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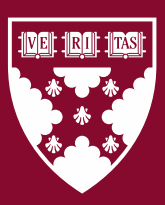

Harvard Business School

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We seek to gain insight into the consequences of deglobalization on entrepreneurial investment by analyzing an instance of economic disintegration: the United Kingdom's exit from the European Union. Brexit is not only a unique empirical opportunity, a natural experiment, but it is economically important, since the UK was the heart of entrepreneurial investment in Europe. The theory of international trade, at a macroeconomic level, and the theories of economic agglomeration and entrepreneurial location, at a firm level, all predict that economic disintegration would lead to a lose-lose scenario for both the UK and the EU, with the UK losing more. However, since these theories were developed in a period of slow increasing globalization, we lack knowledge on the specific mechanisms by which these losses occur. We argue that one such mechanism is the different institutions that move or stay as a result of the economic disintegration—institutions that support industries in different ways and therefore exacerbate or mitigate the effect of economic disintegration on entrepreneurial investment. Difference-in-difference analyses of the entrepreneurial investment received by ~35,000 startups, and of the portfolio choices by ~26,000 investors and ~89,000 investor-quarters, in the UK, EU, and US (a counterfactual not affected by Brexit) show that the effects are highly heterogeneous by industry, with larger-magnitude effects on industries that are heavily regulated. Qualitative analysis from 45 interviews (conducted as Brexit's process was unfolding) suggests that the institutions that support these industries, differently affected by Brexit, explain such variation.

Keywords: economic integration, international trade, Brexit, entrepreneurial financing, institutional disruption, natural experiments

DEGLOBALIZATION AND ENTREPRENEURIAL INVESTMENT:

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> *How quickly the unthinkable became the irreversible. A year ago few people imagined that the legions of Britons who love to whinge about the European Union—silly regulations, bloated budgets and pompous bureaucrats—would actually vote to leave the club of countries that buy nearly half of Britain's exports. Yet, by the early hours of June 24th, it was clear that voters had ignored the warnings of economists, allies and their own government and, after more than four decades in the EU, were about to step boldly into the unknown.*
>
> —*The Economist* (June 25th, 2016)

1 INTRODUCTION

After decades of increasing economic, political, and cultural integration, the process known as globalization has decelerated, and possibly reverted, due to geopolitical, technological, and economic turmoil (Ghemawat 2018). This rapid change in the business environment provides a unique opportunity for scholars to study the effects of economic disintegration on businesses. Seizing this opportunity, this paper sheds light on the consequences of deglobalization by analyzing an instance of economic disintegration, the UK vote to leave the EU in June 2016, and its impact on entrepreneurial investment. The empirical setting is particularly relevant given that the UK was the heart of entrepreneurial activity in the EU, accounting for 40 percent of all EU investment in startups, while the British economy was 20 percent of the EU's GDP in 2015.[1]

Extant literature in international trade theory, strategy, and entrepreneurship focuses on the positive effects of international trade, the economic integration of regions—such as the EU or the US-Mexico-Canada Agreements—and the externalities of economic agglomeration. At a macroeconomic level, international trade theory shows that there are economic gains from international trade and economic integration, gains that are driven through economies of scale, comparative advantage, and the

[1] According to data from Pitchbook and the World Bank.

diffusion of technology and productivity (Balassa 1961, Krugman 1979, Eaton and Kortum 2002, Burstein and Vogel 2017). At the firm level, geographic agglomeration benefits firms through access to larger pools of resources and technology (Saxenian 1996, Bresnahan et al. 2001, Chung and Alcácer 2002, Stuart and Sorenson 2003b, 2003a, Alcácer and Chung 2007, Delgado et al. 2010, Alcácer and Chung 2014), as well as benefits to the colocation of investors and startups (Sorenson and Stuart 2001, Samila and Sorenson 2010, 2011, Alvarez-Garrido and Dushnitsky 2016). Given the benefits from agglomeration and integration, these literatures would predict a negative effect of economic disintegration on entrepreneurial investment in both the UK and the EU. Since the UK loses access to a larger market, and economies of scale are an important mechanism driving the gains of integration, we would expect a greater negative effect on investment in UK startups than on EU startups.

And yet, since we have previously only studied the benefits of integration and agglomeration in a period of globalization, we do not fully understand the nature of the mechanisms that drive the reverse (and more recent) process of deglobalization. Specifically, economic disintegration is much faster than integration—it took less than four years for the UK to separate from an economic and political union that took decades to build—and this difference in timing may uncover new mechanisms, or mechanisms that were difficult to identify over the long term. Based on our qualitative research, we argue that institutions' role in economic disintegration is one such mechanism. While institutions typically develop over the long term, Brexit brought about institutional disruption comparable to that following the fall of Berlin's wall. Because of Brexit, some institutions moved from the UK to the EU, while others stayed, limiting their reach in the EU. In this paper, we used the heterogenous impact of Brexit on entrepreneurial investment across industries to illustrate that institutions' relocation, or lack of it, exacerbates or mitigates the impact of economic disintegration on entrepreneurial investment.

We used a mixed-methods approach, combining quantitative analysis of ~35,000 startups and ~26,000 investors with qualitative analysis of 45 interviews with investors, startups, and corporations. We leveraged the unexpected outcome of Brexit's referendum on June 23rd, 2016, as an exogenous shock, as

the opening quote suggests, and analyzed its effect quantitatively using a difference-in-difference (DD) empirical approach. Because there are two relevant actors—investors and startups—whose decisions are intertwined, it is important to study the phenomenon from both perspectives. Therefore, we examined the investment startups received in the UK and the EU before and after Brexit's referendum. We also examined investors' portfolio decisions focused on the UK or the EU before and after Brexit's referendum. These analyses leverage unique access to the entire Pitchbook database, comprising 34,949 startups and 25,957 investors (89,009 investor-quarter observations). Since Brexit affected both regions, we leveraged the US as a counterfactual. The period of analysis (2014 through 2018) excluded the postponements of Brexit in 2019 as well as the COVID-19 pandemic.

Consistent with extant theory, our results suggest that the referendum negatively affected both UK and EU entrepreneurial investment. UK startups received between 8 and 9.5 percent less equity than before, and EU startups between 5 and 7 percent less. Notably, the negative effect was more marked in the UK: UK startups lost between 2.5 and 3 percent more than EU startups. Investors with a mandate to invest in the UK were, on average, 6 percent less focused in the UK than before. This negative effect increased to between 7 and 13 percent for investors with more flexibility in their portfolio decisions.

Our analyses suggest that these effects vary by industry in magnitude and direction. Heavily regulated industries, such as financial services and healthcare, were impacted the most, yet differently. Although UK startups in healthcare lost more than EU startups (28 percent less investment for UK startups compared to 8 percent less for EU startups), the opposite is true for financial services (35 percent reduction for UK startups compared to 50 percent reduction for EU startups). Investors with a mandate to invest in the UK reduced their portfolio in British healthcare startups but not in financial services startups. In other words, while the referendum negatively affected UK startups in financial services, EU financial services startups suffered a larger negative impact.

Qualitative analyses enrich and provide insights into the main trends in the data. We conducted a panel of 45 interviews as the process of Brexit was unfolding, between 2017 and 2023, to record the

sentiment and opinions of relevant actors—different types in different regions (the UK and the UE)—in real time. These interviews suggested that the relocation of EU and UK institutions in these two industries explains, to a large extent, the variation in the data. In healthcare, interviewees described the move of the European Medicines Agency (EMA)—the EU equivalent of the US Food and Drug Administration (FDA)—from London to Amsterdam as a significant loss for UK startups, which had benefited greatly from proximity to the regulator. This move explains the economically large effects in healthcare in both regions, but the exacerbated effect for UK startups. In financial services, two important institutions were affected by Brexit. First, passporting regulation— an EU regulation that allows financial institutions with a license in one country to operate in the entire EU—would cease to apply to UK startups, slashing their target market and hence leading to a negative effect. Second, the financial regulator in the UK (the Financial Conduct Authority, or FCA) is arguably one of the main reasons behind London's global position as a financial center (Allen and Gale 2001) and an important advantage to UK fintech startups, as evidenced by the efforts to foster innovation in the UK (Dinçkol et al. 2023).

While the literature acknowledges the important role of institutions in the comparative advantage of countries and international trade (Krugman 1992, Helpman 2004, Acemoglu and Johnson 2005, Belloc 2006, La Porta et al. 2008, Nunn and Trefler 2014), the role of institutions in the economic integration of regions is less studied. We contribute to this literature by analyzing the impact of institutions that move or stay in a deglobalization process, and how those institutions mitigate or exacerbate the consequences of deglobalization on investment. Because institutions are forged over a long period, a rapid deglobalization process allows us to observe institutional disruption and the reaction by actors to the new playing field. We also contribute to the literature on clusters (Saxenian 1996, Bresnahan et al. 2001, Chung and Alcácer 2002, Stuart and Sorenson 2003b, 2003a, Alcácer and Chung 2007, Delgado et al. 2010, Alcácer and Chung 2014) and the colocation of startups and investors (Sorenson and Stuart 2001, Samila and Sorenson 2010, 2011, Alvarez-Garrido and Dushnitsky 2016) by showing the role of institutional change in the factors that provide an advantage to a specific region.

