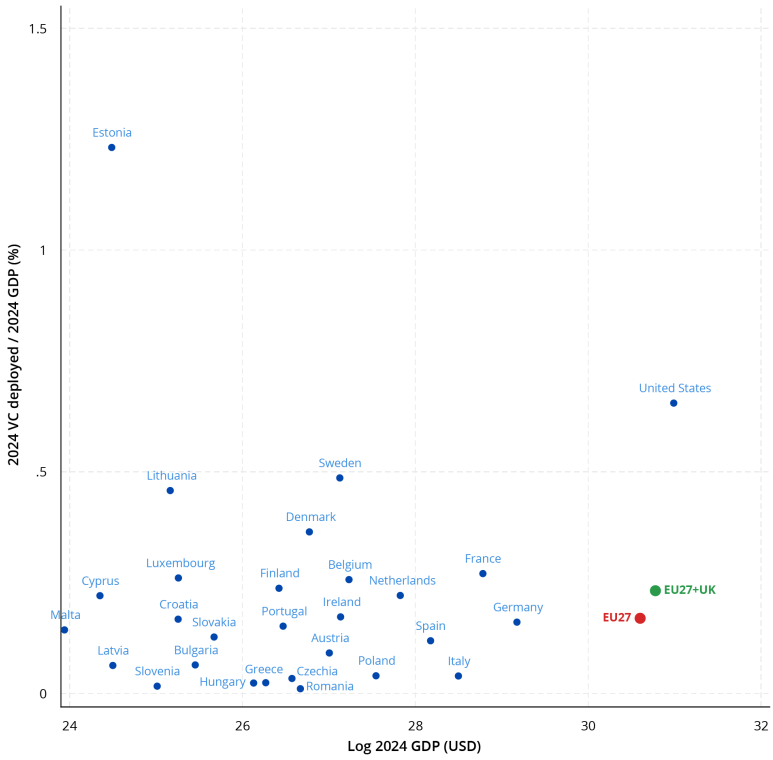
Appendix Table 2 supports this. Across countries, VC investment relative to GDP is negatively related to market size, proxied by GDP (column 1). Within countries,

[22] See https://eic.ec.europa.eu/eic-fund_en. Fuest et al. (2024) provide an evaluation of the EIC and a comparison to the US 'ARPA' model.

VC grows roughly in proportion to GDP, so GDP growth does not change VC intensity (column 2).[23] These observations cast doubt on the view that market fragmentation and the partial development of the EU single market are a decisive obstacle to the formation and growth of startups in Europe.

We agree that completing the internal market remains an important EU policy goal as emphasized by the Draghi and Letta reports. But our results suggest that this will not have a decisive impact on startup activity in Europe. One simple reason for this is that for many key VC investment areas, such as software and now AI the global and not the domestic market is the key for success.

Figure 5. Correlation between GDP and VC-intensity.



Sources: Authors' calculations based on PitchBook and World Bank.

BOX 2. SWEDEN: A CONCENTRATED HUB WITH INTERNATIONAL REACH IN A SMALL ECONOMY

Sweden illustrates how an EU country with a relatively small domestic market can develop a startup ecosystem with substantial international reach.

[23] GDP, however, is not a direct measure of cross-border regulatory, procurement or commercial barriers; the analysis therefore does not quantify the effects of removing such barriers. Fragmentation might be a greater constraint in specific sectors, such as life sciences. The regression also includes proxies of university quality, which are the focus of Chapters 3–5.

Swedish startups raised €2.4 billion in VC in 2024. This corresponds to approximately 0.5% of Sweden's GDP, almost three times the EU's VC intensity.

As a simple counterfactual exercise, if the EU had invested the same share of GDP in VC as Sweden in 2024, EU venture investment would have been approximately $84 billion compared with the actual $33 billion—more than 2.5 times its actual level. This would close 34% of the transatlantic VC gap in that year.

Sweden's VC market shares some key features with the US market.

First, VC is highly concentrated geographically: according to the Stockholm Chamber of Commerce, Stockholm attracted SEK 253 billion in VC between 2020 and 2024 and accounted for more than three-quarters of all VC invested in Sweden over that period. Among the 25 European cities attracting the most VC, Stockholm also ranked first on a per-capita basis.[24]

Second, Sweden's research ecosystem performs above the European average. It ranks 15th worldwide in the Nature Index 2025 Research Leaders, and 6th among EU27 Member States by research-output share.

In the *Shanghai Ranking 2026*, Karolinska Institutet ranked 41st worldwide with a score of 35.4; Uppsala University ranked 94th with a total score of 27.7. Both scores are well above the EU average of 13.44, placing both universities near the top of the EU distribution.

Third, the Swedish higher-education systems give individual universities substantial organizational and managerial autonomy, exercised through institution-level governing boards and decentralized academic governance.[25] Moreover, in Sweden, academic researchers generally own the rights to their research results unless otherwise agreed and can patent, license or commercialise them through their own companies.[26] This differs from the default arrangement in many European university systems, where research-related intellectual property more commonly accrues to the institution.

The similarities between Sweden's research ecosystem and that of the US suggest that Sweden's VC performance may be based on the quality and organization of its research and innovation system and that the limited size of

[24] See https://stockholmshandelskammare.se/en/reports/stockholm-the-best-capital-in-the-world/

[25] See https://www.uka.se/swedish-higher-education-authority/about-higher-education/governance-of-higher-education

[26] See https://www.uu.se/download/18.64eea97b192f71c73ec4fb1/1730801586337/Leaflet%20To%20collaborate%20with%20Uppsala%20University%202024.pdf

its domestic market does not constitute an important obstacle.

IS THERE A SCALE-UP GAP?

Another common explanation for Europe's weaker VC investment is that promising startups receive early-stage financing but struggle to secure the larger rounds needed to scale. However, at least in recent years the funding pipeline has operated at broadly the same rate on both sides of the Atlantic.

Panel (a) of **FIGURE 6** shows that the composition of investment across funding stages differed between 2015 and 2019, with more invested in later-stage VC per dollar of early-stage VC in the US than in the EU.

However, later-stage-to-early-stage investment ratios have converged since 2020. Between 2020 and 2025, the ratio fluctuated within a comparable range across the EU and the US. Europe therefore does not appear to allocate systematically less growth capital relative to the size of its early-stage market. This was also documented in the Draghi Report.

Panel (b) shows that, conditional on having received early-stage funding, an EU company is almost as likely as a US company to progress to a later-stage round. For both cohorts considered, the transition rates were effectively identical. This suggests that promising European companies are not systematically abandoned between the seed and growth stages.[27] It also indicates that much of the difference in the aggregate ratios observed before 2020 reflects the larger average size of later-stage deals in the US rather than a lower probability of European firms advancing through the funding pipeline.[28]

A similar later-stage-to-early-stage ratio speaks to what happens conditional on firms having already received early-stage funding. If Europe has fewer firms reaching the early-stage funding threshold, this would point to a different friction—such as weaker idea formation, screening, or early-stage financing—rather than to a scale-up gap per se.

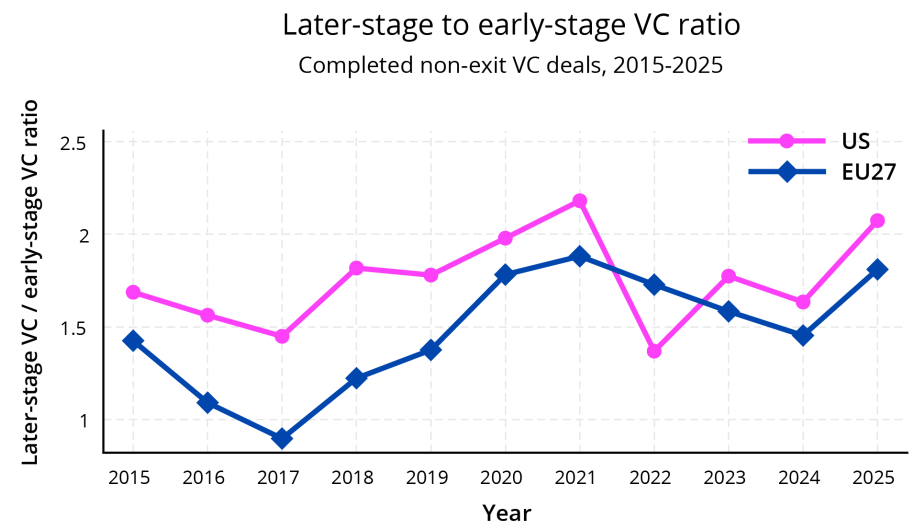
Complementary evidence on financing capacity comes from Rowley (2026), who documents that EU investors participated in 1,138 financing rounds of at least USD 100 million outside the EU during 2020–2025, compared with only 382 within the EU.

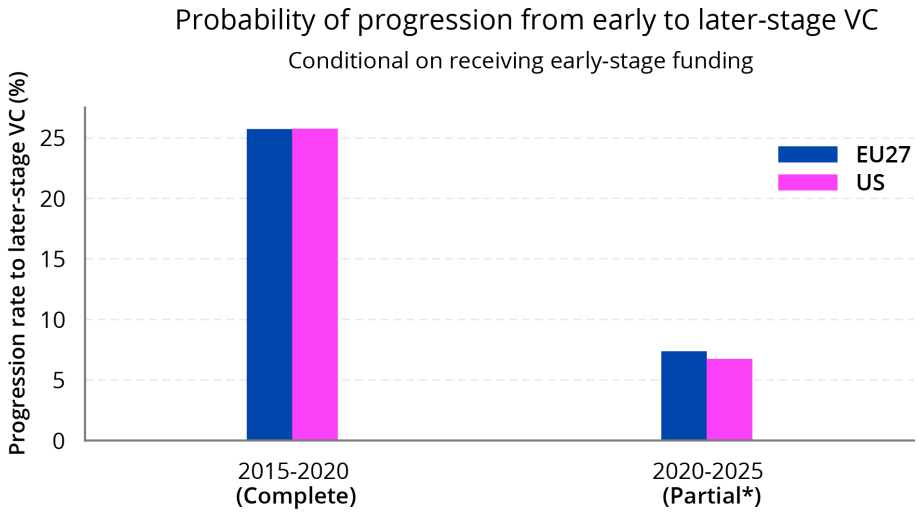
[27] However, this does not preclude the possibility that different sectors may face different constraints and bottlenecks for early-stage financing (e.g., in life sciences; see ELSC (2026)).

[28] This contrasts with Parry (2026), who estimates a structural model on US and UK startups first funded in 2005–2015 and attributes the US-UK gap to financing frictions, particularly difficulty raising follow-on funding, and a thinner acquisition market, rather than to differences in project quality. Two caveats apply. First, Parry compares the US with the UK, whose VC market is considerably deeper than that of the EU27 (see Chapter 1), rather than with the EU27 as we do. Second, his cohorts predate the post-2020 convergence in later-stage-to-early-stage ratios that we document. Note also that the stage at which support should be targeted remains contested: Aragoneses and Saxena (2025), in a model calibrated to Europe, find gains from reallocating public VC funding toward the early stage, the opposite of Parry's late-stage prescription.

Figure 6. What scale-up gap?

(a)





* 2020-2025 cohort includes 2021-2025 companies with partial observation (right-censored)

(b)

Sources: Authors' calculations based on PitchBook.

DO THE BEST EU STARTUPS RELY ON US INVESTORS?

Even if the relative importance of late-stage financing is similar in the EU and the US, a related concern is that European scale-ups may rely disproportionately on US rather than European investors. This could matter from the perspective of strategic autonomy, as the financing and potential influence over Europe's most promising firms would partly rest with foreign investors.

US investment has played a central role in narrowing the gap between EU and US later-stage financing (**FIGURE 7**), demonstrating that international capital is willing to flow to European startups when attractive investment opportunities arise, and that access to foreign capital has become an important channel through which European startups can secure later-stage financing.[29]

Yet, despite these substantial inflows of US capital, Europe continues to have far fewer startups attracting very large investments. During 2020–2025, the EU had 59 later-stage firms for every 100 in the US. This ratio declined to 39 among firms with at least three VC rounds and to just 18 among firms that had raised at least USD 23.1 million. The EU–US gap therefore widens sharply as attention shifts toward the most heavily financed startups, even though European firms can attract capital from the world's largest VC market.

The strong presence of US investors in European later-stage financing shows that capital crosses the Atlantic when promising opportunities emerge. The persistence of a large gap in mega-deals, despite these capital inflows suggests that Europe generates relatively fewer startups with the potential to attract investment at such a scale.

The calculations in Appendix D provide evidence that differences in market size account mechanically for the larger incidence of US investors in the EU's largest deals. Larger deals involve more investors and therefore have a higher probability of including at least one US investor.

Large deals in the EU involving typically more than 6 investors one would expect mechanically US investors to participate in at least 33 % of all large deals. Their actual share if 49%. It is thus larger, but not that much larger than one would expect given market sizes.

The same reasoning applies to EU investors in the US. Their presence increases with deal size. Proportionally, EU investors are of course much less present in US deals than vice versa. But this is a consequence of the much smaller size of the EU VC market (about one-sixth of the US).

The absolute number of top deals in which they participate is almost identical: EU27 investors participate in 1,792 of the largest US deals, while US investors

[29] While substantial two-way capital flows suggest relatively limited financial frictions across the Atlantic, geopolitical tensions may increasingly constrain these flows, making European ownership and control of strategic technologies an important consideration.

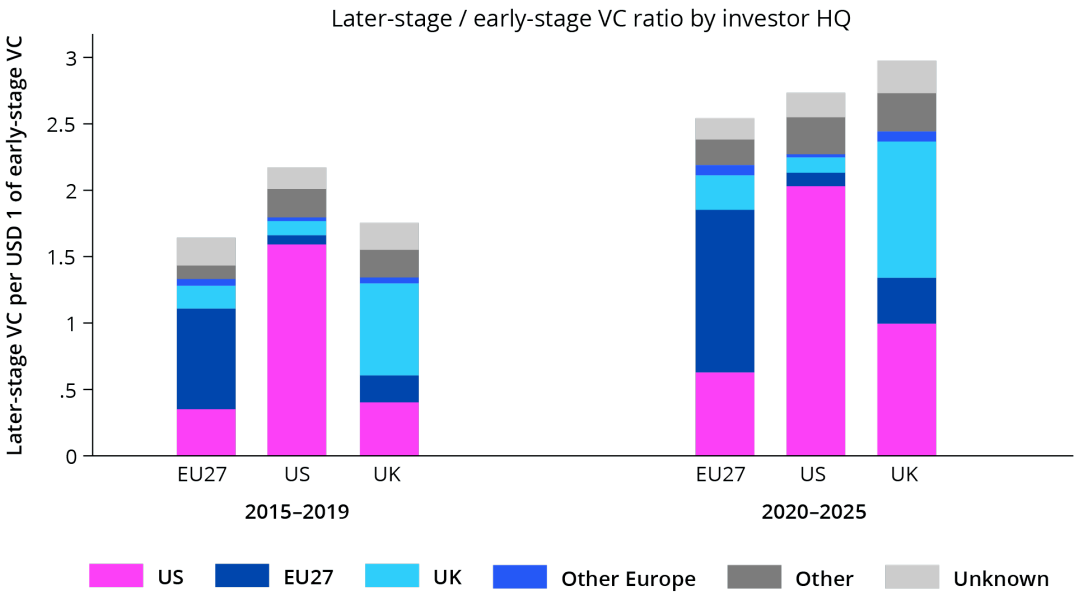
participate in 1,833 top EU27 deals.[30] This is consistent with the near balance in transatlantic VC flows mentioned above.