Our research has implications for managers who seek to understand the consequences of institutional change and newly raised borders on investment, as well as for policymakers who seek to understand how institutions—which are deeply shaped by policy—impact investment in new technologies.

2 DEGLOBALIZATION AND INSTITUTIONAL DISRUPTION

At a macroeconomic level, international trade theory has long established that trade and economic integration lead to long-term economic growth (Rivera-Batiz and Romer 1991, Henrekson et al. 1997, Alesina et al. 2000). Three mechanisms drive this growth: (a) greater economies of scale from accessing a larger market for goods and services and resources, (b) comparative advantage of one region relative to another, which allows economic benefits from specialization; and (c) the diffusion of technology across the integrated region, leading to productivity increases (Balassa 1961, Krugman 1979, Rivera-Batiz and Romer 1991, Eaton and Kortum 2002, Bustos 2011, Burstein and Vogel 2017).

Interestingly, the strategy and entrepreneurship literatures discuss parallel mechanisms at a firm level. Entrepreneurial scholars have shown that investors prefer to invest within their geographical proximity (Sorenson and Stuart 2001), to monitor their operations and provide advice more effectively (Gorman and Sahlman 1989), leading to the creation of clusters of entrepreneurial firms, such as Silicon Valley, Route 128, or, notably for our empirical setting, the Golden Triangle of London, Cambridge, and Oxford. While the reasons why clusters form and why firms are attracted to them are complex (Saxenian 1996, Bresnahan et al. 2001, Chung and Alcácer 2002, Stuart and Sorenson 2003b, 2003a, Alcácer and Chung 2007, Delgado et al. 2010, Alcácer and Chung 2014) and beyond the scope of this work, they generally can be explained as economies of scale on the supply side (having access to specialized labor, suppliers, and knowledge), or comparative advantage of a region relative to another (explaining the origin of a cluster) that reduces costs for resident firms.

It is straightforward that both the UK and the EU lost economies of scale with Brexit. Naturally, the UK stood to lose more, going from access to a market of over 500 million people to a core market of 67 million in 2020. Thus, our baseline prediction is that while both regions lose with disintegration, the UK would lose more. Here, however, we seek to go beyond scale to examine other factors that may change the balance of comparative advantage in the continent.

Before Brexit, the UK had a comparative advantage in entrepreneurial investment in the EU: the UK comprised 40 percent of entrepreneurial investment, yet accounted for only 20 percent of the EU's GDP. Previous literature suggests that this competitive advantage stems from strong institutions, such as a strong financial system (La Porta et al. 1997, 1998, Allen and Gale 2001, La Porta et al. 2008) and a strong innovation environment (Casper and Matraves 2003, Breznitz 2014). These institutions are also relevant in entrepreneurial investments, as a British venture capitalist explained in an interview:

> *The UK is very strong and has been for some time. There is a strong ecosystem. We have a strong stock market exchange. There is also a lot of money, especially for seed stage. And there is a lot of money lately from corporates, too. . . We have a lot of talent coming from all over the place. The universities are very important, there is nowhere in Europe with so many universities, and they have been very active in setting up incubators, and fostering entrepreneurship, and that is very important. Then the professional services around it. There is a big financial tradition, for over a hundred years, and the professional services are there. And the regulation, which is very welcoming.*
>
> —Interview with UK investor (2017)

In addition to national institutions, the EU developed supra-national institutions that furthered the national comparative advantage of the UK in entrepreneurial investments. This was especially the case in heavily regulated industries, such as financial services and healthcare, that depend more on national and EU institutions.

The effect of Brexit on financial services startups from the relocalization of institutions is not clear ex-ante. In the UK, the FCA is a professional and flexible regulator that has nurtured London not just as a financial center (La Porta et al. 1997, 1998, Allen and Gale 2001, La Porta et al. 2008) but as a leading market in financial services startups. Thus startups would prefer to stay within the umbrella of the

FCA. However, passporting—the EU regulation allowing financial services in one country to be exported to any other country within the EU (BBA 2017)—would be lost if financial services startups were located in the UK. Passporting is a significant advantage since the lengthy and costly process of obtaining a financial services license is needed only once to be granted access to the entire EU market. While passporting would eventually be lost for UK startups, they would still be close to the preferred regulator.

The healthcare industry is heavily regulated by the EMA, which provides new drug and new medical devices authorizations in the EU, with national institutions (in the UK, the Medicines and Healthcare products Regulatory Agency, or MHRA) retaining a role for some country-specific authorizations (Richards and Hudson 2016, Kupferschmidt 2017). The EMA was established in London in 1995, and a whole regulatory industry formed around it. The proximity to this regulatory cluster positioned UK healthcare startups well compared to startups in the EU. After the referendum, however, the movement of the EMA to Europe (eventually to Amsterdam in March 2019) was certain.

The presence of the EMA was not the only contributing factor to the strength of healthcare entrepreneurial firms in the UK. Strong universities in life sciences, such as Cambridge and Oxford (Breznitz 2014), and the presence of two major pharmaceutical firms (AstraZeneca and GSK) helped account for the fact that about 40 percent of EU startups in healthcare in 2015 were British.

In short, the institutional disruption of Brexit is more apparent in industries that are heavily regulated by the EU, such as finance and healthcare. We therefore unpack industry heterogeneity in this paper, to assess whether the impact on different industries is consistent with the institutional disruption of Brexit in each industry.

3 METHODOLOGY

3.1 The natural experiment of Brexit's referendum

The outcome of Brexit's referendum on June 23rd, 2016, was an exogenous shock, a natural experiment that "took market participants by surprise. Opinion polls had predicted a close vote, but betting markets implied a probability of around 85 percent that the UK would choose to remain in the EU, reflecting the conventional wisdom that undecided voters would opt for the status quo" (Breinlich et al. 2018, p. 588). Prime Minister Cameron resigned the day after the referendum, and the British pound tumbled: in the days to follow, it depreciated 13 percent against the US dollar and 11 percent against the euro, remaining at that lower level for the rest of the Brexit process. Because of the unexpected outcome of the referendum (Ramiah et al. 2017, Breinlich et al. 2018, Davies and Studnicka 2018, Born et al. 2019, Douch and Edwards 2022), the vote is leveraged as a natural experiment in economic, policy, and healthcare studies (e.g., Vandoros et al. 2019, Schonfeld and Winter-Levy 2021, Wu et al. 2021).

The referendum did not just present an empirical opportunity; it had a significant economic impact in Europe. Indeed, while we know the actual separation from the EU had a major impact in the UK—two years after Brexit, the UK had 5.5 percent lower GDP and 11 percent less investment (Springford 2022)—the referendum in itself was also an economically relevant event. By the end of 2018, over two years after the referendum and one year before Brexit came into effect, the UK experienced a reduction of 11 percent in investment, a decrease of between 2 and 5 percent in productivity (Bloom et al. 2019), and a 2.4 cumulative reduction in GDP representing a cumulative loss of £55 billion (Born et al. 2019). Accordingly, the stock markets penalized firms that were most exposed to the shock and its consequences (Breinlich et al. 2018, Davies and Studnicka 2018). While both EU and UK firms were impacted, the latter suffered a greater impact (Belke et al. 2018), with abnormal negative returns varying by industry (Ramiah et al. 2017). In sum, while the institutional disruption happened only after Brexit, actors started strategically positioning for the new scenario early, and studying the referendum allows us to estimate the impact of this initial positioning before the eventual separation.

3.2 Quantitative and qualitative data

We leveraged a mixed methods empirical approach, with both large-sample quantitative and rich qualitative data. Using Pitchbook's dataset, we analyzed two actors behind investment decisions: (1) startups, to identify how much capital they received depending on where they were founded, and (2) investors, to understand the changes in their portfolio depending on their geographic mandate to invest. We focused on investors' geographic mandate rather than on their headquarters locations for two reasons: (1) because international investments are common in Europe, and investors don't always collocate with their investment, and (2) because investors raise funds that are typically constrained by industry and geographic location. For instance, a pan-European fund aiming to invest "within the European Union" may receive capital from the European Investment Fund, a governmental entity that requires its capital to be invested in EU startups. Since funds are raised sparingly, the mandate tends to be stable. Some investors, such as corporations and angels, have more flexibility to change their investment patterns because their mandate is not regulated by a contract.

In addition to UK and EU data, we needed a counterfactual that Brexit did not treat. The United States, a point of reference for European investors and startups, was a good candidate to serve as the control for the general trend of startup investment in Western economies, with a size comparable to the European Union and with many similarities in institutions that were relevant for startups, yet sufficiently removed from the process of Brexit. Therefore, we gathered data on startups from the UK, EU, and US, and investors whose mandate was to invest in the UK, EU, or US.