There is thus some evidence that US investors participate somewhat more in the largest EU deals than can be explained by market size alone. However, this cannot easily be ascribed to a lack of EU investors able to write large cheques. EU investors that participate in the largest US deals write cheques about twice as large as those written by US investors in the largest EU deals. This means that EU investors would be able to make much larger investments in the EU if they found enough opportunities.

Consistent with this interpretation, Rowley (2026) finds that EU investors allocated an estimated USD 43.4 billion to financing rounds of at least USD 100 million outside the EU during 2020–2025, slightly more than the USD 42.2 billion allocated to comparable rounds within the EU.

There might be geopolitical reasons to favor a stronger domestic EU presence in the largest EU deals. But the data does not indicate that the inability to invest large sums is the key problem.

Figure 7. Who finances scale-ups?



Sources: Authors' calculations based on PitchBook.

[30] This reflects the combination of a much larger US deal universe and a lower EU27 participation rate (21.1%, compared with US participation in 49.4% of the largest EU27 deals).

CAPITAL MOBILITY AND RELATIVE RETURNS

The data presented above show that VC capital is mobile across borders. There are substantial transatlantic flows in both directions. This implies that investors would rationally deploy less capital where expected returns are systematically lower.

If the availability of VC funding was severely restricted in Europe, the projects that still obtain financing should, other things equal, offer higher returns than comparable US investments. Systematically lower European returns would instead be more consistent with fewer highly profitable investment opportunities. Cross-border capital flows attenuate such differences, but information asymmetries and the importance of local networks make full convergence unlikely.

The comparison is nevertheless difficult. Return data are available mainly for specialized VC funds, while cross-over investors such as corporations and family offices generally do not disclose comparable returns. Fund benchmarks are also constructed from subsets of private funds that provide sufficient data to commercial or industry aggregators. Finally, most benchmarks refer to Europe rather than the EU and classify funds by investment focus rather than ownership. Appendix C discusses these measurement issues and the return concepts used below.

With these caveats in mind, PitchBook data point to a persistent transatlantic return gap. For funds created between 1999 and 2022, the average reported return was 10.6% in the United States and 6.4% in Europe. For the 2013–2022 vintages, the corresponding figures are 13.6% and 8.7%, a gap of 4.9 percentage points. Recent vintages are incomplete because VC returns are often realized only after several years, but the relative gap remains informative if cash-flow timing is broadly similar across regions.

At first sight, some data appear to contradict this view. Invest Europe (based on data from Cambridge Associates a data provider) reports that over the last years European VC returns were at 20 % per annum higher than in the US. However, the base for this claim that Europe outperformed North America is the use of a different return concept. Invest Europe uses a trailing-horizon return that includes the subsequent performance of the portfolio already held at the start of the window, whereas a since-inception return follows funds since they start to invest. Moreover, Invest Europe's all-time since-inception return for European VC is much lower, at about 11.5%. This suggests that the higher horizon-based returns over the last 10–15 years reflect the low starting valuations of post-dotcom bubble legacy investments roughly 10–15 years ago.

For the question considered here, since-inception returns are more informative because they relate returns to the funds created over the period being compared. On this basis, the available evidence is more consistent with higher US returns. PitchBook's vintage data imply an average advantage of roughly 4–5 percentage points for US funds, while calculations using European since-inception data from

TrackVC produce a broadly similar level of European returns.[31] Exact estimates remain sensitive to the fund universe, weighting scheme, classification and cash-flow or net asset value coverage used by each provider.

Gros and Mengel (2026c) finds that European VC-backed start-ups generate about 13% less valuation per dollar of equity raised than comparable US firms, with the gap widening in later financing rounds.

This evidence of lower returns in the EU is difficult to reconcile with a simple view in which a severe shortage of VC capital leaves many highly profitable European projects unfunded.

Becker, Benmelech and Monteiro (2026) argue that European firms, particularly smaller ones, face higher costs of capital and fragmented product markets, which can prevent them from exploiting profitable growth opportunities and achieving scale. However, one can also argue that weaker exit markets cause the lower returns. If exit conditions are a central constraint, the most promising European firms should benefit disproportionately from such access.

ARE WEAKER EXIT MARKETS A CONSTRAINT?

An often-mentioned friction lies at the end of the venture-capital cycle. European startups may face less attractive exit opportunities than their US counterparts, whether through IPOs or acquisitions. If this results in systematically lower returns, investors would rationally be less willing to deploy capital in European startups even when funds are available.

Arriving at an IPO is the dream of any startup found and VC investor. But this is very rare. Even among the small proportion of firms reaching later-stage VC between 2015 and 2025, only one in 40 (2.5) of both EU and US firms completed an IPO within five years. Broader exit rates, including M&A and buyouts, almost an order of magnitude more important at 15.5% and 22.4%. Somewhat surprisingly exits other than IPO, are more frequent in the US (but the EU–US gap becomes small and statistically insignificant after controlling for financing histories and other firm characteristics.) These findings provide little evidence of a generalized European IPO-conversion bottleneck.

IPO destinations reveal a more selective pattern. Of 560 EU-headquartered firms completing their first post-VC IPO, 88.2% listed on EU exchanges and only 7.0% in the US. However, among firms in the highest decile of disclosed pre-IPO funding, 40.5% listed in the US. This association persists after controlling for IPO year, headquarters country, and VC-round history, suggesting that US markets disproportionately attract Europe's most highly financed startups.

Public-market conditions also appear relevant, though the evidence is mixed. Over 2011–2025, stock returns are more strongly associated with US than EU VC-backed IPO activity under MSCI benchmarks, but this difference is not robust

[31] See https://trackvc.eu/.

across alternative indices and specifications. US equity returns are also associated with stronger VC funding growth and larger financing rounds, but not with more deals or funded firms, while EU–US differences in financing responses are generally insignificant.

Overall, exit-market differences may matter for Europe's largest startups, particularly their listing destinations, but the evidence offers limited support for a generalized IPO-conversion bottleneck or an explanation for Europe's substantially smaller pipeline of highly financed firms.

A further way to assess the importance of financing and exit-market conditions is to examine European startups that directly relocate to the United States. If the European financing and exit environment is a major constraint, promising firms gaining access to the US ecosystem might be expected to raise more capital or achieve better exit outcomes. We examine this possibility next.

DO THE BEST EU STARTUPS RELOCATE TO THE US?

A common concern is that Europe's most promising startups relocate to the US before scaling, taking their largest funding rounds with them. However, Gros and Mengel (2026b) revisit the evidence underlying the Draghi report's widely cited claim that close to 30% of European unicorns relocated abroad and estimate that only 7–11% of EU-born unicorns moved their headquarters to the US, depending on the definition used. Most retained substantial European operations, highlighting that headquarters relocation does not necessarily imply a comparable loss of economic activity.

To assess relocation more systematically, going beyond unicorn counts, we identify companies that received their first financing round in the EU and are currently headquartered in the US (we do not observe changes in headquarters location directly in our data).

FIGURE 8 shows that relocation, so measured, is rare: around 30 companies per annual cohort (never exceeding 0.35% of newly funded EU companies every year), a flow too small to distort the shape of a distribution built on hundreds of thousands of deals.

More importantly, relocation cannot account for the missing right tail. Of the roughly 6,500 US deals in the top 5% of the deal-size distribution (deals above $55 million, 2015–2025), only 14—roughly 0.2%—involve a relocated company, a share no larger than relocators' weight in the overall population.

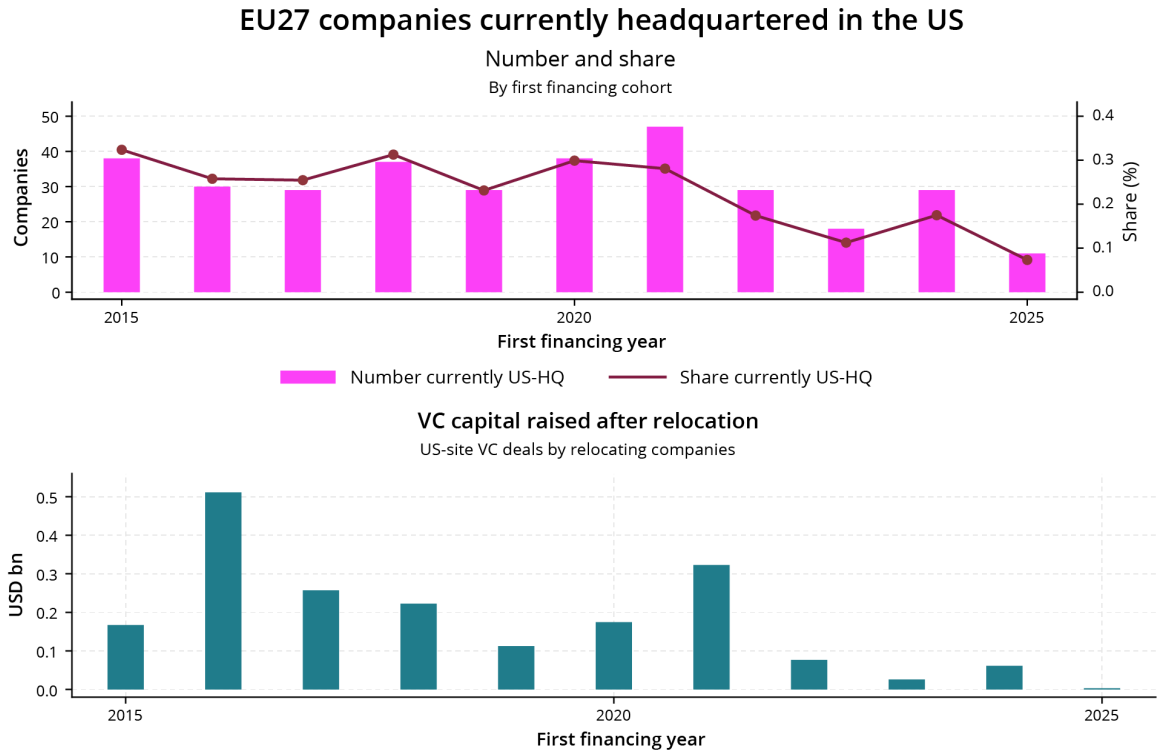
Movers, in other words, are not disproportionately drawn from the top of the distribution, and the capital they raise after relocating amounts to a few hundred million dollars per cohort—small even relative to a single US mega-round, let alone to the mass missing from the top of the EU distribution.

Even reassigning every post-relocation deal to Europe would leave the transatlantic tail gap essentially intact. We conclude that, conditional on entering

the European funding pipeline, companies neither leave in meaningful numbers nor account for a meaningful share of the largest US deals.

A recent study from the EU's Joint Research Centre (Domnick et al., 2026) is consistent with our findings. Using different data and approaches, they find a relocation rate in the range of 3-4% accumulated over the whole period.[32]

Figure 8. Do the best EU startups relocate to the US?



Sources: Authors' calculations based on PitchBook.

ARE EU STARTUPS UNDERVALUED OR LESS PROFITABLE?

TABLE 3 sharpens the picture. Column 1-2 show that among EU-origin companies, those currently headquartered in the US raise more capital than those staying in the EU. However, when they exit in the US they earn lower annualized returns than those staying and exiting in the EU.

Columns 3–4 look at the same issue from another perspective. Among US-headquartered companies, those founded in the EU do not raise significantly more capital. Moreover, EU-founded companies earn lower returns than their US-

[32] The analysis combines VICO 6.0 data on European VC-backed startups with Moody's Orbis, LinkedIn, business registries, and manual/AI-assisted verification to identify relocations through 2025.

origin peers.[33] If US exit markets value startups correctly, these lower returns point to weaker underlying quality of the relocated EU startups, not to a discount applied by investors.

One channel remains outside the reach of our data: EU founders who start their activity in the US before raising any institutional round in Europe. However, while we do not observe the nationality of founders, we can approximate it by the location of their undergraduate degree. The results are presented in **APPENDIX TABLE 3**. Column 1 shows that firms with EU-educated founders and US headquarters raise approximately 134% more VC than the comparison group. Column 2 finds no statistically significant difference in returns. In column 3, US-headquartered firms with EU-educated founders raise approximately 17% less than the comparison group; column 4 again finds no statistically significant difference in returns.[34]

Table 3. Do EU companies that relocate fare better?

	(1) Log-VC received (EU-origin)	(2) Annualized return (EU-origin)	(3) Log-VC received (US HQ)	(4) Annualized return (US HQ)
Current US HQ	0.856***	-1.288*		
	(0.124)	(0.700)		
EU origin			0.091	-4.125**
			(0.122)	(1.811)
Observations	64,940	4,240	139,905	9,119
R-squared	0.032	0.002	0.011	0.001
Year FE	yes	yes	yes	yes
Base log VC	-0.501		0.233	
Base annualized return		2.058		4.863

Sources: Authors' calculations based on PitchBook.

[33] The results in columns 2 and 4 should be interpreted with caution, since they are based on much smaller samples.

[34] Falck et al. (2026) find similar evidence.

3. COMMERCIAL VS SCIENTIFIC VALUE OF IDEAS

The preceding review of financing suggests that the stark transatlantic difference in VC activity stems from an equally stark difference in the supply of projects or ideas that the venture capital market considers investable. This last aspect is decisive. VC investors seek commercial success, not scientific breakthroughs. This interpretation is consistent with recent IMF evidence. Using a gravity model of venture capital flows, Brandão-Marques et al. (2026) find that structural reforms that expand the supply of investable innovative projects are substantially more important for VC development than measures addressing capital-supply constraints and cross-border investment frictions. Their findings therefore point to the availability of commercially viable projects as a central determinant of Europe's VC gap.

The most successful startups are often based on technological advances, but their success depends on finding markets. Google, for instance, was built on a novel algorithm developed by computer scientists at a top university, yet it's phenomenal and enduring commercial success depended on delivering that algorithm to a broad public.

The advantage of the US is therefore that it more often translates frontier scientific research into commercial success. This rarely happens through formal technology transfer. As we show below, university spinouts account for only a small share of VC activity, with the possible exception of biotech. The main "translators" of ideas that go on to receive VC funding are students who encounter those ideas at various stages of their studies.

The key question is whether European science yields enough pathbreaking ideas with commercial prospects. In a winner-takes-all market, only the very top ideas offer such prospects, so what matters is not the average quality of European science or of European scientists. The literature on EU scientific output relative to the US (see Box 3) suggests that the two are broadly comparable on average, but that Europe science is underrepresented at the very top accordingly to common bibliographic indicators (as we also document for universities below).

Crucially, the ideas able to attract large VC investments are not necessarily more scientifically important or technically sophisticated. What distinguishes them is their potential for commercialization: their ability to address large markets, scale rapidly, and generate substantial economic returns given the ecosystem in which they arise. Scientific excellence and commercial scalability are both necessary, but they are distinct dimensions of innovation—and it is the second, not the first, that separates the US from Europe here.[35]

The design of public support for VC in the EU, including the European Innovation Council (and similar national initiatives such as SPRIND), may be poorly suited to channelling resources toward the ideas with the greatest commercial potential. Public programs must distinguish between firms facing temporary technological

[35] Brun et al. (2026) discuss potential frictions preventing European science from translating into commercial applications.

or coordination risks and firms whose underlying commercial prospects are fundamentally weak. This creates an adverse-selection problem: the strongest firms are more likely to obtain private VC financing, potentially leaving public programs with a weaker applicant pool (Breschi et al., 2021). Similar dynamics may affect a wide range of public initiatives, including programs operating at the EU level (Fuest et al., 2025). As a result, public funding may disproportionately support projects that are scientifically or socially valuable but have limited commercial prospects.

Beyond determining how funding is allocated across existing firms, the design of public support may also influence which ideas entrepreneurs and researchers choose to pursue. Public funding is often slow, administratively demanding, and tied to predefined objectives, milestones, and evaluation criteria. This makes it less suited to pathbreaking ideas in fast-moving technological fields, where markets tend to be winner-takes-all.