The period of analysis (from January 1st, 2014, to December 31st, 2018) is roughly centered on the referendum (June 23rd, 2016) and excludes other major shocks with the potential to confound the effect—specifically, the three postponements of Brexit during 2019, the actual Brexit date on January 31st, 2020, and the effect of the COVID-19 pandemic.

In our analyses, we focused on roughly 70 percent of the observations in Pitchbook with information on the dollar amount invested in each startup. We found no economically meaningful

differences between the initial and final samples. The final samples span 34,959 startups (4,219 in the UK, 8,561 in the EU, and 22,179 in the US) founded after 2013 and observed for the first and second round of investment (if any); and 25,957 unique investors (2,295 with a UK geographic mandate, 5,146 an EU mandate, and 18,516 a US mandate) amounting to 89,009 investor-quarter observations.

We enriched the quantitative analyses with qualitative data from 45 interviews with investors, startups, and industry associations. We sought to capture actors' reactions as the Brexit process unfolded by conducting interviews with the same actors over time, whenever possible. Most interviews occurred between 2017 and 2019, before the actual separation. The objective was to identify mechanisms driving investment patterns, and consequently we sought to increase the variety of actors, locations, and industries (Eisenhardt and Graebner 2007). We conducted interviews across geographies (in the UK and in the EU, specifically France—the largest country in investment—and Spain—the fastest growing), over time (between 2017 and 2023), across industries (technology, healthcare/life sciences, and financial services), and with different types of actors (venture capitalists, corporations, startups, incubators, universities, and industry associations). All interviews were conducted in person, at the site of the actor, and on almost all occasions the interviewee was a partner or CEO. Interviews were semi-structured, to gain insight into a variety of processes, and lasted approximately 30 minutes.

3.3 Analyses

We leveraged the natural experiment from Brexit's referendum through a difference-in-differences (DD) analysis (e.g., Card 1990, Meyer et al. 1995, Angrist and Krueger 2001, Angrist and Pischke 2009, Athey and Imbens 2022). We ran two sets of DD analyses: UK vs. US, and EU vs. US. We estimated seemingly unrelated regressions and performed Chow tests to compare the coefficients of interest in both sets. As shown later, the US met the parallel trends assumption and was therefore deemed a good counterfactual for both economies in our sample.

For startups, we first examined the cross-section of 34,949 firms that received their first round of investment either before or after the referendum to assess whether the referendum affected the equity

received in that initial investment round. Startups that were more desired by investors—whether because of higher quality, higher expected benefit relative to risk, or some other characteristic that was attractive to investors—received more equity. Hence, this analysis sheds light on whether the desirability of startups to investors changed with the referendum.

Second, we performed panel analyses with the subset of startups that received their first round of investment before the referendum and their second round either before or after the referendum. The panel data sample consisted of 10,134 startups. Because these analyses control for fixed unobserved startup characteristics, they allow us to better identify the referendum's effect on startup investment in the UK or EU.

For investors, our goal was to understand how Brexit's referendum impacted the decision to invest in a geographic area. More specifically, we analyzed whether investors with a geographic mandate to invest in the UK, the EU, or the US changed their investment patterns upon Brexit's referendum. We analyzed this data using random effects panel data analyses.

We used coarsened exact matching to balance both the startup and the investor samples. This semi-parametric technique is common in the literature because it does not impose many restrictions on the matching but simply trims observations that are causing an imbalance (Blackwell et al. 2009, Iacus et al. 2011, 2012, Aggarwal and Hsu 2014). For startups, we matched on age, industry, and before/after referendum, across the three geographies; for investors, we matched on investor type and before/after referendum, across the three geographic mandates. Both samples were highly balanced, and few observations were trimmed.

3.4 Measures

In startup analyses, we defined the dependent variable $Investment_{it}$ as the deal size, or amount invested in startup i at time t, with time measured in quarters and investment measured in USD millions. We considered the investment in the startup's first and second rounds of investment. The main variables for

the DD analyses are indicators of *After Brexit referendum*$_t$ (the second quarter of 2016 and after[2]) and of where the startup is headquartered (UK, EU, or US). We controlled for whether the startup had revenue and whether the lead investor was a VC—both of which may correlate with the quality or value of the startup, and therefore with investment—as well as by the age of the startup. Finally, following Pitchbook's industry classification, we categorized each startup as IT, healthcare, financial, business-to-business (B2B), business-to-consumer (B2C), energy, or materials & resources. These are exclusive categories that describe the startup's main business. Depending on the analysis, we either controlled for industry fixed effects or we split regressions by industry.

In investor analyses, the dependent variable *Rate invested in mandate*$_{jt}$ measured the percentage of deal size in the country of investor *j*'s geographic mandate at time *t*. We defined an investment mandate as 50 percent or more of the investments in the last 10 years in a country or, in the case of the EU, a region. To understand how the effect varies by industry, we considered the variable conditional on industry—in other words, within all investments in an industry, we calculated the *Rate invested in mandate*$_{jt,\ ind}$ (for investor *j*, time *t*, and industry *ind*). As in the previous analyses, the main variables of interest for the DD analysis are the *After Brexit referendum*$_t$ variable, and variables that indicate the mandate of the investor (UK, EU, and US). We either split the sample by, or controlled for, the type of investor: a VC or PE (both of which raise funds as vehicles of investments, funds that typically have a contractual geographic mandate); a corporation (investing directly or through a corporate venture capital arm); an angel; or other types, which include accelerators and incubators, government, and universities, among others. Finally, we controlled for the country where the investor was headquartered using region fixed effects—the regions being the UK, EU, US, and the rest of the world. Table 1 lists and summarizes the variables.

[Table 1 about here]

[2] While the referendum was at the end of the second quarter, we conservatively include this quarter in the "after" period in case some investors held long-term investment decisions then as they awaited the referendum's result.

4 RESULTS

4.1 Startup analyses

Table 2 presents descriptive statistics for the startup analyses, specifically for round 1 of investment, split by the startup's origin. The mean investment in the UK over the whole period was 1.49 USD million, while in the EU it was 2.27 USD million.

[Table 2 about here]

The first set of DD analyses studies the effect of Brexit's referendum on investment in the cross-section of startups that received their first round of investment either before or after the referendum. In Table 3, we estimated the effect of starting up in the UK vs. the US (Model 1) and the effect of starting up in the EU vs. the US (Model 2). We found both negative and significant effects: after the referendum, UK startups received 8.1 percent less investment than before, and EU startups received 4.9 percent less investment. A Chow test revealed that the UK vs. EU gap was 3.2 percent. Figure 1 tests the assumption of parallel trends: the US has parallel linear trends with both the UK and the EU before Brexit's referendum.

[Table 3 and Figure 1 around here]

Next, we analyzed the effect of the referendum on a panel of startups, such that the first round of investment happened before the referendum, and the second round happened either before or after the referendum. The main advantage of this analysis is that it controls for fixed unobserved characteristics of the startup, including location. Table 4 presents the results of the main DD analyses: UK startups received 9.4 percent less investment than before (Model 1), and EU startups 6.8 percent less (Model 2), with a UK vs. EU gap of 2.6 percent. Overall, Tables 3 and 4 show consistent results: startups in the UK received less investment after the referendum, and so did EU startups (albeit the effect is smaller).

[Tables 4 around here]

Next, Tables 5 and 6 repeat these DD analyses, split by industry. The results show that the effect of Brexit's referendum on investment in the UK and the EU is highly heterogeneous by industry. The

economic magnitude of the effects was much larger in healthcare and finance, both heavily regulated industries that depend on institutions disrupted by Brexit. Table 5 shows that, after the referendum, UK healthcare startups received 27.8 percent less equity than before the referendum, while EU startups received 8.1 percent less equity. The UK vs. EU gap was estimated at 19.1 percent. In financial services, UK startups received 35.2 percent less equity than before, while EU startups received 50.2 percent less investment. In essence, UK startups were significantly affected, but less than EU startups, resulting in a relative advantage of UK startups vs. EU startups of 15 percent. In a sector such as IT, the effect is economically smaller than the average: UK IT startups receive 2.1 percent less investment than before, with no statistically significant effect for the EU. The large size of this sector lowers the overall (cross-industry) effect shown in Tables 3 and 4.

[Table 5 and 6 around here]

The results in Table 6, a panel data analysis, are generally consistent but have two differences. First, healthcare startups saw less investment in the UK and the EU, but comparatively, they lost less investment in the UK. Along with the cross-section analyses in Table 5, this may indicate that investors allocated more resources to healthcare startups in which they had already invested relative to new investments, seemingly at the expense of newly formed startups. For IT startups, the investment in the second round was significantly reduced compared to the first round in both regions, going from a 1-2 percent impact to a 10-12 percent impact. Interestingly, UK startups were slightly better off than EU startups in the second round. Differences between UK and EU startups in IT, while statistically significant, were economically smaller.