The European public funding system may therefore favour projects that are easier to describe ex ante, evaluate against standardized criteria, and implement within lengthy administrative timelines. This can bias entrepreneurial effort and capital allocation toward less disruptive—and often less technology-intensive—activities, rather than toward the high-risk, high-reward ideas most likely to open new technological trajectories. These constraints may bind less tightly in hardware and other deep-tech sectors characterized by long and relatively predictable development cycles, which may partly explain why public funding is concentrated in firms developing tangible technologies rather than in rapidly scalable software or software-as-a-service businesses.

BOX 3: IS EUROPEAN SCIENCE BEHIND AMERICAN SCIENCE? AN UNSETTLED QUESTION

A long-standing narrative in EU policy circles is the so-called "European paradox," first articulated by the European Commission in the mid-1990s. It holds that Europe produces world-class science but fails to convert it into innovation and competitive advantage. The academic literature, however, is far from conclusive on the premise itself: whether the quality of EU scientific output is in fact comparable to that of the United States.

Nagar, Breschi and Fosfuri (2024) note that whether the paradox is well founded remains a matter of academic debate, and their own evidence complicates the picture: science funded by the European Research Council (ERC) performs strongly and feeds measurably into inventive activity, suggesting that at least parts of the European system operate at the global frontier and that the binding constraint may lie downstream, in translation and commercialization, much as the original paradox claimed. The Draghi report reflects this ambivalence: it acknowledges Europe's strong aggregate scientific base and publication output while emphasizing that the EU trails the US in breakthrough, disruptive research and in converting science into

productivity growth.

Yet this view is not uncontested. Dosi, Llerena and Sylos Labini (2006) argue that the evidence originally marshalled in support of European scientific "excellence"—publications per unit of non-business R&D spending—is misleading. Once more demanding indicators are used, they find that Europe is weak at both ends: its research system trails the US in several frontier fields, *and* its high-tech industry is comparatively weak.

Several other studies reach similar conclusions. Jonkers and Sachwald (2018) find that although European scientific quality has improved since the early 2000s, a transatlantic gap in scientific excellence remains, particularly in rapidly developing fields. Bonaccorsi (2007, 2011) identifies deficiencies in the academic system that limit the selection of scholars from a sufficiently broad talent pool, constrain student and researcher mobility, and reduce the capacity to explore emerging and highly uncertain scientific fields.

Rodríguez-Navarro and Narin (2018) push this critique further. When performance is measured by the upper tail of the citation distribution, i.e., highly cited papers rather than aggregate publication or citation shares, EU science lags far behind the US in most fields. They call the paradox a "delusion" that has misguided two decades of research policy.

Rodríguez-Navarro and Brito (2020) extend the argument to Europe's flagship excellence instrument, finding that even publications funded by the ERC fall short of comparable US benchmarks in the most cited segments, and conclude that Europe cannot regain scientific leadership without structural changes in research policy.

The narrative of a "European paradox" thus seems to rest on measures of quantity rather than quality. Studies based on publication volumes and overall citation shares tend to find rough transatlantic parity. Studies focusing on top-percentile papers, breakthrough indicators, or field composition find a persistent US advantage, concentrated in fast-moving technological domains.

The distinction between EU-27 and Europe is even more important in this area as the leading European Universities in terms of academic rankings are in the UK (e.g. Cambridge and Oxford) or in Switzerland (ETH).

EU AND US UNIVERSITIES IN ACADEMIC RANKINGS

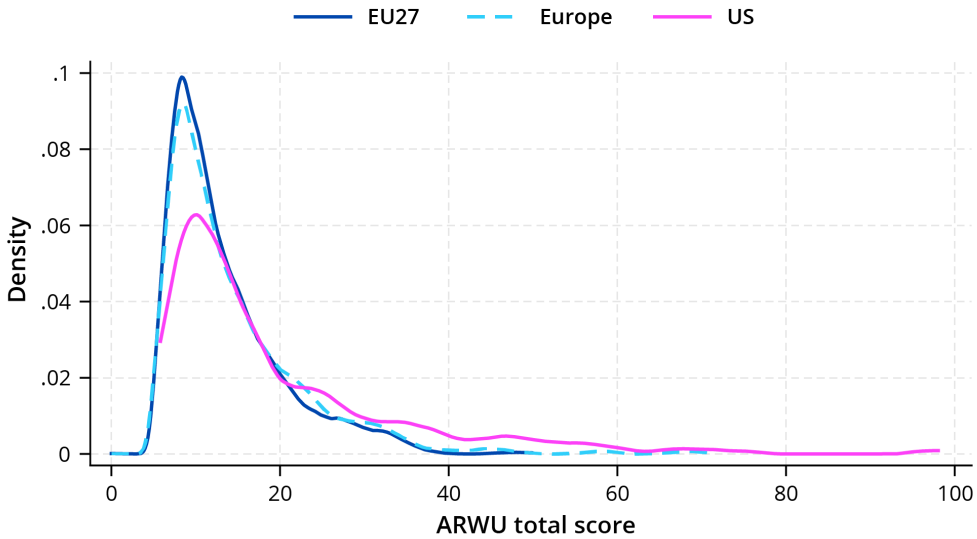
The distinction between average performance and presence at the top also applies to universities. The EU boasts a strong university system on average, but its presence among the world-leading research universities is very limited. **FIGURE 9** shows the pooled 2015–2025 distribution of EU and US universities by total score from the Shanghai Academic Ranking of World Universities (ARWU), which can be used as a crude proxy for university quality.[36] While university rankings offer only a partial view of academic excellence and should be interpreted in light of differences in institutional missions and contexts, well-known rankings reveal a consistent pattern: European universities dominate in low- and middle-score positions, while the US distribution has a markedly longer right tail. There is not a single EU university with an ARWU score above 50. Consistent with this evidence, the EU has only 2 research institutions among the top 100 globally, according to the Nature Index 2026, a ranking of research universities based on the volume of publications in a selected list of top academic science journals. China has 55, the US has 28, while the UK and Switzerland have 7.

[36] The ARWU total score, which ranges from 0 to 100 and is used to construct the university ranking, summarizes academic and research performance based on Nobel and Fields Medal awards, highly cited researchers, publications in *Nature* and *Science*, overall research output, and per-capita academic performance. See https://www.shanghairanking.com/methodology/arwu/2025.

Appendix Figure 7 presents separate score distributions for the EU, the UK and Switzerland combined, and the US. The British and Swiss distribution has an upper tail closer to that of the US, largely because of a small number of top-ranked institutions such as Oxford, Cambridge, and ETH Zurich. This highlights the importance of distinguishing between the EU and Europe more broadly. Assessments of "European" science that group the EU with non-EU research systems, particularly the UK and Switzerland, can obscure the EU's limited representation at the top of academic rankings.

The pattern in **Figure 9** is robust to using the QS or Times Higher Education (THE) rankings instead. **Appendix Figure 8** compares the cumulative regional distribution of universities in the ARWU, QS, and THE rankings. In all three, US universities are disproportionately represented at the very top of the global distribution, while EU universities are concentrated further down. **Figure 9** also illustrates the strong presence of the UK among top universities.

Appendix Table 4 shows summary statistics of the university score distribution by region. The average ARWU score is higher in the US than in the EU (19 vs. 13 points), and the difference widens steeply toward the top of the distribution. While the median US university scores about a quarter higher than the median EU university, US universities at the 95th percentile score almost 80% higher than their EU counterparts. Put simply, the leading US universities outperform their EU counterparts by a substantially wider margin than the difference in average scores would suggest.



Note: Europe = EU27 + UK + Switzerland and therefore overlaps EU27.

Figure 9. The distribution of ARWU scores in the EU and the US.

Sources: Authors' calculations based on Shanghai Ranking.

VC CONCENTRATION IN TOP-RANKED UNIVERSITIES

The shape of the distribution of university ranking scores in the EU has important consequences for the size of the VC market. Perhaps unsurprisingly, top-ranked universities appear to play a disproportionate role in the production of ideas with the greatest potential for commercialization. The concentration of VC among top universities documented below is consistent with a large body of evidence that top universities and research programs generate geographically localized knowledge spillovers (e.g. Jaffe, 1989; Jaffe et al., 1993; Kantor and Whalley, 2019). More specifically, Zucker et al. (1998) find that the location of top scientists and the timing of their publications predict where and when new biotechnology firms are founded.

We provide further evidence in **FIGURE 10**, which shows the correlation between a university's score in global rankings and the amount of VC raised by its alumni.[37]

Each dot in the figure measures a university's persistent difference in annual alumni VC relative to the average university, after accounting for common annual effects over the years 2015–2025.[38] There is a strong positive correlation between the two, especially among universities in the top 5% of the university ranking score, which are marked with darker dots. Alumni from these universities alone account for about two-thirds of total VC in the sample.[39] Very similar results are obtained with the number of active founders (**APPENDIX FIGURE 9**).

APPENDIX FIGURE 10 shows the distribution of VC raised by alumni of universities across five groups defined by the number of ERC grants they received, which we use as a proxy for research quality since ERC grants are highly competitive.[40] A clear pattern of concentration emerges: universities in the top quintile by ERC grant count account for a disproportionate share of VC.

The scarcity of top-ranking universities in the EU, combined with the strong concentration of VC activity, thus appears to be a key driver of the transatlantic VC gap (see Box 2). Country-level regression results in

Metric	U.S. excluding hubs	EU-27	U.S./EU ratio
Deals per $1 billion of GDP	**4.71**	**3.99**	**1.18**
Deals per million people	**312.81**	**149.25**	**2.10**

[37] We identify alumni of a given university in PitchBook using information on the institutions from which they received their most recent degree.

[38] The figure uses estimates from a regression of university-level VC raised by alumni on university fixed effects and then correlates the estimated effects with universities' ARWU scores.

[39] The figure is based on a restricted sample for which we have information about founders' education, corresponding to roughly 13% of the total VC in our sample.

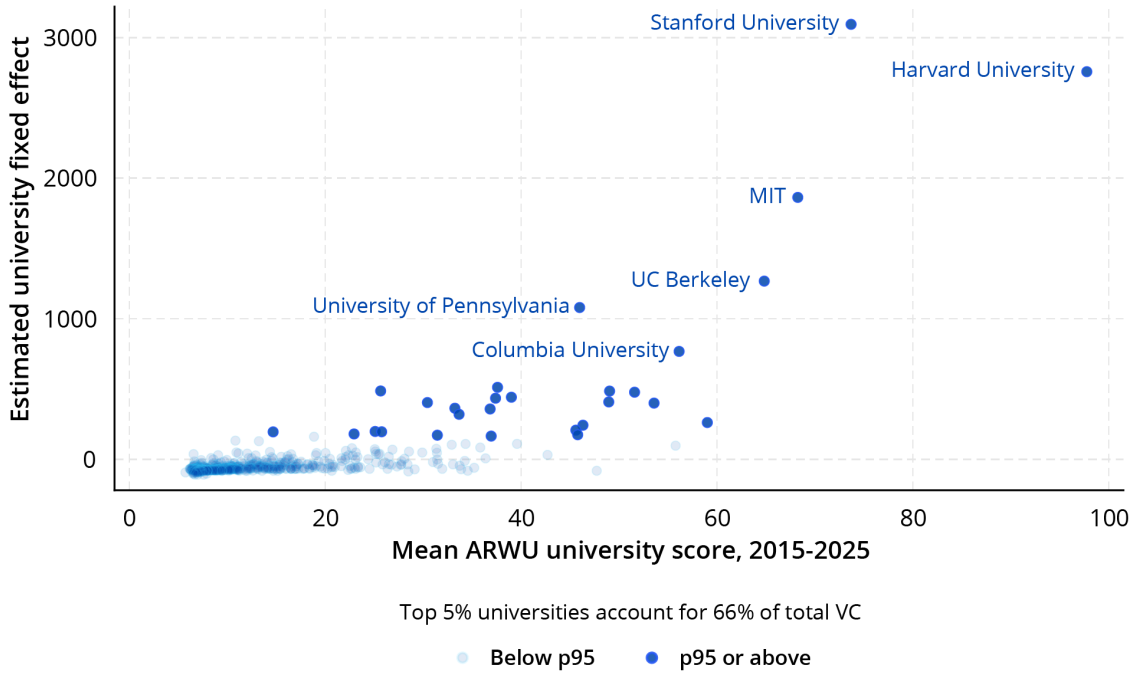
[40] Universities are ranked into quintiles based on the total number of ERC grants received. For each quintile, the figure plots the distribution of log VC funding raised by companies whose founders studied at those universities. The sample includes VC, seed, angel, and accelerator deals, with each company counted only once per university.

Appendix Table 2 support this view.[41] Column 1 shows that having at least one university in the ARWU ranking is significantly correlated with VC investment. The coefficient estimate implies that VC market depth is almost seven times as large when countries host ranked universities. For countries with ranked universities, we estimate that moving from the 25th to the 75th percentile of ARWU score is associated with aggregate VC investment almost six times as large. In column 2, we include country fixed effects and exploit within-country variation in ARWU score. The association remains statistically significant, suggesting that improvements in a country's university system—as measured by an improvement in the ranking score—are positively correlated with VC investment.

The evidence in this section is suggestive, but it does not establish a causal relationship between university standing and VC investment. Unobserved factors such as abundant financing or a favourable regulatory environment could, in principle, influence both. We return to this identification issue below.

[41] To allow for a nonlinear relationship between university quality and venture-capital investment, as shown in Figure 10, we model the country-year sum of ARWU scores using a cubic spline, with knots at the 10th, 50th, and 90th percentiles of the positive ARWU-score distribution. Because many country-years have no ranked university, the specification also includes a separate indicator for the presence of at least one ranked university. Rather than reporting the individual spline coefficients, which have no direct economic interpretation, we report the change in predicted log VC associated with moving the ARWU score from the 25th to the 75th percentile among country-years with at least one ranked university, holding the other covariates constant. This p25–p75 contrast is calculated as the difference between the fitted spline evaluated at the two percentile values.

Figure 10. VC concentration in elite universities.



Sources: Authors' calculations based on PitchBook.

DO UNIVERSITY RANKINGS CAPTURE THE QUALITY OF IDEAS?

From a policy perspective, it is important to determine whether the correlation between venture capital funding and university ranking reflects the intrinsic quality of the projects developed by alumni or instead arises from factors associated with elite institutions. These include stronger investor and alumni networks, reputational signalling, geographic proximity to VC hubs, and the broader quality of the surrounding innovation ecosystem (e.g. Lerner, 1995; Stuart, Hoang, and Hybels, 1999; Shane and Cable, 2002; Shane and Stuart, 2002; Chen et al., 2010).

To assess this, we estimate specifications with university fixed effects. This approach exploits changes in a university's ARWU score over time and absorbs all time-invariant university characteristics, including institutional pedigree, longstanding alumni and investor networks, persistent reputational advantages, and geographic proximity to established VC hubs. If university rankings simply captured these fixed advantages, changes in a university's ranking should not be systematically associated with changes in the VC funding received by its graduates.

TABLE 4 presents the results. In the baseline regressions without university fixed effects (columns 1–2), one additional ARWU point is associated with 11% more VC

and 7% more active founders in the cross-section of universities.

In columns 3–4, we include university fixed effects. The ARWU coefficients drop considerably, but both remain statistically significant. This suggests that while part of the positive correlation between university ranking and VC performance might be due to network effects, improvements in the ranking—which we interpret as marginal improvements in the quality of the university—are still significantly related to the amount of VC received and the number of founders.[42]

We interpret this evidence as consistent with a role for changes in university quality, over and above fixed network and reputational advantages and time-invariant geographic and institutional characteristics.