4.2 Investor analyses

Table 7 presents descriptive statistics for the investor-quarter analyses, split by the geographic mandate of the investor (UK, EU, or US). The objective of these analyses was to assess whether an investor who was focused on the UK (or EU) reduced their investment in the UK (or EU).

On average, between 81 and 88 percent of the portfolio was invested in the investor's geographic mandate. Most investors were venture capital or private equity firms (35 to 42 percent, depending on the geographic mandate), followed by angel investors (32 to 42 percent).

[Table 7 about here]

Table 8 shows DD analyses for the panel of observations by investor over time (quarters). Investors with a UK mandate invested 5.6 percent less (per quarter) in the UK than before (Model 1); investors with an EU mandate did not significantly change their mandate (Model 2). This effect varied by investor type. VC and PE investors, with less flexibility to change their mandate, exhibited a smaller change: investors with a UK mandate invested 2.9 percent less in their mandate than investors with a US mandate (Model 3); the effect was 1.9 percent less for EU investors (Model 4). Corporations and angel investors, which can change their geographic focus more easily, exhibited a larger impact of the Brexit referendum. Corporations and angels with a UK mandate invested between 7 and 8 percent less in their mandate than investors with an EU mandate, respectively. In other words, we observe a larger impact of the Brexit referendum on those investors that were less constrained to invest in a particular region. Figure 2 shows the effect, graphically, for investors with a UK mandate (Panel A) and with an EU mandate (Panel B); upon the referendum, the investors with a UK mandate departed from investors with a US mandate, while the effect was less marked for investors with an EU mandate. The US again met the assumption of parallel trends and was a good counterfactual in this sample.

[Insert Tables 8 and 9 and Figure 2 about here]

Table 9 repeats the DD analyses split by industry, showing again that the effect is heterogeneous by industry. In healthcare, and consistent with previous analyses, investors with a UK mandate reduced their investment in the UK by 7.1 percent compared to investors with a US mandate; this is 5.1 percent less than investors with an EU mandate. In contrast, in finance and in IT, there is no statistically significant change in the focus of the investment mandate.

4.3 Robustness

The results are robust to different specifications. We estimated DD models considering the UK as treatment and the EU as control, effectively estimating the net effect of Brexit's referendum on both regions. The results were qualitatively and quantitatively robust to using the US as a counterfactual. These results are presented in the Appendix Tables 1, 2, and 3. The results are also robust to considering the count of investments instead of the amount invested. These regressions are presented in the Appendix Tables 4 and 5. Finally, results are robust to including the exchange rates with the British pound (in UK regressions) and the euro (in EU regressions); however, we choose to not include the exchange rate in main regressions because it correlates with *After Brexit referendum*$_t$.

5 QUALITATIVE INSIGHTS

The quantitative analyses show that both the UK and the EU were negatively affected by the referendum (compared to the US), and that, on average, the UK suffered more than the EU, as extant theory had predicted. Interestingly, however, these analyses show significant industry heterogeneity. We turn to the qualitative insights from our interviews to shed light on industry differences that are consistent with the results described above. Our interviews provided support for the importance of institutional change in both healthcare and financial services as a result of Brexit.

In healthcare, all EU interviewees were very concerned with how the move of the EMA would impact startups. Consider, for instance, the following quotes:

> In the UK, you know the EMA, it has moved to Amsterdam. And this is a big big disadvantage. And it is not about the 1,000 people [working for the EMA]. It is a whole industry that is moving! All contract research organizations, lawyers that are required to submit the patent applications… all this ecosystem, moved away. This is the worst thing that could happen to the UK. I have seen the same thing around FDA in Bethesda, there are a lot of companies helping with the IND [Investigational New Drug Submission]… All these companies need to be around the decision making.
>
> —EU biotech entrepreneur

> But also they are losing the EMA, and that is going to put [the UK's life science] research behind by 10 years. Because they are losing a lot of expertise that is moving to Netherlands.
>
> —EU biotech investor

> The UK now loses the EMA. And even though this agency is a European institution, it of course has a different relationships with the institutions of the country hosting, because of proximity. Right now all the experts doing reports for the EMA are from the UK, there is a special relationship with them. And all this is going to change when it moves to Amsterdam . . . UK is going to lose a lot, there is no doubt.
>
> —CEO of EU biotech association

Overall, this is consistent with the large negative effects in healthcare, both in the UK and the EU, ranging from 20 to 50 percent less investment compared to before the vote, but with a greater relative impact for UK entrepreneurial investment. The UK lost the proximity to an institution that was likely a source of comparative advantage to UK healthcare startups. After Brexit, UK healthcare startups continue to apply for drug authorization in the EU, as this is the larger market.[3] For EU healthcare startups, the EMA's move to Amsterdam is a potential gain. Still, the gains from the move of the regulatory industry will likely take longer to be realized as the regulatory industry needs to re-establish itself. Note that while the UK has strong life sciences institutions, importantly Cambridge and Oxford universities, other countries in the EU are at a comparable level. France has a strong life sciences cluster, with renowned research centers such as Institut Pasteur and major pharmaceutical firms like Sanofi. Germany does as well, with corporations such as Bayer and Merck and research centers like the Max Planck Institute. Hence, the EU is likely to benefit from the movement of the EMA in the medium term.

London has long been regarded as the global leader in financial services and fintech investment (Clarke 2021), amounting to about 55 percent of EU fintech startups in 2015. One important factor was the openness of the British regulator (FCA), which welcomed innovations in the financial industry. As interviewees pointed out in our conversations, one example of this flexible approach was the Open Banking regulation, initiated in March 2017 and fully implemented by January 2018. This regulation

[3] As of the time of writing, the EU does not have a Mutual Recognition Agreement (MRA) with the MHRA in the UK; there is currently an MRA with the FDA.

forced the major nine banks in the UK to share transaction data, facilitating the launch of new financial innovations and lowering entry barriers to entrepreneurial firms. The attractiveness of the UK regulator was complemented by the financial integration that the EU granted, via passporting regulation, such that a financial license in one EU country allowed a firm to operate in the whole EU territory (BBA 2017). With Brexit, however, there was significant uncertainty as to whether passporting would continue to apply to UK corporations. Finally, it was excluded from the Brexit deal and from the Trade and Cooperation Agreement with the EU. For British entrepreneurs in the financial sector, the loss of passporting meant the need to obtain a financial license and open an office in the EU, while the increased openness from the British regulator meant access to data that fosters innovation.

In finance, UK fintech entrepreneurs complained about the (eventual) loss of passporting and the increased costs that it implied—among other things, delays in the expansion in the EU. Consider the following two quotes from UK fintech entrepreneurs, both of whom had to delay expansion into the EU because of the uncertainty about the loss of passporting:

> We have been postponing our plans to expand into Europe because of Brexit and passporting. We would have gone to Europe two years ago. But we had a few accounts from Germany and with the original Brexit we got a letter from the regulator saying "You are going to be infringing the law because you don't have a license to operate." We had to pull out from the little we had in Europe, and we are now pursuing a banking license. But a banking license is a terrible thing. It is a two-year process. The banking license in the UK had 22,000 pages. . . . And so we are working on it, but it takes long. And we need to wait for that until we can go into Europe.
>
> —UK fintech entrepreneur

> I have the license here in the UK. Passporting is a form, and I put my name, and license number, and there is a list of countries, and I check the countries that I want to do business on, and then I give it to the FCA. And they take care of it for me, and then they come back and say "you can now operate in these countries." But with Brexit we may lose that, and now I need an office in the EU.
>
> —UK fintech entrepreneur

In spite of this significant loss, however, all UK entrepreneurs and UK investors agreed that the UK remained a very strong financial cluster for entrepreneurial fintech firms because of the more friendly regulation, which for interviewees more than compensated for the loss of passporting.

> One advantage that the UK has, and that other places don't have, is that for fintech you need to have the financial sector, the tech sector and the regulator. And we have all that in London. We are lucky because the UK is 60 million, and London has 10 million. And we have the government, the regulator, the financial and the tech. And you need everything to be together. You go to Germany and that is not the case, the financial is in Frankfurt, the government is in Berlin, and the tech is somewhere else. You need everything to be in one place.
>
> —UK fintech entrepreneur

> For fintech, the reason to be here [London] is the confluence of money, regulation and talent.
>
> —UK fintech investor

In an interview with the Head of Risk at a large European bank in the UK, he explained how different it was to work with the UK and the EU regulator, and the relevance of being in the UK in financial services:

> In the UK there is. . . a great regulator. They are reasonable, they don't let you do things you should not, and there is trust in the regulator. Many people who work there have worked previously in finance and they know what they are doing. You want to work with them. Now, the European regulator… They don't have a unified perspective, and that is the problem. The Germans, the French, or the Italians… they all have different views on what should be done. And so it depends on who you are meeting with that day, they tell you one thing or another. And you know you should listen more to what the Germans tell you… most times, but not always. You don't want to have to deal with them.
>
> —EU financial corporation in the UK

Hence in financial services there are two effects in opposite directions. The loss of passporting is significant for UK financial services startups, which no longer have access to the larger EU market unless they invest significant time, effort, and capital in obtaining an EU license. Yet the UK maintains the preferred financial regulator, which is likely a source of comparative advantage. This is consistent with the large losses in equity for financial services startups in both the UK and the EU: UK startups lose passporting, while EU startups lose access to the British regulator.

6 CONCLUSION

Our goal is to contribute to understanding the consequences of deglobalization for entrepreneurial investments. We leveraged Brexit's referendum as a natural experiment that was not just exogenous but also disrupted European institutions. The referendum granted us a unique opportunity to observe the redistribution of institutions along national lines in a short time frame, a process difficult to identify because it typically spans decades.

In line with the predictions from extant theory, we showed that both the UK and the EU were affected negatively by the Brexit referendum. There was a reduction in startups' equity investments in both regions, an effect is more pronounced for the UK. Put simply, we found that while startups in both the UK and the EU lost investment, startups in the UK lost more.

However, the results vary by industry, and their magnitude is driven by significant changes in heavily regulated industries, dependent on national and pan-European institutions. Healthcare startups in the UK received 28 percent less investment than before, compared to 8 percent less for EU startups. Investors that were investing primarily in the UK also reduced their portfolio in UK healthcare startups by 7 percent per quarter. In contrast, in financial services UK startups lost significantly, with 35 percent less investment than before. Yet their EU counterparts exhibited greater losses—50 percent. Investors that were investing primarily in the UK did not reduce their portfolio in UK financial services startups.

Interviews conducted while the process of Brexit unfolded shed light on the mechanisms underlying these varied results. The movement of the EMA from London to Amsterdam exacerbated the effects of Brexit for UK healthcare startups, which had previously enjoyed proximity to the regulator. In financial services, the loss of passporting regulation for UK financial startups meant the loss of immediate access to a very large market, access that now requires a significant investment for a startup. Yet the British financial regulator FCA, regarded as a professional and flexible regulator, mitigates the loss of passporting.

In essence, we argue that institutions' movement, and lack thereof, as a result of the deglobalization process substantially impacts entrepreneurial investment. Institutions that stay can mitigate the impact of deglobalization, while institutions that move can exacerbate it.

Beyond the referendum, further analyses are required to understand the full effect of Brexit on entrepreneurial investment, especially to estimate its evolution across time and its interaction with COVID-19's effects. Additional research is also required to identify other mechanisms behind economic disintegration, such as the restriction of the movement of human capital.

Note that the results in this paper do not predict the future of the UK or the EU, but rather indicate a trend upon disintegration. Of course, long-term effects on both regions will greatly depend on new policies, such as international trade agreements with other regions of the world, changes to domestic policy to compensate for the losses in some industries, and entry patterns of new actors that alter the playing field. This remains an open and complex question for future research.

This paper contributes to theories of economic integration and international trade by examining the effect of disintegration on entrepreneurial investment, an area that has previously received little attention in the literature. We build on the literature on international entrepreneurship (Stuart et al. 1999, Sorenson and Stuart 2001, Sørensen 2007, Guler and Guillén 2010, Alvarez-Garrido and Guler 2018), which shows that entrepreneurial financing faces barriers and frictions in international investing, as well as the literature on clusters that speaks to the benefits of having investment activity concentrated in one region (Alcácer and Chung 2007, Delgado et al. 2010, Samila and Sorenson 2011, Alcácer and Chung 2014, Alcácer and Delgado 2016), to argue and show that entrepreneurial investment also benefits from economic integration. We show that the disintegration of certain institutions relevant to entrepreneurs has an economically significant impact. Thus we advance the stream of literature that has focused on the role of institutions in economic integration (Hall and Soskice 2001, Belloc 2006, Nunn and Trefler 2014), as well as the entrepreneurship literature that has examined how these institutions affect investment (La Porta et al. 1997, 1998, Jeng and Wells 2000). The paper also contributes to the stream of theory that

analyzes the effects of Brexit on economic growth in Europe (Ramiah et al. 2017, Sampson 2017, Belke et al. 2018, Breinlich et al. 2018, Davies and Studnicka 2018, Bloom et al. 2019, Born et al. 2019).

Finally, we contribute to practice and policy-making by showing that deglobalization's economically significant and detrimental effects also extend to investment in entrepreneurial firms. And in the long term, a reduction in investment in entrepreneurial firms could result in a reduction in both innovation in the region and economic development. While more research is required to fully understand the long-term economic impact, there are lessons to be learned today as policy makers worldwide are taking steps toward deglobalization.

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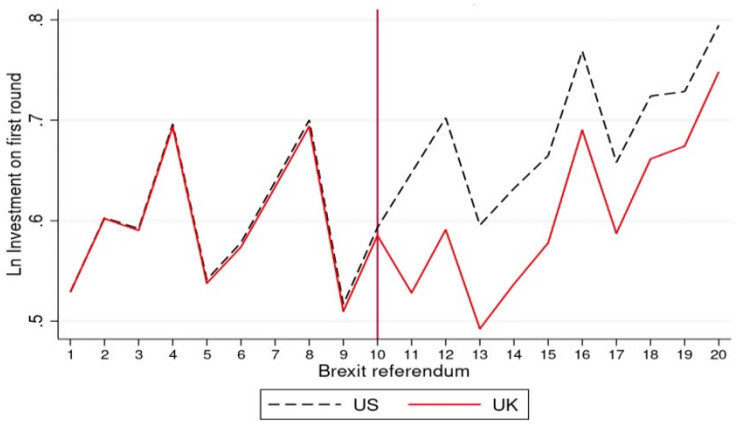
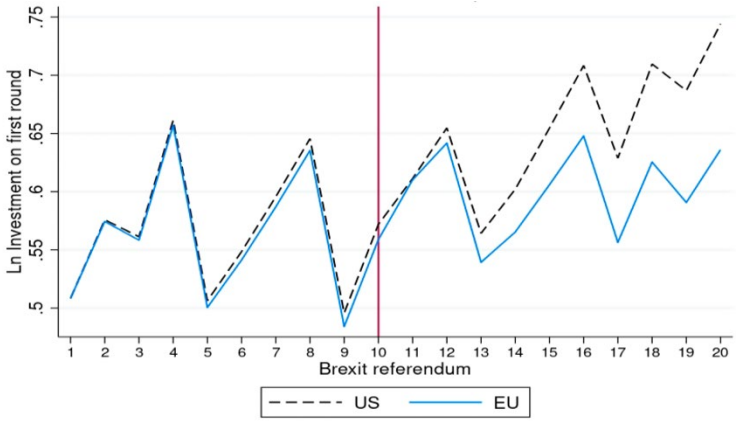
Figure 1. DD parallel trends assumption: amount invested in first round, startup sample

Panel A. UK (treatment) vs. US (control)



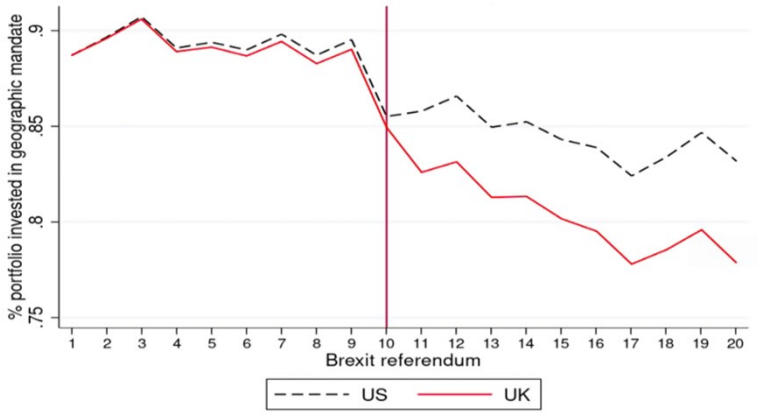
Panel B. EU (treatment) vs. US (control)



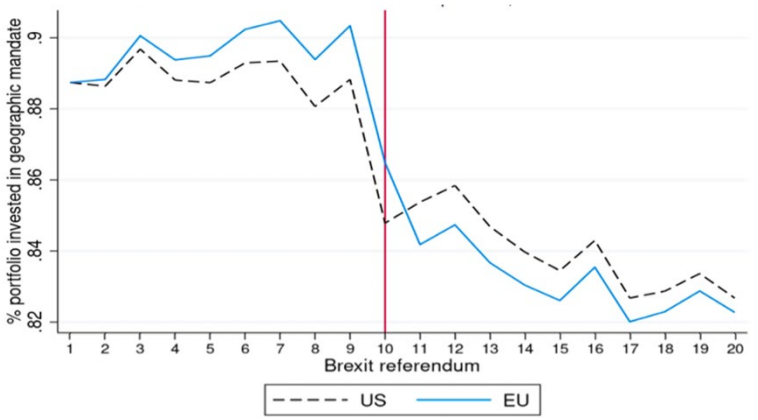
Note. These graphs assess the assumption of parallel trends of treatment (UK startup in Panel A, EU startup in Panel B) and control (US startup), by plotting linear trends (corrected with controls and time interactions). A startup is from the UK/EU/US when it is headquartered in the UK/EU/US.