To be clear, we do not suggest that university quality, measured imperfectly by the ARWU scores, is the only determinant of VC investment or of the transatlantic gap. Geographic location, specialization, and approaches to research also matter. Other things equal, however, the evidence in this section suggests that higher university quality is associated with more VC investment.

Table 4. Changes in university ranking and VC. Between- and within-university variation.

	(1) Ln-total VC	(2) Ln-number of founders	(3) Ln-total VC	(4) Ln-number of founders
ARWU university score	0.112***	0.072***	0.025**	0.018***
	(0.007)	(0.005)	(0.011)	(0.006)
Observations	4,717	4,717	4,670	4,670
R-squared	0.376	0.323	0.910	0.949
Year fixed effects	Yes	Yes	Yes	Yes
University FE	No	No	Yes	Yes

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Sources: Authors' calculations based on PitchBook.

[42] The evidence is consistent with Garfinkel et al. (2021), who find that while alumni-network ties are important in VC financing, the effect is weaker for founders from higher-SAT schools, consistent with networks being more valuable when public signals of founder quality are weaker. The effect also appears stronger in first financing deals, where information asymmetry is greater.

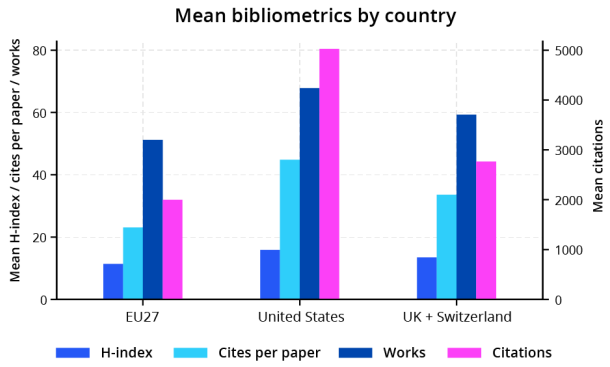
DESCRIPTIVE EVIDENCE FROM BIBLIOMETRIC INDICATORS

Evidence of a direct link between proxies of the quality of founders' scientific output and VC activity can also be obtained using bibliometric indicators. IPI (2026b) presents the methodology used to examine the scientific profiles of startup founders matched to an OpenAlex researcher profile.

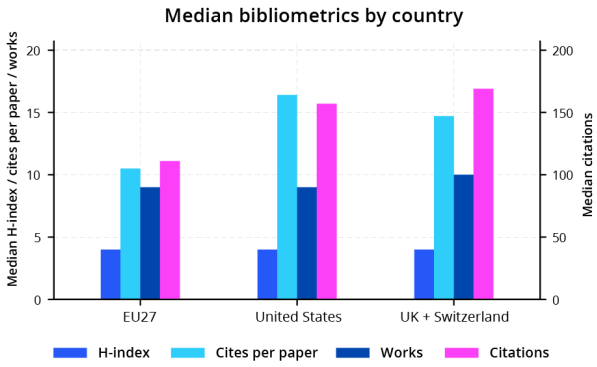
Panel A of **FIGURE 11** compares the mean citation counts, numbers of works, citations per work and h-index of founders across regions. The EU performs worse than the other regions on all four metrics. For medians in Panel B, the EU is comparable on the h-index and number of works, but lags in total citations and citations per work. This points to a gap in the impact rather than the volume of research by the typical EU founder.

Figure 11. Scientific profile of startup founders across regions.

(a) Mean



(b) Median



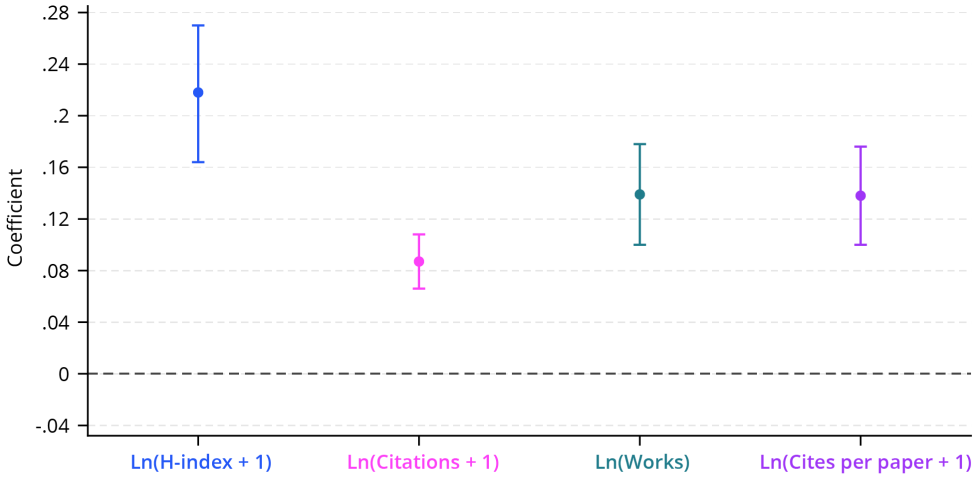
Sources: Authors' calculations based on PitchBook and OpenAlex.

FIGURE 12 shows that the amount of VC received is positively correlated with founders' scientific performance. In the log-transformed specifications, the h-index, total citations, number of works, and citations per work all have positive and statistically significant coefficients.

APPENDIX FIGURE 11 shows that, in the level specifications, the h-index and number of works remain positively and significantly associated with deal size, whereas the estimates for total citations and citations per work are smaller and less precisely estimated.

Overall, founders with stronger scientific track records tend to receive larger VC investments, although these estimates should be interpreted as conditional correlations rather than causal effects.

Figure 12. Scientific performance of founders and VC received.



All models include deal year, industry sector, and university fixed effects, and the bibliometric as the control variable.
The dependent variable is natural log of deal size.
N = 14,306. Standard errors are clustered at the university level (667 clusters).
Sample of deals from 1999 to 2025.
Sample includes founders whose last degree was obtained in a university from EU27, USA, UK or CH.

Sources: Authors' calculations based on PitchBook and OpenAlex.

UNIVERSITY SPINOUTS

Gros and Mengel (2026a) show that university spinouts (USOs) account for a relatively small share of total VC raised—3.2% in the US, 4.6% in the EU, and 7.5% in Europe as a whole (EU27, UK and Switzerland). The share is higher in the UK because of its strong biomedical research base. USOs thus play a small but distinctive role in commercializing university research.

USO activity is heavily concentrated in technology-intensive sectors such as health, energy and enterprise software (European Commission, 2025). USOs also consistently raise more capital than other VC-backed companies.

As shown in Gros and Mengel (2026a), USOs raise around 40% more per deal in Europe and 26% more in the US. The difference widens when all VC rounds during the 2015–2025 sample period are summed at the company level: USOs raise approximately 70% more per company across all three regions.

European universities perform markedly better on this direct measure of university commercialization than in the alumni-based analysis above. By startup location, the US remains the largest single-country market, with 1,288 recorded USOs over 2015–2025, compared with 1,027 in the EU and 932 in the UK (Panel A of

FIGURE 13).

Taken together, the EU and UK therefore record more spinouts than the US. When USOs are assigned to their source university, three European universities—ETH Zürich, the University of Cambridge, and the University of Oxford—lead the global ranking by spinout count. Their position is consistent with the concentration of USOs in science- and technology-intensive sectors.

Overall, the spinout evidence provides a more positive picture of European universities than the ranking-based analysis. Europe hosts several world-leading institutions in the direct commercialization of academic research, as shown by the spinout counts (Panel B of

FIGURE 13).

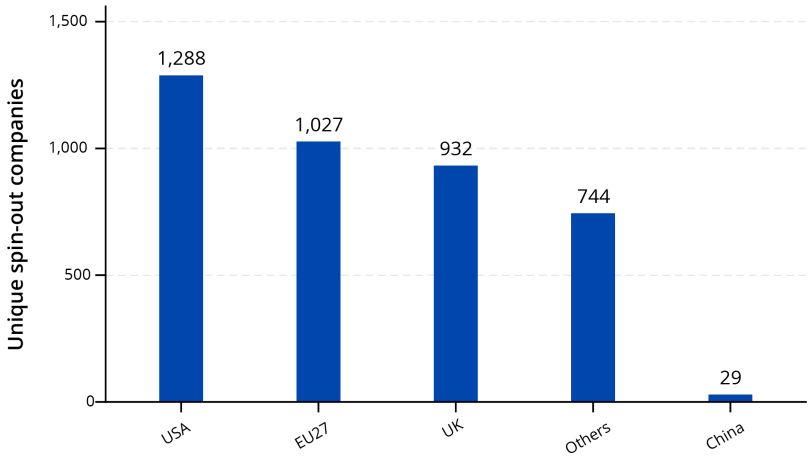
At the same time Gros and Mengel (2026a) show that spinouts account for only a small share of aggregate VC activity. Strengthening university commercialization can therefore contribute to Europe's innovation performance but is unlikely by itself to close the broader transatlantic VC gap.

Efforts to strengthen technology transfer offices might be useful, but they are unlikely to generate a large increase in VC investment. Moreover, strong technology transfer offices are more likely to arise around top research universities. Their number and strength might thus be more the result of a strong research environment than its cause.

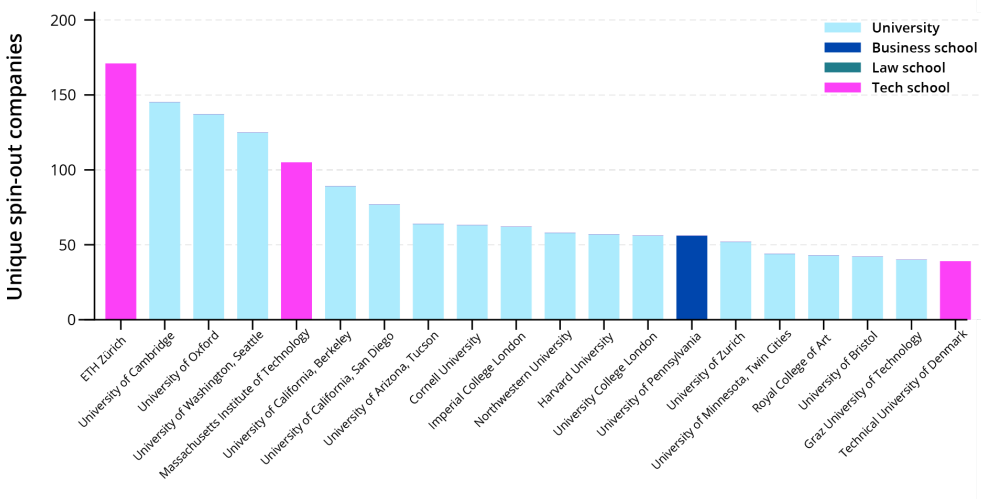
Non-university research institutes also play a small role in the VC market. Evidence from the US indicates that the location of a research institute, as opposed to a college, does not tend to foster VC activity in the area (Cockburn, 2004). This might appear surprising at first sight since advanced research institutions are often the source of breakthrough technologies. But, as emphasised above, VC activity originates with students or recent alumni who focus on the commercial applications of technology. The staff of research institutions consists mostly of senior scientists whose main goal is to publish in highly ranked journals. Their careers depend on their publications, not commercial success. Universities, by contrast, train large numbers of students who form a pool of potential startup founders; early in their careers, these students also have less to lose from pursuing the startup route.

Figure 13. University Spinout Activity by Region and University

Panel (a). Spinout companies by region of the startup's headquarters, 2015–2025.



Panel (b). Top 20 universities by number of spinout companies.



Note: Panel (a) counts unique spinout companies with a completed university spinout event in PitchBook, 2015–2025. Region refers to the headquarters of the startup, not to the location of the source university. In Panel (b), the source university is taken from DealSynopsis and mapped to its PitchBook parent institution; school type follows the PitchBook education classification. Spinouts with several source universities are counted once for each university; unmatched names are excluded.
Sources: Gros and Mengel (2026a)

4. MAKING AN ELITE UNIVERSITY

We showed that the level of and changes of university ranking scores, are associated with more VC investment. We now examine whether academic excellence drives university ranking scores and VC outcomes,

PROGRESS TOWARD CAUSALITY: THE GERMAN PROGRAM "*EXZELLENZINITIATIVE*"

The first question is whether a highly competitive grant to a university can boost its quality and the amount of VC raised by alumni.

To address this issue, we exploit the outcomes of the excellence grants awarded to universities by the German program *Exzellenzinitiative*, under which a limited number of institutions were granted additional funding for top-quality research clusters. As the identities of the unsuccessful applicants to this program are known, one can estimate the causal effect by comparing subsequent performance, measured by university scores and VC raised by alumni, between unsuccessful and successful applicants.

The results, taken from Gros et al. (2026), are presented in **FIGURE 14**. In Panel (a), we find that grant receipt first increases academic quality, as proxied by ARWU scores. Panel (b) shows an increase in the number of VC deals, while Panel (c) shows an increase in the VC attracted by the university's alumni.[43] The program determines the timing of the quality shock, so improvements in university performance precede changes in VC outcomes. This sequencing substantially reduces concerns that universities received grants because their alumni had already begun attracting more VC.

The effect on alumni ventures is particularly informative. These firms are neither owned nor administered by the university, and the grants were not designed to finance them directly. The results are therefore difficult to explain solely through mechanical spending effects that might arise when funding goes directly to startups—as documented in Fuest et al. (2025).

They are also difficult to reconcile with pure sorting, since the estimates compare changes within a narrowly selected group of universities around an externally determined funding decision. The evidence instead suggests that improvements in the institutional research environment can raise the subsequent production or development of ideas that attract private VC.

The event studies trace the mechanism in the order implied by this interpretation. Comparing grant-winning universities with unsuccessful finalists, we find broadly flat pre-trends in academic quality, VC deal counts, and VC funding during the eight years preceding the award. Following grant receipt, academic rankings improve first, separating from the control group within several years and reaching

[43] Gros et al. (2026) discuss how the discontinuity in the final two coefficients likely reflects the fact that these horizons are identified only from the earlier treatment cohorts. However, the strong upward pattern is already visible in the preceding years, when the later-treated universities still contribute to the estimates.

a plateau approximately a decade later. Venture outcomes respond more slowly: deal counts and funding begin to increase after a lag of roughly six to eight years and continue to rise thereafter, eventually amounting to several additional deals and tens of millions of euros in additional annual VC funding raised by alumni.

This sequence—academic quality first and venture outcomes later, with a delay consistent with the transformation of research into new companies—is difficult to reconcile with reverse causality. It is also inconsistent with a pure certification effect of the award, which should appear soon after the publicly announced selection, or with a temporary spending effect, which should emerge early and subsequently dissipate. Instead, the estimates display the pattern predicted by a shift in the idea-production process: investment in academic excellence gradually improves the distribution of ideas, and it takes time for the resulting projects to mature, enter the market, and satisfy the criteria of venture investors.

The findings also bear on the supply-side interpretation of the transatlantic VC gap. If a shortage of capital were the primary constraint, an improvement in the pipeline of commercially promising ideas would not necessarily translate into higher funding. Instead, when the quality of the academic environment improves, private capital follows. The results therefore suggest that targeted investment in university excellence can expand the supply of fundable ideas without a corresponding intervention on the financing side. These findings provide a more direct identification of one mechanism underlying the broader relationship documented by Brandão-Marques et al. (2026), who identify investment in higher education as one of the structural factors with the largest estimated effects on venture capital activity.

The program aimed to foster academic excellence; increased alumni VC activity was a side effect. The winning institutions received about €10–20 million annually for about five years. The point estimate of the increase in annual VC activity caused by the grants already reaches this range after 10 years and later rises to more than €40 million annually. Each euro invested in the program thus led to more than one euro in startup financing (albeit with a long delay).

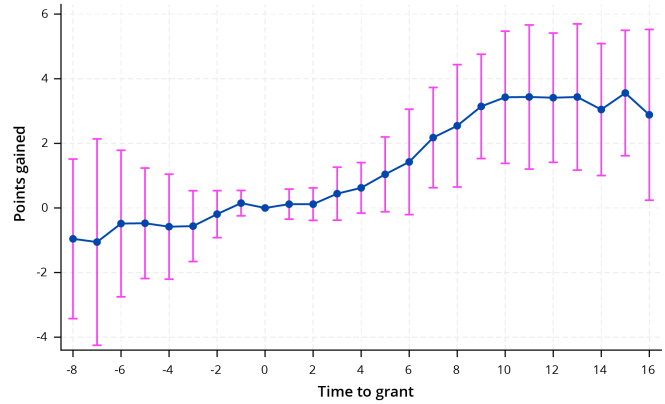
Importantly, the additional VC induced indirectly by the program was private investment, so there is no crowding-out problem here. Evidence in Gros et al. (2026) shows that winners did not gain VC investment at the expense of the losers, removing the concern that grants have simply diverted projects from other universities to the winners.

Some evaluations of the program have found that the cost per measurable academic output (such as published papers) was high (e.g. Carayol and Maublanc, 2025). However, the *Exzellenzinitiative* appears to have been much more successful in a different way. This result has implications for the allocation of public funding to foster VC activity: funding that directly supports VC activity (such as funding through the EIC or SPRIND in Germany) might not produce a larger effect per euro spent than funding for excellence at universities.

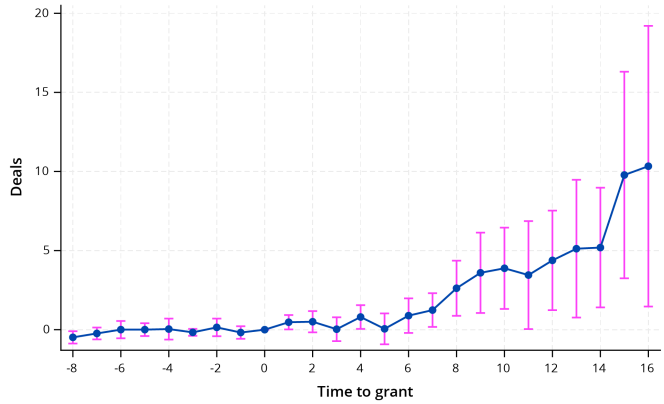
The next section considers one factor behind the large estimates for the *Exzellenzinitiative*: the governance environment in which the grants were spent.

Figure 14. Causal evidence on the impact of university grants on university quality and VC performance.

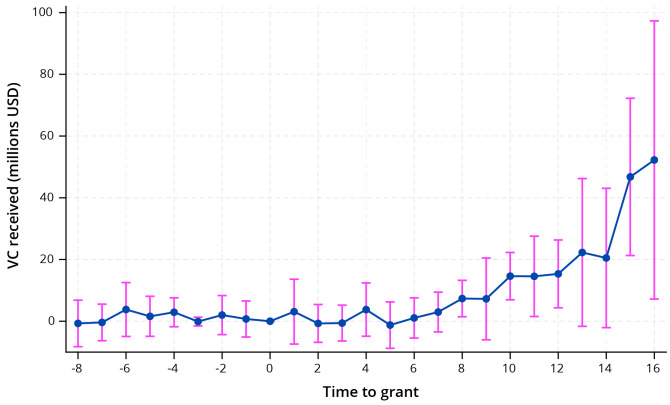
Panel (a). Effect of the grant on ARWU score.



Panel (b). Effect of the grant on the number of deals.



Panel (c). Effect of the grant on VC raised.



Sources: Gros et al. (2026).

BEYOND FUNDING: UNIVERSITY GOVERNANCE AND COMPETITIVE PRESSURE

The size of the *Exzellenzinitiative* effect is unlikely to reflect money alone. University quality depends not only on financial resources but also on the institutional environment in which universities operate. Stronger governance, greater managerial autonomy and exposure to competition improve universities' incentives to allocate resources effectively, attract high-quality faculty and students, and raise research performance. On all these dimensions, European universities have historically lagged their US and UK counterparts: they depend more on government core funding, are more constrained in budgetary, staffing and student-selection decisions, and expose a smaller share of their resources to competition. Box 4 summarises the evidence.

Germany is a telling case. The Autonomy Scorecard, published by the European University Association in 2023, rates how much freedom universities have from the state and covers three German Länder. All three score high on academic autonomy (87–88% of the maximum), meaning universities largely decide what to teach and research. They score much lower on financial autonomy (35–44%) and staffing autonomy (58–63%), meaning universities have limited control over their budgets, salaries and hiring.

A large, multi-year competitive grant relaxes precisely the constraint that binds, in a system that already has the academic freedom to use the money well. This may help explain why the effect documented in the previous section is so large, and it suggests that funding is most effective when combined with governance structures that give universities sufficient autonomy and accountability. Where financial or staffing autonomy is also lacking, a comparable grant may be less effective.

BOX 4. AUTONOMY, COMPETITION AND UNIVERSITY PERFORMANCE IN EUROPE

Aghion et al. (2010) provide detailed university-level evidence on how European and US universities differ in governance and funding. Their survey covers research universities in 14 European countries; Table 5 reports their data alongside US benchmarks.

EU universities are less autonomous in their key decisions and less exposed to competition. Competition operates through research funding as well as through private finance. Most US federal research funding is channelled to agencies such as the National Science Foundation (NSF) and then allocated through merit-based competitions. Public US universities additionally compete locally with private universities for researchers, students and resources; Aghion et al. (2010) find that the productivity of additional university expenditure is greater in states where public universities face stronger private-university competition. This is consistent with a system in

which funding, talent and institutional reputation are more strongly contestable.

Within Europe, autonomy is associated with research performance. Institutions that did not require government budget approval had a score of 316, compared with just above 200 for universities requiring approval. Universities free to differentiate faculty salaries averaged 322, compared with 213 where salaries followed uniform rank-and-seniority rules. Autonomy over student selection was associated with a 156-point ranking difference. Most directly, each additional percentage point of the budget coming from competitive research grants was associated with 6.5 additional Shanghai Ranking points. These relationships are correlational, but they establish a strong link between the institutional environment and research performance.

Table 5. Data from Aghion et al. (2010)

Institutional characteristic	EU members in the Aghion et al. sample	UK	US benchmark in Aghion et al.
Universities requiring state approval of their budget	52%	13%	No US private university requires government budget approval
Universities with centralized BA student selection	46%	12%	US private universities control student selection
Universities required to pay identical salaries to faculty of the same rank and seniority	28%	0%	US private universities control faculty salaries
Hiring mainly controlled internally	72%	100%	US private universities control hiring
Faculty holding a PhD from the same university ("endogamy")	41%	9%	The paper reports substantially lower endogamy in the US
Universities owning their buildings	60%	94%	All US public and private universities in the sample own their buildings
Budget from core government funding	64%	35%	Negligible for US private universities
Budget from competitive research grants	18%	21%	Most US federal university research funding is allocated competitively

Source: calculations from Appendix Table 1 of Aghion et al. (2010). The EU column is an unweighted average of the ten current EU27 countries reported separately in Aghion et al. (2010), and is not an EU27 aggregate. The authors explicitly caution that their US and European governance variables are parallel but not identically constructed; US entries are therefore qualitative benchmarks rather than directly comparable estimates.

5. POLICY EXPERIMENTS

This section presents simple counterfactual exercises to estimate the potential impact of different policy measures focusing on university ranking.

FIGURE 9 showed the distribution of ARWU scores in the EU and the US. The EU contains more universities in the lower and middle parts of the distribution, whereas the US distribution has a substantially longer right tail. We now ask: how much additional VC would the EU attract if it had the university score distribution of the US? To answer this question, we implement the methodology presented in Box 5.

The results are presented in FIGURE 15. The first two bars show total actual university-linked VC deployed in the EU and the US over 2015–2025 in the sample with data on founders' universities: $35.3 billion and $294.4 billion, respectively.

The second pair of bars present the EU counterfactual obtained by mapping the EU's score distribution to the US distribution while retaining the estimated EU score–VC relationship. This would lead to a strong increase in venture investment, reaching about $440 billion, which is approximately 12.4 times the EU baseline and exceeds the observed US total.

THE IMPORTANCE OF CONCENTRATION WHEN RESOURCES ARE LIMITED

Improving university standing in international rankings requires resources. Such cost might be fully compensated by an improvement of the innovation ecosystem. Nonetheless, we next conduct thought experiments in which we hold constant the total ARWU score points for EU universities but reallocate those points under alternative distributions.[44] We treat the fixed sum of EU score points as a normalization that allows us to study how the concentration of measured university quality affects predicted VC while holding the EU average constant.

The results are presented in FIGURE 15. In one scenario—the third set of bars—we distribute the annual EU total of score points equally across all universities. Equalization reduces predicted university-linked VC by approximately 20%. Giving every EU university the average score sharply reduces predicted VC because the link between score and VC is exponential, so the VC lost by pulling down the top universities is larger than the VC gained by lifting up the many small ones.

The last scenario—the fourth set of bars—considers a substantially more concentrated allocation. Score points are assigned first to the highest-ranked EU university until it reaches the score of the highest-ranked US university, then to the next-highest-ranked EU university, and so forth until the annual EU score total is exhausted. Depending on the year, between 28.9% and 53.5% of ranked EU

[44] This should not be interpreted as a literally budget-neutral fiscal reform. ARWU scores measure research-related outcomes rather than financial inputs, and the cost of generating an additional score point is unlikely to be constant across universities. Lepori, Geuna, and Mira (2019) document a strong relationship between university revenues and scientific output, supporting a connection between resources and measured research performance but not a proportional mapping from ranking points to university budgets.

universities receive no assigned score under this exercise. Across the full 2015–2025 period, 86 universities—24.1% of the 357 institutions in the sample—receive positive assigned scores in every year in which they are observed.

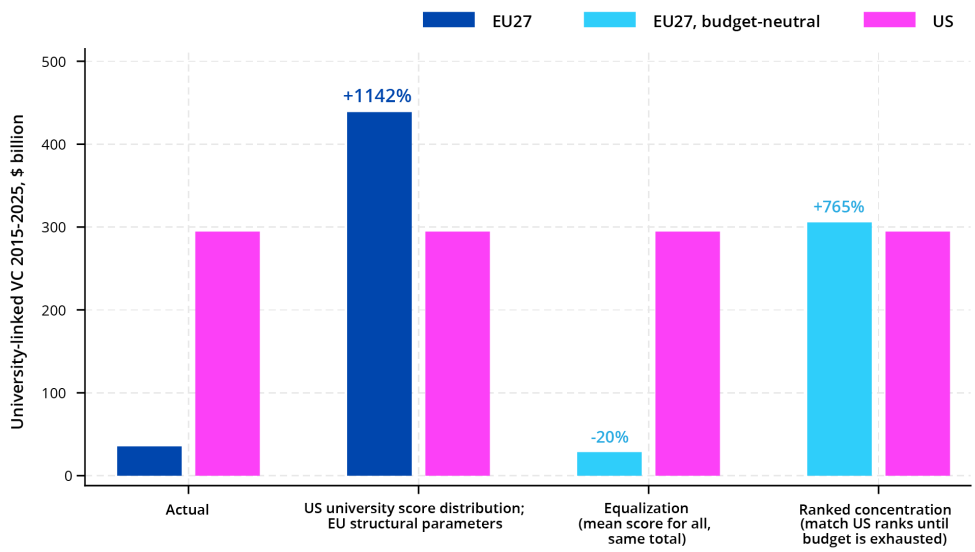
This extreme concentration raises predicted EU university-linked VC to over $300 billion, approximately nine times the observed EU baseline and above the observed US total. The corresponding radical concentration of existing resources captures about two-thirds of the increase generated by giving the EU the full US score distribution in **Figure 15**. Taken literally, this result implies that if existing scientific resources were bundled into a few top institutions, the gap in VC would disappear.

The general result is clear: keeping the average constant while concentrating resources among fewer universities produces higher predicted aggregate VC than distributing score points uniformly. We do not take a position on whether concentration at a fixed average is desirable. We only illustrate that concentration is required if the objective is to maximize VC. In this respect, both the European Tech Champions Initiative and the European Startup and Scaleup Hubs initiative (Lab to Unicorn) move in the right direction by concentrating resources in a limited number of large VC funds and selected innovation hubs, respectively, although neither directly targets the concentration of university excellence.[45]

Other policy objectives, such as access, regional development, teaching quality, or equity, point in a different direction.

[45] See https://eismea.ec.europa.eu/news/european-startup-and-scaleup-hubs-new-call-form-champions-league-startup-hubs-2025-12-12_en and https://www.eif.org/flagship-initiatives/european-tech-champions-initiative/overview.

Figure 15. Counterfactuals: improving university quality in Europe.



Sources: Authors' calculations based on PitchBook and Shanghai Ranking.

BOX 5: A SIMPLE MODEL-BASED COUNTERFACTUAL EXERCISE

We first run regressions of the type

$$\ln(1 + VC_{ut}) = \alpha + \beta RankScore_{ut} + \gamma_t + \varepsilon_{ut}$$

In the equation, $RankScore_{ut}$ is the ARWU score and γ_t is the year fixed effect.[46]

We estimate the specification for the EU only and obtain $(\alpha_{EU}, \beta_{EU})$.

The estimated intercept, slope, and year effects summarize the region-specific reduced-form relationship between university scores and VC.

We consider the following counterfactual: each EU university is assigned the score corresponding to the same percentile of the US score distribution.

This approach assumes that the estimated score-VC relationship remains stable when the score distribution changes. It also abstracts from general-equilibrium responses, including competition for academic talent, crowding out across universities, changes in VC supply, and the displacement of investment from existing firms. These responses could either amplify or attenuate the estimated effects. The results should therefore be interpreted as illustrative scenarios, not as lower bounds or forecasts of the effects of an actual reform.

[46] We use 1+VC because there are many university-year observations with zero VC investment.

CONCLUSIONS: A DIFFICULT CHOICE FOR POLICYMAKERS

The debate over Europe's persistent VC gap has a long history. As early as 1998, the European Commission proposed the *Risk Capital Action Plan* and observed that:

> "*in the high-technology sector, there is an acute shortage both of start-up SMEs and of the investment opportunities that result from them. These deficiencies are accentuated by the rarity of networks or geographic concentrations of high-technology SMEs and by a legal and regulatory environment (intellectual property rules, administrative requirements for starting a company) scarcely conducive to innovation and business startups*;"

The Commission's diagnosis then focused primarily on framework conditions: Europe lacked an environment capable of transforming scientific and technological ideas into commercially viable firms. Yet a 2002 review of the *Risk Capital Action Plan*, while documenting the many initiatives that had been introduced, noted that the transatlantic gap had widened rather than narrowed up to 2001. Strikingly, VC investment as a share of GDP at the height of the 2000 technology boom was close to its current level: approximately 1% in the US and 0.2% in the EU, which at the time still included the UK.[47]

More than two decades later, the persistence of a five- to sixfold US-EU gap suggests that the problem cannot be reduced to a shortage of capital or regulatory frictions. While it is true that Europe would benefit from deeper capital markets, particularly equity markets, the evidence in this report suggests that other factors play a key role. Our results point to a highly concentrated process of idea generation and commercialization. Silicon Valley represents the most extreme manifestation of concentration, as this one small region accounts for almost half of all VC investment in the US. But even outside this super-hub, a large transatlantic gap remains, especially in the upper tail: the US has more universities, firms, and projects capable of attracting large amounts of venture capital.