Figure 2. DD parallel trends assumption: rate invested in geographic mandate, investor sample

Panel A. UK (treatment) vs. US (control)



Panel B. EU (treatment) vs. US (control)



Note. These graphs assess the assumption of parallel trends of treatment (UK investment mandate in Panel A, EU investment mandate in Panel B) and control (US investment mandate), by plotting linear trends (corrected with controls and time interactions). An investor has an investment geographic mandate in the UK/EU/US when in the 10 years prior to the Brexit referendum 50 percent or more of investments are in the UK/EU/US.

Table 1. Variable description

Sample	Variable	Description
Startup	(DV) Investment$_{it}$	Deal size, or amount invested in startup *i* at time *t*, in USD millions. Logged in analyses.
	UK$_i$	1 if startup *i* is headquartered in the UK, 0 if in the US
	EU$_i$	1 if startup *i* is headquartered in the EU, 0 if in the US
	After Brexit referendum$_t$	1 after 2016 Q2 (time measured in quarters)
	Startup has revenue$_i$	1 if startup has revenue or profits
	Lead investor is a VC$_{it}$	1 if lead investor in startup *i* at time *t* is a venture capital firm
	Startup age$_{it}$	Startup *i* age, in years
	Startup industry$_i$	Exclusive industry classification from Pitchbook for the main industry of the startup: internet technology (IT), healthcare, financial services, business-to-business (B2B), business-to-consumer (B2C), energy, and materials & resources
Investor	(DV) Rate invested in mandate$_{jt}$	Rate of deals (in USD) invested in the investor's geographic mandate out of all deals by investor *j* in time *t*. Geographic mandate in a region is defined as having 50 percent or more of investments in that region in the 10 years before the Brexit referendum (2006-2015).
	(DV) Rate invested in mandate$_{jt, ind}$	Rate of deals (in USD) invested in the investor's geographic mandate out of all deals by investor *j* in time *t* in industry *ind*. Industries follow Pitchbook's classification (see above)
	UK$_j$	1 if the geographic mandate of investor *j* is the UK, 0 if it is the US
	EU$_j$	1 if the geographic mandate of investor *j* is the EU, 0 if it is the US
	After Brexit referendum$_t$	1 after 2016 Q2 (time measured in quarters)
	VC&PE$_j$	1 if investor *j* is a venture capital or private equity firm
	Corporation$_j$	1 if investor *j* is a corporation (includes corporate venture capital)
	Angel$_j$	1 if investor *j* is an angel investor
	Other type$_j$	1 if investor *j* is not VC&PE, corporation, or angel; this includes accelerators and incubators, government, and universities
	Region f.e.	Indicators of whether the investor is headquartered in the UK, EU, US, or rest of the world

Note. Data source: Pitchbook. DV indicates dependent variable.

Table 2. Descriptive statistics, startup sample, observed at first round of investment

Panel A: Descriptive statistics

	Subsample by startup origin	UK			EU			US		
		N_i	mean	se	N_i	mean	se	N_i	mean	se
1.	(DV) Investment$_i$	4,219	1.49	9.51	8,561	2.27	76.76	22,179	3.10	26.80
2.	After Brexit referendum$_t$	4,219	0.55	0.50	8,561	0.54	0.50	22,179	0.50	0.50
3.	Startup has revenue$_i$	4,219	0.46	0.50	8,561	0.52	0.50	22,179	0.43	0.49
4.	Lead investor is a VC$_i$	4,219	0.21	0.40	8,561	0.20	0.40	22,179	0.20	0.40
5.	Startup age$_i$	4,219	1.15	1.01	8,561	1.19	1.07	22,179	1.06	1.00
6.	Industry: IT	4,219	0.41	0.49	8,561	0.40	0.49	22,179	0.39	0.49
7.	Healthcare	4,219	0.13	0.34	8,561	0.12	0.33	22,179	0.17	0.38
8.	Financial	4,219	0.03	0.18	8,561	0.02	0.14	22,179	0.02	0.15
9.	B2B	4,219	0.14	0.35	8,561	0.16	0.37	22,179	0.16	0.36
10.	B2C	4,219	0.26	0.44	8,561	0.25	0.44	22,179	0.23	0.42
11.	Energy	4,219	0.02	0.13	8,561	0.02	0.14	22,179	0.01	0.12
12.	Materials&Resources	4,219	0.01	0.11	8,561	0.02	0.14	22,179	0.01	0.11

Panel B: Correlations

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	(DV) Investment$_i$											
2.	After Brexit referendum$_t$	*0.001*										
3.	Startup has revenue$_i$	0.013	0.204									
4.	Lead investor is a VC$_i$	0.011	0.040	0.075								
5.	Startup age$_i$	*0.001*	0.208	0.282	0.048							
6.	Industry: IT	-0.018	-0.022	0.030	0.053	-0.018						
7.	Healthcare	0.018	0.040	-0.058	0.025	0.019	-0.347					
8.	Financial	0.046	*-0.003*	*-0.002*	*-0.002*	-0.013	-0.128	-0.068				
9.	B2B	*-0.007*	0.018	-0.034	-0.028	-0.014	-0.348	-0.184	-0.068			
10.	B2C	*-0.009*	-0.024	0.044	-0.050	0.016	-0.452	-0.240	-0.088	-0.240		
11.	Energy	*0.010*	*-0.008*	*-0.003*	-0.020	0.011	-0.104	-0.055	-0.020	-0.055	-0.072	
12.	Materials&Resources	*0.001*	*0.008*	*0.004*	*-0.006*	*0.007*	-0.098	-0.052	-0.019	-0.052	-0.068	-0.016

Note. Total number of startups, N_i=34,949. In panel analyses, there are 2 observations per startup. Correlations in italics are not significant at 5 percent.

Table 3. DD startup sample, cross-section at first round of investment

DV: Ln Investment$_i$	(1)	(2)
… vs. US (control)	UK	EU
UK_i * After Brexit referendum$_t$	-0.081**	
	(0.001)	
EU_i * After Brexit referendum$_t$		-0.049*
		(0.003)
UK_i	-0.162**	
	(0.000)	
EU_i		-0.214**
		(0.003)
After Brexit referendum$_t$	0.084*	0.082*
	(0.006)	(0.002)
Startup has revenue$_i$	0.037	0.047
	(0.014)	(0.025)
Lead investor is a VC$_i$	0.451	0.421
	(0.084)	(0.117)
Startup age$_i$	0.075+	0.080*
	(0.011)	(0.003)
Constant	0.419*	0.411**
	(0.017)	(0.003)
Industry f.e.	Yes	Yes
Observations	26,398	30,739
R-squared	0.103	0.112
Log-likelihood	-30,321	-34,228
*Chow test, H_0: UK_i * After$_t$ –EU_i * After$_t$ =0*		-0.032**

Note. We estimate a DD model (OLS, with s.e. clustered on country in parentheses) on the cross-section of startups at their first round of investment. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control). The Chow test compares the effect of the DD on both regressions; the UK has 3.2 percent less investment than the EU after the Brexit referendum.

†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Table 4. DD startup sample, panel of first- and second-round investment

DV: Ln Investment$_i$ … vs. US (control)	(1) UK	(2) EU
UK$_i$ * After Brexit referendum$_t$	-0.094***	
	(0.006)	
EU$_i$ * After Brexit referendum$_t$		-0.068***
		(0.002)
UK$_i$	-0.260***	
	(0.001)	
EU$_i$		-0.250***
		(0.005)
After Brexit referendum$_t$	0.092**	0.090***
	(0.032)	(0.025)
Startup has revenue$_i$	0.105***	0.102***
	(0.001)	(0.004)
Lead investor is a VC$_i$	0.384***	0.380***
	(0.058)	(0.063)
Startup age$_i$	0.162***	0.164***
	(0.017)	(0.011)
Constant	0.479***	0.465***
	(0.012)	(0.009)
Industry f.e.	Yes	Yes
Observations	15,940	17,546
Number of startups	7,970	8,773
R-squared	0.174	0.179
*Chow test, H_0: UK$_i$ * After$_t$ –EU$_i$ * After$_t$ =0*		-0.026***

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on country in parentheses) on the panel of startups on the first and second round of investments. The panel is such that the first round happens before the referendum, and the second round before or after the referendum. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control). The Chow test compares the effect of the DD on both regressions; the UK has 2.6 percent less investment than the EU after the Brexit referendum.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Table 5. DD startup sample, cross-section at first round of investment, by industry

DV: Ln Investment$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Industry	IT	IT	Health	Health	Finance	Finance	B2B	B2B	B2C	B2C	Energy	Energy	Mat&Res	Mat&Res
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU
UK_i * After Brexit referendum$_t$	-0.021**		-0.278*		-0.352*		-0.090*		0.003		-0.095†		-0.090	
	(0.000)		(0.009)		(0.008)		(0.003)		(0.003)		(0.014)		(0.030)	
EU_i * After Brexit referendum$_t$		-0.011		-0.081†		-0.502**		-0.036*		-0.023*		0.134†		-0.125
		(0.004)		(0.007)		(0.003)		(0.001)		(0.000)		(0.016)		(0.058)
UK_i	-0.215**		-0.116*		-0.102†		-0.142*		-0.143*		0.018*		-0.143†	
	(0.002)		(0.003)		(0.013)		(0.009)		(0.003)		(0.001)		(0.021)	
EU_i		-0.271**		-0.273**		0.112**		-0.215**		-0.141**		-0.232*		-0.171
		(0.004)		(0.003)		(0.001)		(0.000)		(0.001)		(0.008)		(0.040)
After Brexit referendum$_t$	0.066**	0.067*	0.171†	0.166*	0.230†	0.247*	0.028†	0.024†	0.076	0.065*	-0.098*	-0.102*	0.081	0.076
	(0.001)	(0.002)	(0.015)	(0.006)	(0.025)	(0.006)	(0.003)	(0.002)	(0.012)	(0.005)	(0.003)	(0.007)	(0.033)	(0.018)
Startup has revenue$_i$	0.065	0.060	-0.081*	-0.064	0.304	0.271	0.038	0.054	0.020	0.052	0.355*	0.332	0.154	0.157
	(0.021)	(0.010)	(0.003)	(0.029)	(0.098)	(0.051)	(0.027)	(0.042)	(0.011)	(0.034)	(0.020)	(0.054)	(0.099)	(0.077)
Lead investor is a VC_i	0.439	0.410	0.658†	0.624	0.218	0.283†	0.346	0.315	0.380	0.353	0.405	0.321*	0.476	0.417
	(0.087)	(0.119)	(0.058)	(0.105)	(0.074)	(0.036)	(0.128)	(0.147)	(0.073)	(0.096)	(0.118)	(0.007)	(0.128)	(0.168)
Startup age$_i$	0.081*	0.085*	0.080	0.090†	0.092	0.044	0.073	0.077†	0.070	0.080**	-0.076	-0.048	-0.000	0.010
	(0.004)	(0.002)	(0.027)	(0.009)	(0.043)	(0.046)	(0.015)	(0.007)	(0.018)	(0.001)	(0.029)	(0.054)	(0.010)	(0.017)
Constant	0.415*	0.419*	0.602*	0.594*	0.648†	0.689*	0.436*	0.434*	0.326†	0.309**	0.572*	0.563*	0.461†	0.458*
	(0.015)	(0.020)	(0.035)	(0.019)	(0.056)	(0.017)	(0.024)	(0.017)	(0.030)	(0.002)	(0.039)	(0.036)	(0.061)	(0.033)
Observations	10,381	12,130	4,407	4,891	678	711	4,063	4,838	6,140	7,220	386	501	343	448
R-squared	0.103	0.119	0.094	0.099	0.067	0.049	0.054	0.067	0.070	0.076	0.065	0.054	0.059	0.068
Log-likelihood	-11,051	-12,334	-6,197	-6,762	-983.4	-1,074	-4,377	-4,932	-5,974	-6,942	-502.7	-640.6	-432.8	-534.1
Chow test														
*H_0: UK_i * $After_t$ – EU_i * $After_t$ =0*		-0.010†		-0.197**		0.150**		-0.054**		0.026*		-0.228**		0.034

Note. As in Table 3, but sample split by industry. The Chow test compares the effect of the DD on both regressions.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Table 6. DD startup sample, panel of first- and second-round investment, by industry

DV: Ln Investment$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Industry	IT	IT	Health	Health	Finance	Finance	B2B	B2B	B2C	B2C	Energy	Energy	Mat&Res	Mat&Res
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU
UK_i * After Brexit referendum$_t$	-0.102***		-0.048***		-0.187***		-0.119***		-0.048***		-0.187***		-0.210***	
	(0.010)		(0.002)		(0.009)		(0.016)		(0.004)		(0.017)		(0.035)	
EU_i * After Brexit referendum$_t$		-0.120***		-0.139***		-0.230***		0.032***		0.059***		-0.127***		-0.087*
		(0.002)		(0.001)		(0.004)		(0.001)		(0.004)		(0.004)		(0.035)
UK_i	-0.328***		-0.227***		-0.374***		-0.188***		-0.214***		-0.129***		-0.003	
	(0.004)		(0.002)		(0.001)		(0.005)		(0.001)		(0.012)		(0.018)	
EU_i		-0.340***		-0.220***		-0.130***		-0.210***		-0.175***		-0.242***		-0.148***
		(0.004)		(0.001)		(0.007)		(0.002)		(0.001)		(0.005)		(0.024)
After Brexit referendum$_t$	0.084+	0.082*	0.167***	0.156***	0.058	0.064	0.046*	0.072	0.065***	0.049***	-0.015	-0.026	0.174***	0.205**
	(0.050)	(0.041)	(0.028)	(0.008)	(0.040)	(0.047)	(0.021)	(0.058)	(0.014)	(0.012)	(0.041)	(0.016)	(0.019)	(0.064)
Startup has revenue$_i$	0.150***	0.137***	0.043***	0.031**	0.345***	0.312***	0.064	0.088***	0.055***	0.054***	0.175	0.271***	0.059	0.131***
	(0.012)	(0.008)	(0.007)	(0.010)	(0.018)	(0.070)	(0.039)	(0.009)	(0.008)	(0.007)	(0.113)	(0.042)	(0.154)	(0.025)
Lead investor is a VC_i	0.387***	0.386***	0.415***	0.430***	0.507***	0.508***	0.306**	0.339***	0.394***	0.350**	0.249***	0.198*	0.360*	0.325+
	(0.061)	(0.057)	(0.030)	(0.010)	(0.119)	(0.095)	(0.100)	(0.054)	(0.051)	(0.114)	(0.026)	(0.094)	(0.176)	(0.173)
Startup age$_i$	0.189***	0.193***	0.142***	0.150***	0.216***	0.222***	0.199***	0.174***	0.113***	0.126***	0.115***	0.108***	0.104***	0.073**
	(0.030)	(0.021)	(0.017)	(0.003)	(0.010)	(0.005)	(0.002)	(0.037)	(0.007)	(0.013)	(0.007)	(0.015)	(0.030)	(0.023)
Constant	0.430***	0.432***	0.598***	0.590***	0.636***	0.648***	0.347***	0.356***	0.375***	0.371***	0.405***	0.385***	0.344***	0.350***
	(0.041)	(0.040)	(0.021)	(0.009)	(0.041)	(0.053)	(0.037)	(0.045)	(0.012)	(0.005)	(0.049)	(0.012)	(0.054)	(0.053)
Observations	6,374	6,988	2,962	3,144	412	420	1,998	2,282	3,708	4,124	250	302	236	286
Number of startups	3,187	3,494	1,481	1,572	206	210	999	1,141	1,854	2,062	125	151	118	143
R-squared	0.203	0.217	0.123	0.130	0.199	0.174	0.143	0.149	0.146	0.135	0.069	0.097	0.127	0.117
Chow test		0.017**		0.100***		0.09		-0.153***		-0.112***		-0.042***		-0.076***
*H_0: UK_i * $After_t$ –EU_i * $After_t$ =0*														

Note. As in Table 5, but sample split by industry. The Chow test compares the effect of the DD on both regressions.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Table 7. Descriptive statistics, investor sample, at investor-quarter level of analysis