This finding creates a difficult choice for policymakers. If the objective is to increase the aggregate size of the European VC market, resources need to be concentrated in a limited number of universities and innovation clusters that are already strong but have not yet reached the level of the leading US institutions. Top universities perform at least two economically important functions. First, they screen and attract the best individuals from around the world; mid-ranked universities cannot typically attract people from far beyond their region. Second, they create dense networks of researchers, entrepreneurs, investors, and firms through which knowledge is exchanged and commercial opportunities are identified.

The policy objective should therefore not simply be to increase the number of startups or to subsidize a broad population of firms. Public support should

[47] Annex I of European Commission (2002) also shows that funds raised for private equity investment in the EU exceeded investment by one-third, suggesting that a lack of capital was not the main obstacle.

instead strengthen the environments from which exceptional and commercially scalable ideas are most likely to emerge. This implies directing resources toward research excellence, supporting talent concentration and the formation of dense innovation ecosystems, while allowing private investors to identify and finance the firms with the strongest commercial prospects.[48]

This must be coupled with greater mobility of talent. As emphasized by the IMF (2025), agglomeration policies must be complemented by measures that facilitate the movement of researchers, professors, students, and entrepreneurs across countries. Barriers such as non-transferable pensions, non-recognized qualifications, and rigid housing markets can prevent talent from moving toward emerging innovation clusters.

Public support should be allocated according to demanding and transparent criteria. When funding is dispersed primarily to achieve geographic balance or to support coordination activities, it may generate valuable outcomes for cohesion, access, or regional development, but it is unlikely to maximize the size of the European VC market.

Given the convex relationship between university ranking score and venture outcomes documented in this report, spreading resources thinly across institutions may have little effect on aggregate VC and could even reduce it relative to a more concentrated allocation.

The resulting trade-off should be stated clearly. A policy designed to maximize frontier innovation and VC formation will not necessarily coincide with a policy designed to reduce disparities across regions and institutions. The two should be kept separate. Different instruments and budgets should be used to pursue cohesion and promote excellence.

Our findings do not imply that support for non-top-tier universities and economically weaker regions has no social value. Nor do they imply that European science is intrinsically inferior to US science. They indicate instead that commercially transformative ideas emerge from highly concentrated ecosystems around top-ranked universities and that the EU currently is underrepresented at the top of international university rankings. Narrowing the transatlantic VC gap will require accepting a more concentrated allocation of some public resources, while using separate instruments to pursue regional inclusion and cohe

[48] Some existing initiatives from the European Innovation Council include the promotion of a "Champions' League of Startup Hubs". See https://eismea.ec.europa.eu/news/european-startup-and-scaleup-hubs-new-call-form-champions-league-startup-hubs-2025-12-12_en

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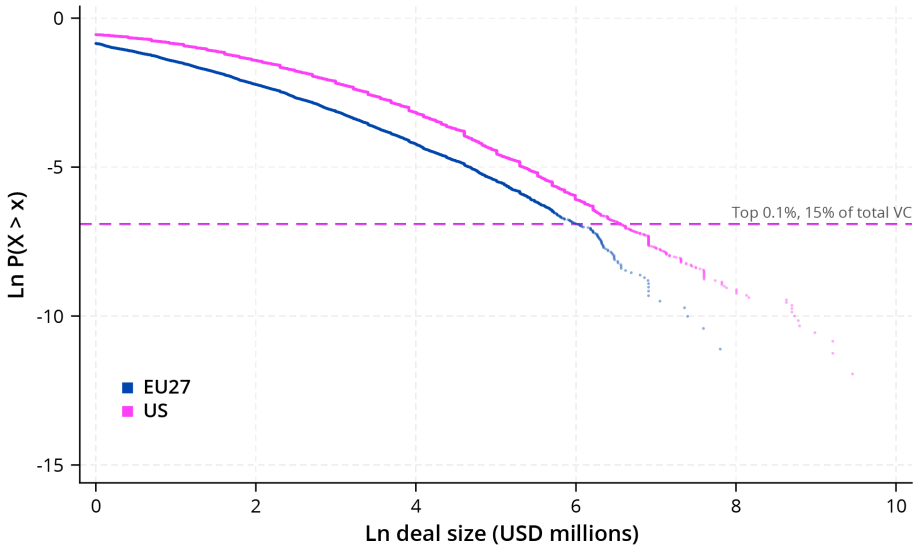
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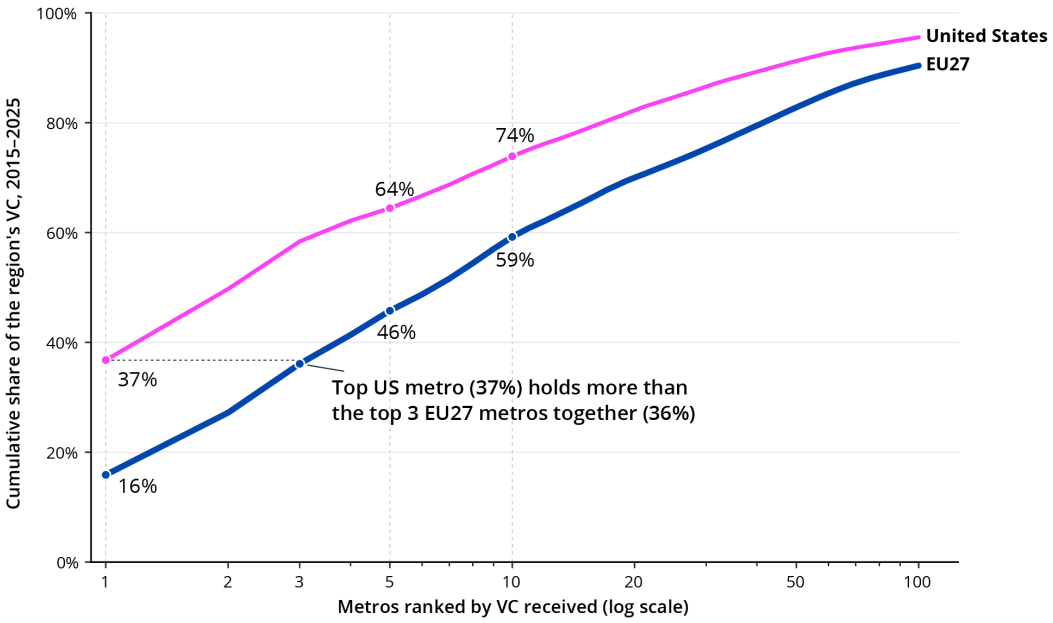
APPENDIX A
TABLES AND FIGURES

Appendix Figure 1. Deal size distribution in EU27 vs US.



Sources: Authors' calculations based on PitchBook.

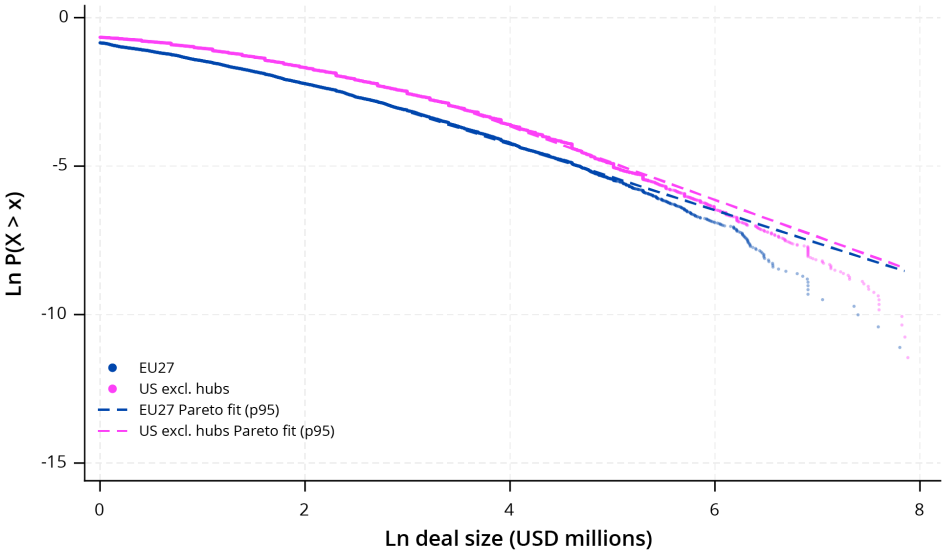
Appendix Figure 2. Cumulative share of VC investment in leading metropolitan areas, EU27 and United States (2015–2025).



Metros as in the map: company-HQ cities, US hubs pooled by the report's metro definitions, other cities pooled within 25 km.
Shares are of all VC deployed in the region; ungeocoded cities (EU27 3%, US 1%) are not on the curve.

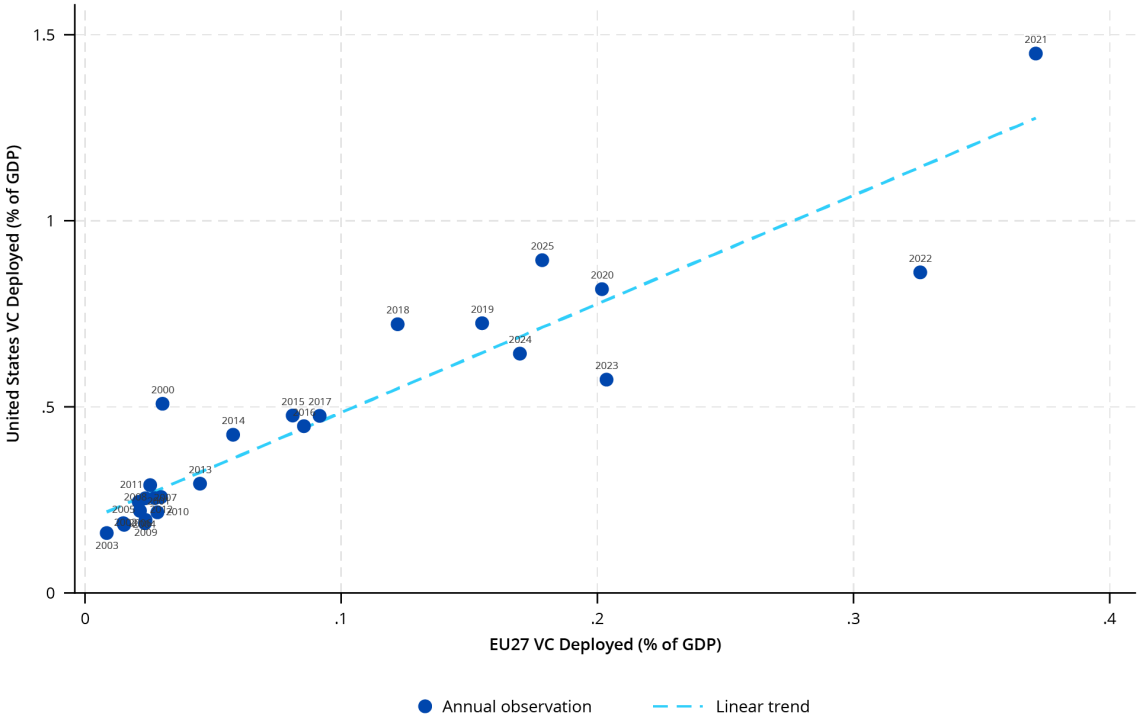
Sources: Authors' calculations based on PitchBook.

Appendix Figure 3. Deal size distribution in the EU vs the US excluding the Bay Area, New York, and Boston.

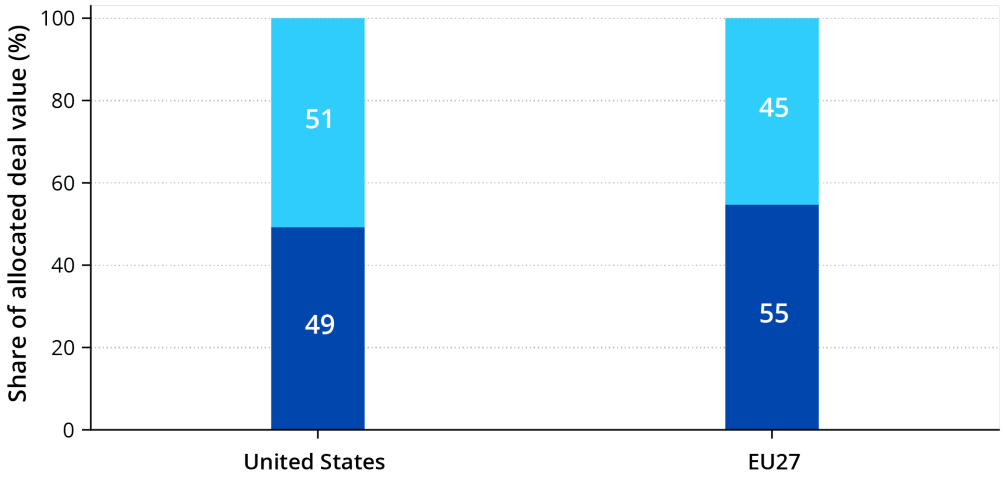


US excludes companies headquartered in the Bay Area, New York, and Boston metro areas.

Appendix Figure 4. VC/GDP ratio in the EU and the US over the last 25 years.

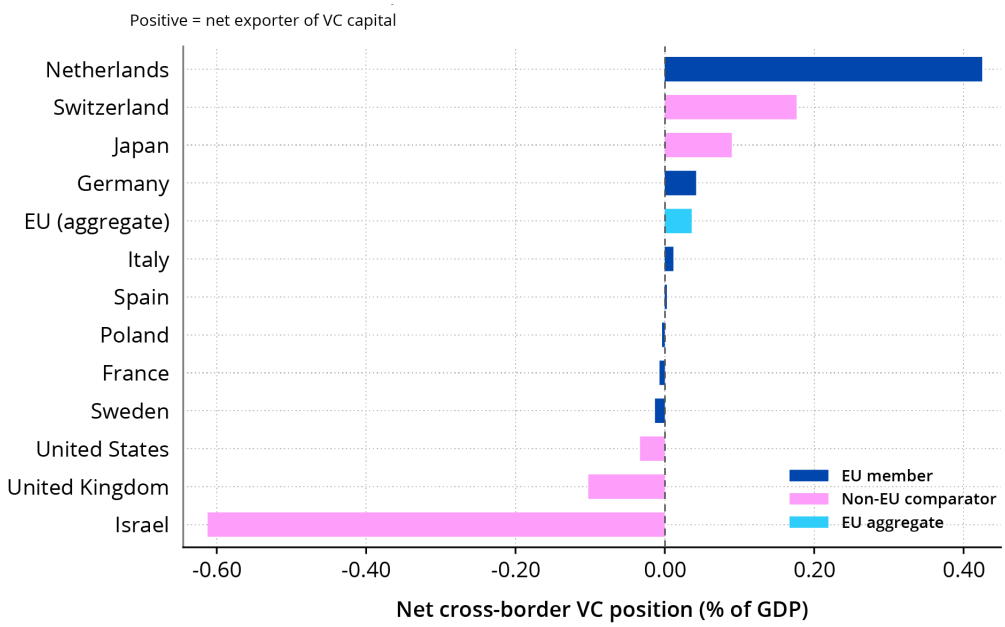


Appendix Figure 5. Cross-over investors fund roughly half of total deal value.



Note: Deal value is allocated pro rata across investors based on observed investor amounts where available and equally otherwise. Allocated value is then split by investor type and aggregated by the startup's home bloc. "VC funds" comprise dedicated venture capital funds only (PitchBook primary type: Venture Capital or Not-For-Profit Venture Capital). "Cross-over / other" includes all other investor types, including angels and angel groups, accelerators/incubators, corporate venture capital, corporates, PE/buyout and growth/expansion investors, asset managers, hedge and mutual funds, sovereign wealth funds, and family offices. The sample covers completed VC deals from 2015 to 2025 involving US and EU27 startups. Investor links with missing investor type are excluded from the reported shares.
Sources: Authors' calculations based on PitchBook.

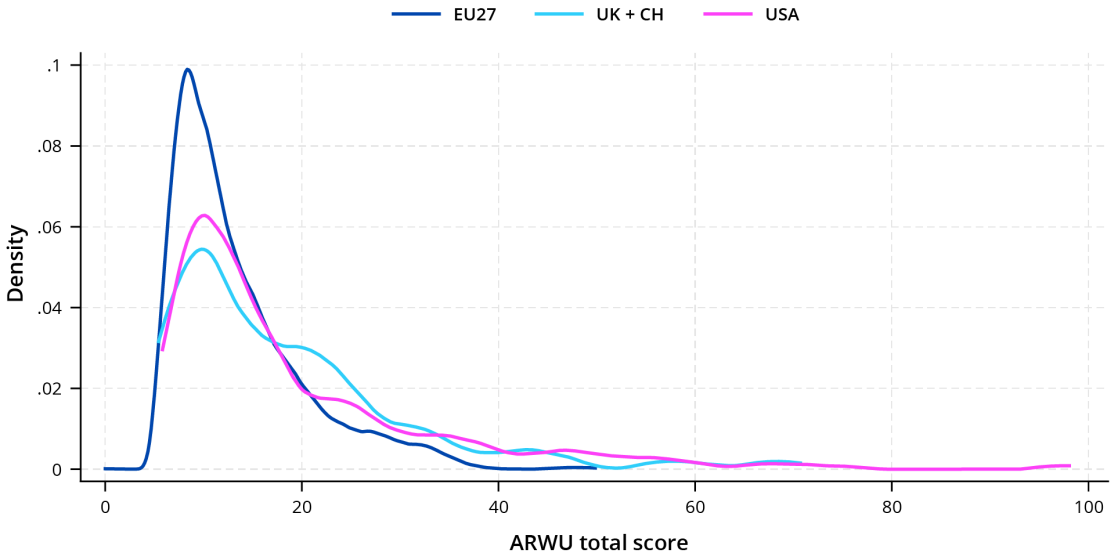
Appendix Figure 6. Net cross-border CVC position (2015-2025).



Investors with PitchBook primary type Corporate Venture Capital only.
Net = (deployed abroad − received from abroad) / average GDP × 100.
Domestic (within-country) VC excluded. Value-covered deals only.
GBR treated as non-EU (post-Brexit period).

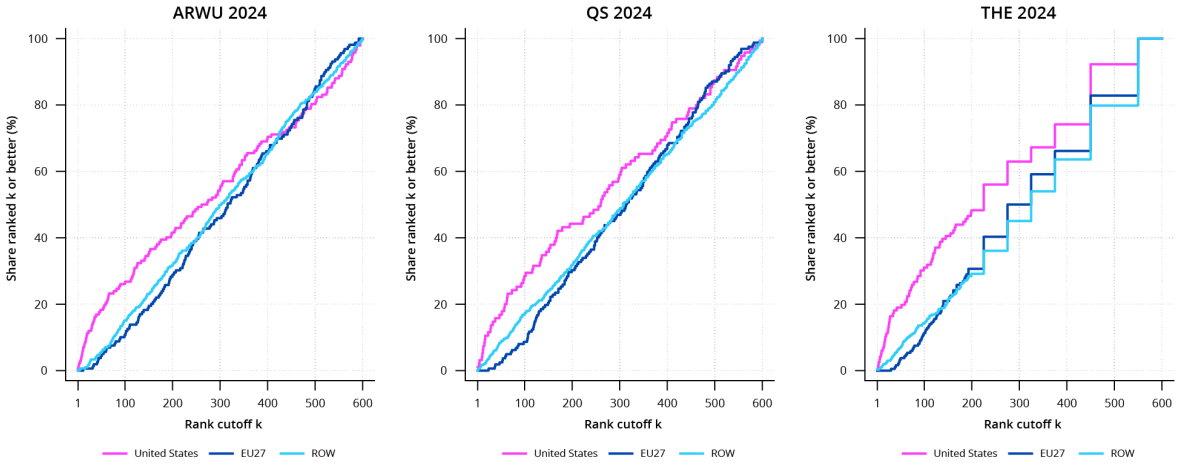
Sources: Authors' calculations based on PitchBook.

Appendix Figure 7. ARWU score distribution with UK and CH.



Note: the three groups are disjoint; EU27 and UK + CH together form the report's Europe definition. Kernel densities over ARWU university-year observations, 2015-2025, so a university ranked in several years enters several times. ARWU ranks 500 universities per year in 2015-2016, 800 in 2017 and 1,000 from 2018, so the pool is weighted towards the later years. N = 2,667 university-years (378 institutions) for EU27, 725 (98) for UK + CH and 2,051 (296) for the USA.

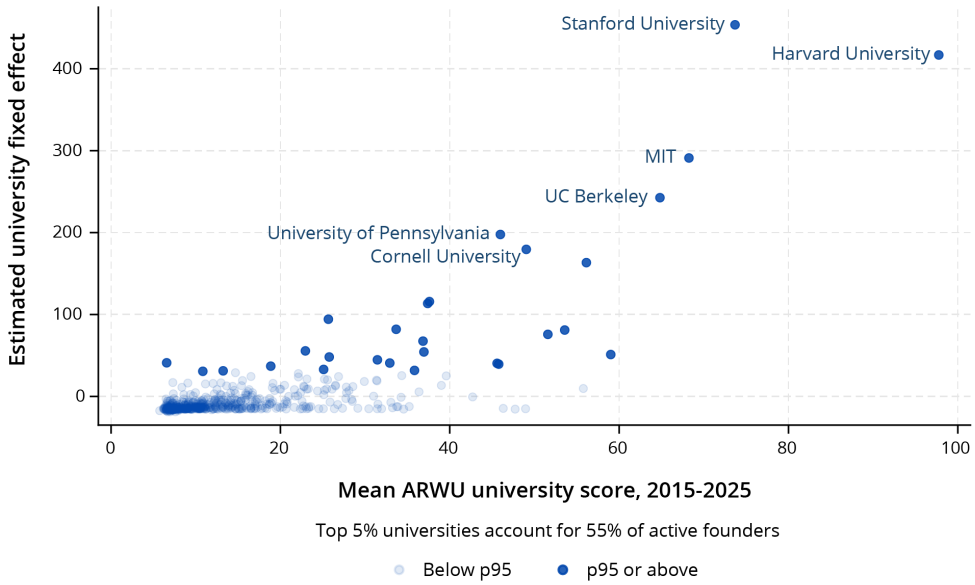
Appendix Figure 8. Cumulative top-rank concentration in ARWU, QS and THE rankings, 2024



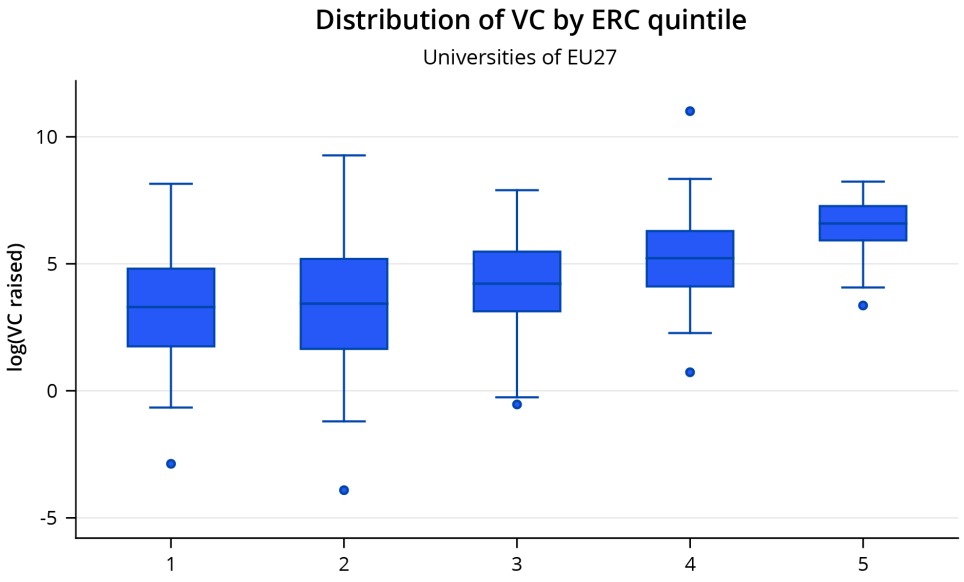
Note: y = share of each region's ranked universities with rank <= k. A faster-rising line near low ranks indicates stronger concentration at the top. QS, THE and ARWU are restricted to ranks <= 600. EU means EU27 only; the UK is included in ROW.

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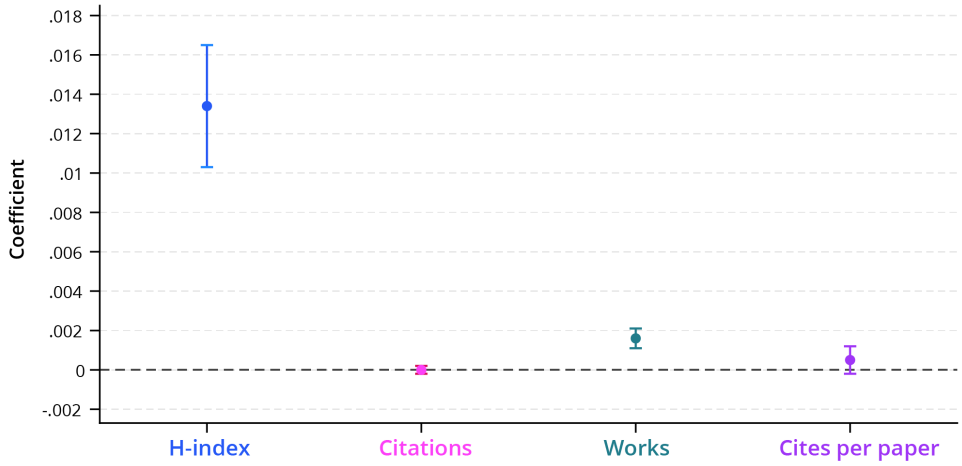
Appendix Figure 9. University ranking, founder premium and concentration.



Appendix Figure 10. University-level success with ERC grants, VC received and concentration.

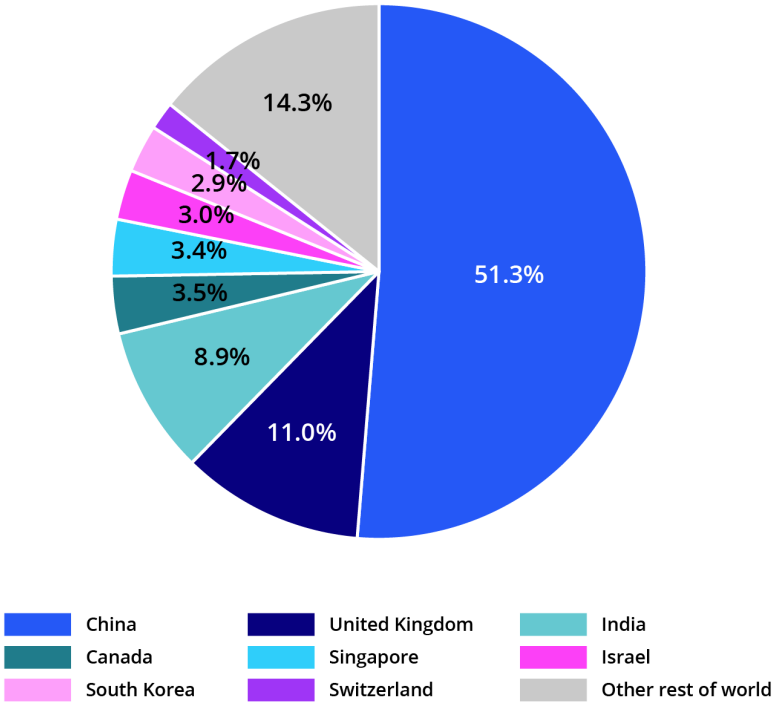


Appendix Figure 11. Scientific performance of founders and VC received (levels of bibliometric data).



All models include deal year, industry sector, and university fixed effects, and the bibliometric as the control variable.
The dependent variable is natural log of deal size.
N = 14,306. Standard errors are clustered at the university level (667 clusters).
Sample of deals from 1999 to 2025.
Sample includes founders whose last degree was obtained in a university from EU27, USA, UK or CH.

Appendix Figure 12. RoW (excluding US)



APPENDIX A.
TABLES AND FIGURES

Appendix Table 1. The extensive margin of the VC gap in relative terms.

Metric	U.S. excluding hubs	EU-27	U.S./EU ratio
Deals per $1 billion of GDP	**4.71**	**3.99**	**1.18**
Deals per million people	**312.81**	**149.25**	**2.10**

Appendix Table 2. Relation between market size, university ranking and VC investment.

	(1) Log VC	(2) Log VC
Log GDP	0.625***	0.910*
	(0.138)	(0.518)
Implied VC/GDP elasticity (γ − 1)	−0.375***	−0.090
	(0.138)	(0.518)
Any ranked university	1.922***	−0.185
	(0.393)	(0.291)
ARWU score, p25 → p75	1.744***	1.376**
	(0.342)	(0.671)
Year fixed effects	Yes	Yes
Country fixed effects	No	Yes
Observations	1,100	1,100
Countries	178	178
R^2	0.616	0.863

Note: the unit of observation is a country-year, 2018–2025, and the dependent variable is the log of annual VC deployed in companies headquartered in that country (USD millions). The sample is every country with WDI GDP that records at least one VC deal or one ARWU-ranked university in the window; country-years with no recorded VC drop out because the log is undefined. The score spline is a cubic mkspline basis in the country-year sum of ARWU scores, with knots at the 10th, 50th and 90th percentiles of country-years that have a ranked university. The reported spline effect is the model-implied change in log VC when the ARWU score moves from the 25th to the 75th percentile among country-years with a ranked university, holding the other covariates constant. Standard errors clustered by country in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.

Appendix Table 3. Founders' nationality proxied by the location of their undergraduate degree.

	(1) Log-VC received (EU-undergrad)	(2) Annualized return (EU-undergrad)	(3) Log-VC received (US HQ)	(4) Annualized return (US HQ)
Current US HQ	0.850***	6.426		
	(0.121)	(7.010)		
EU undergraduate			-0.192*	4.820
			(0.115)	(6.172)
Observations	7,126	259	57,900	3,350
R-squared	0.041	0.059	0.018	0.003
Year FE	yes	yes	yes	yes
Base log VC	-0.125		0.871	
Base annualized return		2.050		2.833

Appendix Table 4. Summary statistics of the ARWU score by region.

Statistic	EU27	Europe (EU27+UK+CH)	US
Mean	13.44	14.50	19.37
Median	11.28	11.78	14.29
25th percentile	8.49	8.61	9.87
75th percentile	16.36	17.62	23.99
90th percentile	23.09	25.31	38.17
95th percentile	28.08	30.89	49.68
Maximum	49.84	70.70	98.05

Note: Europe comprises the EU27, the United Kingdom and Switzerland.
Sources: Authors' calculations based on Shanghai Ranking.

Appendix Table 5. Transatlantic investors in later-stage VC, 2020–2025.

	EU firms	US firms
A. Transatlantic investor share of later-stage VC value		
Share of total deal value linked to at least one investor (%)	95.24	94.82
Share of total deal value with complete investor amounts (%)	6.93	3.17
Transatlantic share: reported if complete, equal split otherwise (%)	**24.72**	**3.69**
Transatlantic share: equal split for all linked investors (%)	24.66	3.69
Difference (pp)	-0.06	0.00
Transatlantic share, complete-amount deals: reported amounts (%)	**18.76**	**3.44**
Transatlantic share, complete-amount deals: equal split (%)	17.94	3.48
Difference (pp)	-0.82	0.03
Transatlantic share: excluding the 20 largest deals (%)	**20.91**	**3.61**
Share of total deal value in the 20 excluded deals (%)	12.42	15.59
B. Transatlantic investor participation in later-stage deals		
Later-stage deals linked to at least one investor	12,374	23,911
Deals with a transatlantic investor, among linked deals (%)	**19.50**	**12.76**

Notes: EU firms are startups headquartered in the EU27; US firms are those headquartered in the United States. A transatlantic investor is a US-headquartered investor for EU firms and an EU27-headquartered investor for US firms; investor location refers to the headquarters of the investing organization, not of its limited partners. Panel A covers completed later-stage VC deals with positive deal values classified by PitchBook as Actual. The headline share uses reported investor amounts where these are available for all linked investors, and an equal split across linked investors otherwise; the denominator is the total deal value of all deals in each market. The complete-amount rows are restricted to deals with reported amounts for all linked investors. The top-20 row excludes each market's 20 largest deals. Panel B covers completed later-stage deals with at least one linked investor; the participation rate is the share of these deals with at least one transatlantic investor.
Sources: Authors' calculations based on PitchBook.

APPENDIX B BILATERAL VENTURE CAPITAL FLOWS

APPENDIX B
BILATERAL VENTURE CAPITAL FLOWS

We construct a dataset of aggregate bilateral VC flows over time.

To construct the bilateral VC dataset, we start with individual deals and aggregate VC flows by investor country, startup country and year. The sample covers PitchBook venture-capital transactions between 2010 and 2025 and includes Seed, Early-Stage VC, Later Stage VC and Restart-Later VC deals.

Within each deal, the destination country is defined by the headquarters (HQ) of the company receiving the investment. This attribution is unambiguous because each PitchBook deal is associated with a single startup. Defining the origin is less straightforward, as a deal often includes several investors from different countries. Unlike standard trade data, the VC data therefore do not directly record a bilateral flow from country i to country j. We construct investor-country weights for each deal based on the HQ countries of the participating investors. These weights are used to allocate the total deal value across origin countries before aggregation.

Where all investors report an investment amount, we calculate their weights directly from the reported investment amounts. Where amounts are only partially disclosed, we retain the reported amounts, provided that the transaction is denominated in US dollars and the residual between the total deal value and the sum of reported amounts is non-negative. We divide this residual equally among investors whose amounts are not disclosed. If this hybrid allocation cannot be applied, or if no investor-specific amounts are reported, the deal is divided equally across participating investors. Investor-level weights are then aggregated by HQ country.

The resulting allocated VC flow X_{ijt} from investor origin country i to startup destination country j in year t can be written as

$$X_{ijt} = \sum_{e \in D_{jt}} V_e \times s_{ie}$$

where D_{jt} is the set of deals received by startups in country j in year t, V_e is the total value of deal e, and s_{ie} is the share of deal e allocated to investors headquartered in country i. Each deal value therefore enters once, while its origin is distributed across investor countries according to these weights.

This procedure is repeated across all country pairs and years. Dyad-years without a recorded VC flow remain in the dataset as zeros; one advantage of Poisson pseudo-maximum likelihood (PPML) is that these observations are informative and need not be dropped. The origin country reflects the investor's recorded headquarters rather than the ultimate source of its capital. A large fund headquartered in London, for example, is treated as a UK investor even if some or most of its underlying capital originates elsewhere.

APPENDIX C TECHNICAL DETAILS ON VENTURE-CAPITAL RETURN MEASURES

COVERAGE AND BENCHMARK CONSTRUCTION

The available return evidence covers VC funds rather than all investors financing startups. Corporations, family offices and other cross-over investors generally do not publish portfolio-level returns. Even within the VC-fund universe, the benchmarks are based on funds for which the data provider has sufficient cash-flow or valuation information; they should therefore not be interpreted as a census of all funds.

The principal sources used in the comparison are PitchBook's Venture Capital Benchmark, Invest Europe's performance benchmarks based on Cambridge Associates data, and TrackVC data reported through the European Investment Fund.[49] The publicly reported samples differ. PitchBook's vintage tables contain 81 European and 750 North American VC funds with sufficient cash-flow data for pooled internal rates of return over the 1999–2022 vintages. The Invest Europe study covers a broader set of European buyout, growth and VC funds; the VC-only count is not disclosed in the public summary, while the preceding detailed edition covered 199 European VC funds.

Geography is also defined differently from a simple EU-versus-US ownership comparison. Most industry benchmarks report Europe rather than the EU. In the Cambridge Associates-based data, funds are classified primarily by the geographical focus of their investment strategy. A fund owned by a US entity can therefore be classified as European if its investment mandate is focused on Europe. For the question considered in the text, this classification is useful because it captures the return expected by capital allocated to European investments, but it should not be interpreted as a measure of the nationality of the fund manager or limited partners.

RETURN CONCEPTS

Internal rate of return (IRR): The discount rate that equates the present value of a fund's net cash flows to zero. A pooled IRR is calculated from the combined cash flows of the funds included in the benchmark and is not equivalent to the arithmetic average of fund-level or vintage-level IRRs.

Since-inception (SI) return: The return measured over the entire life of a fund or vintage from inception to the reporting date. For comparisons across vintages, recent funds are mechanically less mature and may not yet have realized much of their eventual return.

Trailing-horizon return: The return earned over a fixed recent window, such as ten years. It includes the subsequent performance of assets already held at the

[49] Most benchmark data are available only to members or paying subscribers. The data presented here are based on two publicly available sources: PitchBook (2023) and the 2022 Invest Europe report (based on data from Cambridge Associates) available through the Slovak member.
https://www.slovca.sk/files/attachments/ie_performance_benchmark_report_2022_web.pdf.

beginning of the window as well as cash flows associated with funds created during the window. It therefore differs conceptually from the since-inception performance of funds launched during the same years.

DPI and TVPI: Distributions to paid-in capital (DPI) measures cash actually returned to limited partners relative to contributed capital. Total value to paid-in capital (TVPI) adds the reported residual net asset value of unrealized investments to distributions. These measures can complement IRR but answer somewhat different questions.

REPORTED BENCHMARK FIGURES

The main PitchBook vintage comparison used in the text is:

Appendix C (section 'Reported benchmark figures'): PitchBook vintage comparison. No caption in the report.

Region	Average 1999–2022	Average 2013–2022	US–Europe gap
United States	10.6%	13.6%	
Europe	6.4%	8.7%	
Difference			4.2 pp 4.9 pp

The trailing ten-year benchmarks are less consistent across providers. As of 31 December 2023, PitchBook reports a pooled ten-year IRR of 10.31% for Europe and 13.59% for North America. Invest Europe/Cambridge Associates reports a 20.77% ten-year horizon return for European VC and states that this exceeded the corresponding North American return. Invest Europe also reports an all-time European VC since-inception IRR of about 11.5% and a total value to paid-in capital multiple of 2.06. The sharp difference between the ten-year horizon estimate and the all-time since-inception estimate illustrates why the return concept matters for the interpretation.

DIAGNOSTIC CALCULATIONS USING SINCE-INCEPTION RETURNS

As an additional check, the PitchBook pooled since-inception IRRs for the 2013–2022 European vintages can be combined with annual European VC fundraising. Weighting the available vintage returns by PitchBook's annual European VC capital raised produces an average of approximately 6.5%. The calculation uses 46 pooled-return fund observations and about EUR 194.6 billion of fundraising weights. Starting the calculation in 2014 instead gives approximately 7.1%.

A parallel calculation using TrackVC annual since-inception returns and Invest Europe data on capital raised or fund closings produces a similar order of magnitude. Unweighted arithmetic averages of the PitchBook and TrackVC annual since-inception series are also close to one another, at roughly 8% over 2013–

2022, despite sizable year-by-year discrepancies.

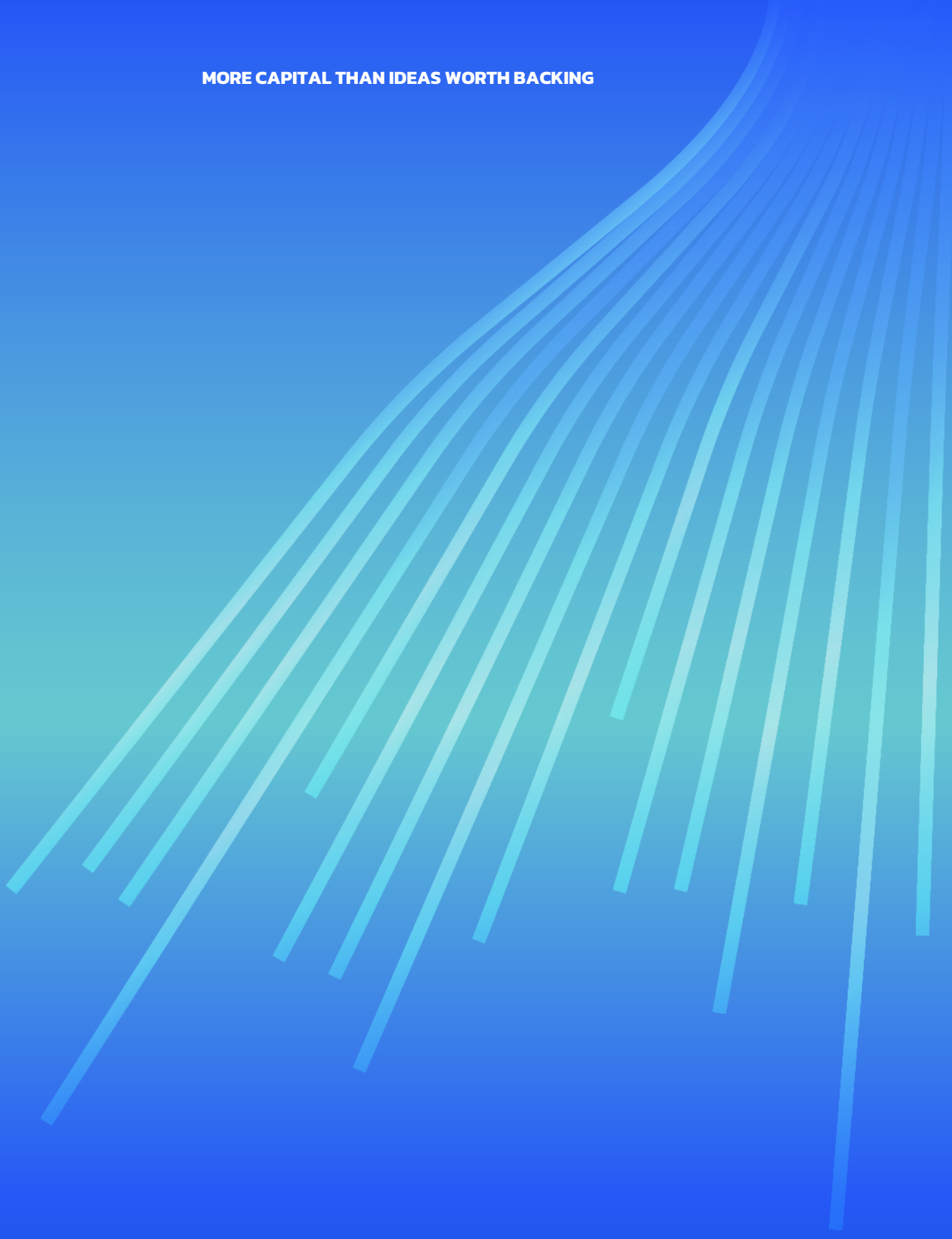
These exercises are diagnostic rather than formal pooled-return estimates. Aggregate annual fundraising is not the same as the commitments of the particular funds included in a return benchmark, and weighting vintage IRRs by aggregate fundraising does not reproduce a cash-flow-pooled IRR. The exercise is useful mainly for assessing whether the broad level of European since-inception returns is sensitive to the choice of provider and weighting convention.

INTERPRETATION OF THE TEN-YEAR HORIZON DISCREPANCY

The Invest Europe/Cambridge Associates trailing-horizon measure includes the portfolio already held at the start of the ten-year window. In the source material, the unusually strong European horizon return is linked to a starting portfolio valued after a period in which European VC prices and activity had remained depressed, so subsequent appreciation can have a large effect on the measured horizon return. The source material also notes that the spread of fair-value accounting around that period may have affected measured valuations. For this reason, the trailing-horizon measure is informative about the return earned by an investor exposed to the benchmark portfolio over the window, but it is less well suited to answering whether funds initiated during the last decade generated higher returns in Europe or in the United States.

SOURCES USED IN THE SECTION

PitchBook, Venture Capital Benchmark, Q4 2023; Invest Europe performance benchmark reports based on Cambridge Associates data; TrackVC since-inception return series reported through the European Investment Fund; and the publicly available Invest Europe/Cambridge Associates benchmark material cited in the associated draft.



APPENDIX D
WHY ARE US INVESTORS MORE COMMON IN LARGE EUROPEAN DEALS?

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Suppose that US investors account for 7% of investor participations and that investors are randomly distributed across deals.[50] For a deal with (n) investors, the probability that at least one is a US investor is then $1 - (1 - 0.07)^n$. This probability rises mechanically with the number of investors participating in a deal.[51]

Larger deals typically involve more investors. The largest deals in our sample have, on average, five to six investors, implying a probability of roughly one-third that at least one US investor is present even under random matching. Hence, part of the observed increase in US participation with deal size may simply reflect the fact that larger deals involve more investors, rather than a shortage of European investors able to finance large transactions.

The data confirm that this mechanical effect explains a substantial, though not complete, part of the stronger US presence in large deals. In the smallest deal-size decile, deals in our sample involve an average of 1.4 investors, and a US investor is present in 6.3% of cases, compared with 9.8% predicted under the 7% benchmark. Around the middle of the distribution, deals involve roughly 3.0 investors on average. The benchmark would predict US participation in about 20% of such deals, whereas the observed share is approximately 16%.

The pattern changes at the top of the distribution. In the largest deal-size decile, which involves on average 5.7 investors, at least one US investor participates in 49.5% of deals. Under random matching, the 7% benchmark predicts a share of 33.6%. US investors are therefore disproportionately represented in the largest deals, by about 16 percentage points relative to the benchmark.

At the same time, the raw figure that US investors participate in roughly one-half of the largest European deals substantially overstates the extent of this disproportionate presence. About two-thirds of the observed 49.5% participation rate would arise mechanically from the larger number of investors per deal: the benchmark predicts 33.6% even in the absence of any systematic relationship between investor nationality and deal size. The economically relevant excess US presence in the largest deals is therefore closer to 16 than to 50 percentage points.

[50] The 7% number is determined by minimizing the mean squared error between the observed share of deals with a US investor and the predicted share obtained with the formula $1 - (1 - q)^n$. Alternative estimates using maximum likelihood are very similar.

[51] In a single-investor deal, for example, the probability of observing a US investor is 7%.

Appendix D: deals with at least one US investor by deal-size decile, observed and predicted under random matching. No caption in the report.

Decile	Average investors (n)	Observed	Prediction (q = 7%)	Difference
1	1.42	6.3%	9.8%	−3.5 pp
2	1.96	7.5%	13.2%	−5.7 pp
3	2.38	8.9%	15.9%	−7.0 pp
4	2.79	13.0%	18.3%	−5.3 pp
5	3.14	15.5%	20.4%	−4.9 pp
6	3.43	18.3%	22.0%	−3.7 pp
7	3.72	20.8%	23.7%	−2.9 pp
8	4.00	25.6%	25.2%	+0.4 pp
9	4.40	28.8%	27.3%	+1.5 pp
10	5.65	49.5%	33.6%	+15.9 pp