Panel A. Descriptive statistics

	Subsample by geographic mandate	UK				EU				US			
		N_{jt}	N_j	mean	se	N_{jt}	N_j	mean	se	N_{jt}	N_j	mean	se
1.	(DV) Rate invested in $mandate_{jt}$	6,737	2,295	0.81	0.38	16,550	5,146	0.83	0.36	65,722	18,516	0.88	0.31
2.	(DV) Rate invested in $mandate_{jt,\ IT}$	3,323	1,359	0.79	0.39	7,869	2,919	0.79	0.39	35,678	11,214	0.87	0.32
3.	(DV) Rate invested in $mandate_{jt,\ Healthcare}$	1,414	506	0.83	0.37	3,396	1,334	0.82	0.38	15,869	5,672	0.90	0.28
4.	(DV) Rate invested in $mandate_{jt,\ Finance}$	384	245	0.80	0.40	642	404	0.74	0.44	3,564	1,880	0.81	0.38
5.	(DV) Rate invested in $mandate_{jt,\ B2B}$	1,511	732	0.84	0.36	3,711	1,761	0.85	0.35	14,110	6,036	0.86	0.34
6.	(DV) Rate invested in $mandate_{jt,\ B2C}$	1,888	880	0.83	0.37	5,127	2,153	0.85	0.35	18,823	7,260	0.85	0.34
7.	(DV) Rate invested in $mandate_{jt,\ Energy}$	266	141	0.85	0.36	752	442	0.88	0.32	1,815	1,044	0.83	0.37
8.	(DV) Rate invested in $mandate_{jt,\ Mat\&Res}$	208	121	0.86	0.34	499	302	0.88	0.31	1,575	922	0.86	0.35
9.	After Brexit $referendum_t$	6,737	2,295	0.40	0.49	16,550	5,146	0.43	0.50	65,722	18,516	0.40	0.49
10.	$VC\&PE_j$	6,737	2,295	0.35	0.48	16,550	5,146	0.42	0.49	65,722	18,516	0.42	0.49
11.	$Corporation_j$	6,737	2,295	0.04	0.20	16,550	5,146	0.06	0.24	65,722	18,516	0.05	0.21
12.	$Angel_j$	6,737	2,295	0.35	0.48	16,550	5,146	0.23	0.42	65,722	18,516	0.32	0.46
13.	Other $type_j$	6,737	2,295	0.23	0.42	16,550	5,146	0.26	0.44	65,722	18,516	0.18	0.38

Panel B. Correlations

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	(DV) Rate invested in $mandate_{jt}$												
2.	(DV) Rate invested in $mandate_{jt,\ IT}$	0.858											
3.	(DV) Rate invested in $mandate_{jt,\ Healthcare}$	0.913	0.7676										
4.	(DV) Rate invested in $mandate_{jt,\ Finance}$	0.396	0.482	0.483									
5.	(DV) Rate invested in $mandate_{jt,\ B2B}$	0.747	0.5351	0.666	0.229								
6.	(DV) Rate invested in $mandate_{jt,\ B2C}$	0.719	0.6107	0.682	0.145	0.539							
7.	(DV) Rate invested in $mandate_{jt,\ Energy}$	0.654	0.5391	0.502	0.113	0.501	0.355						
8.	(DV) Rate invested in $mandate_{jt,\ Mat\&Res}$	0.799	0.8068	0.798	0.473	0.496	0.525	0.430					
9.	After Brexit $referendum_t$	-0.134	-0.128	-0.098	-0.087	-0.106	-0.110	-0.093	-0.120				
10.	$VC\&PE_j$	-0.045	-0.028	-0.029	-0.033	-0.038	-0.042	0.043	0.012	0.144			
11.	$Corporation_j$	-0.026	-0.035	*-0.008*	-0.059	-0.020	-0.023	*-0.028*	*0.000*	-0.017	-0.193		
12.	$Angel_j$	0.097	0.091	0.081	0.142	0.107	0.094	0.067	*0.095*	-0.168	-0.552	-0.152	
13.	Other $type_j$	-0.018	-0.027	*-0.013*	-0.071	-0.026	-0.026	*-0.008*	-0.058	*0.003*	-0.415	-0.114	-0.325

Note. Total number of observations, N_{jt}= 89,009. Total number of unique investors, N_j=25,957. Pairwise correlations calculated for each DV and independent variable; correlations among DV and among independent variables calculated for the whole sample. Correlations in italics are not significant at 5 percent.

Table 8. DD investor sample, rate of investments (in USD) in geographic mandate, total and by investor type

DV: Rate invested in mandate$_{jt}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor type	All	All	VC&PE	VC&PE	Corporation	Corporation	Angel	Angel
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU
UK mandate$_j$ * After Brexit referendum$_t$	-0.056**		-0.029***		-0.127***		-0.071**	
	(0.019)		(0.000)		(0.004)		(0.024)	
EU mandate$_j$ * After Brexit referendum$_t$		-0.003		-0.019***		-0.047***		-0.000
		(0.021)		(0.001)		(0.013)		(0.017)
UK mandate$_j$	0.059		0.043		0.017		0.035	
	(0.119)		(0.168)		(0.066)		(0.075)	
EU mandate$_j$		0.058		0.104		0.095+		0.005
		(0.124)		(0.181)		(0.055)		(0.049)
After Brexit referendum$_t$	-0.082***	-0.082***	-0.036***	-0.037***	-0.198***	-0.198***	-0.093***	-0.092***
	(0.001)	(0.003)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.002)
Constant	0.841***	0.845***	0.611***	0.618***	0.814***	0.816***	0.924***	0.929***
	(0.010)	(0.029)	(0.002)	(0.036)	(0.022)	(0.032)	(0.002)	(0.011)
Region f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investor type f.e.	Yes	Yes	No	No	No	No	No	No
Observations	72,459	82,272	29,857	34,416	3,450	4,198	23,085	24,516
Unique investors	20,811	23,662	4,341	5,163	1,620	2,040	10,601	11,265
R-squared	0.103	0.079	0.189	0.156	0.122	0.105	0.054	0.058
Chow test		-0.046***		-0.009***		-0.088***		-0.072***
*H_0: UK_i * $After_t$ –EU_i * $After_t$ =0*								

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on geographic mandate in parentheses) on the rate of dollar investment in the geographic mandate on a given quarter. Geographic mandate in the UK (EU/US) is defined as having invested over 50 percent of the fund in the UK (EU/US) in the 10 years before the referendum. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control), and so on. The Chow test compares the effect of the DD on both regressions.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Table 9. DD investor sample, rate of investments (in USD) in geographic mandate by industry

DV: Rate invested in mandate$_{it, ind}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Investment in industry	IT	IT	Health	Health	Finance	Finance	B2B	B2B	B2C	B2C	Energy	Energy	Mat&Res	Mat&Res
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU
UK mandate$_j$	-0.027		-0.071***		0.003		-0.044**		-0.019		-0.047***		0.019	
* After Brexit referendum$_t$	(0.017)		(0.005)		(0.013)		(0.013)		(0.014)		(0.007)		(0.016)	
EU mandate$_j$		-0.013		-0.015**		-0.019		0.016		0.014		0.013		0.052***
* After Brexit referendum$_t$		(0.016)		(0.005)		(0.019)		(0.013)		(0.012)		(0.013)		(0.008)
UK mandate$_j$	0.028		-0.017		0.180		0.098		0.082		0.147		0.060	
	(0.115)		(0.151)		(0.152)		(0.134)		(0.114)		(0.153)		(0.117)	
EU mandate$_j$		0.033		0.014		0.073		0.115		0.102		0.196		0.209
		(0.114)		(0.145)		(0.159)		(0.128)		(0.136)		(0.155)		(0.131)
After Brexit referendum$_t$	-0.075***	-0.076***	-0.039***	-0.038***	-0.042***	-0.041***	-0.055***	-0.056***	-0.064***	-0.066***	-0.052***	-0.060***	-0.054***	-0.066***
	(0.000)	(0.002)	(0.000)	(0.002)	(0.003)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.004)	(0.001)	(0.008)
Constant	0.848***	0.850***	0.876***	0.881***	0.768***	0.792***	0.835***	0.833***	0.840***	0.836***	0.796***	0.764***	0.825***	0.800***
	(0.008)	(0.024)	(0.006)	(0.029)	(0.011)	(0.040)	(0.010)	(0.023)	(0.012)	(0.024)	(0.024)	(0.008)	(0.025)	(0.010)
Region f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investor type f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,001	43,547	17,283	19,265	3,948	4,206	15,621	17,821	20,711	23,950	2,081	2,567	1,783	2,074
Unique investors	12,573	14,133	6,178	7,006	2,125	2,284	6,768	7,797	8,140	9,413	1,185	1,486	1,043	1,224
R-squared	0.097	0.087	0.095	0.07	0.120	0.117	0.107	0.0884	0.108	0.081	0.119	0.076	0.151	0.117
Chow test		-0.007		-0.051***		0.024*		-0.052***		-0.027**		-0.045***		-0.004
*H_0: UK_i * $After_t$ –EU_i * $After_t$ =0*														

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on geographic mandate in parentheses) on the rate of dollar investment in the geographic mandate on a given quarter conditional on an industry. Geographic mandate in the UK (EU/US) is defined as having invested over 50 percent of the fund in the UK (EU/US) in the 10 years before the referendum. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control), and so on. The Chow test compares the effect of the DD on both regressions.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Appendix Table 1. DD startup sample, cross-section at first round of investment, UK vs. EU

DV: Ln Investment$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry	All	IT	Healthcare	Financial	B2B	B2C	Energy	Mat & Res
… vs. EU (control)	UK	UK	UK	UK	UK	UK	UK	UK
UK_i * After Brexit referendum$_t$	-0.031†	-0.003*	-0.210*	0.190*	-0.064*	0.026†	-0.309†	0.084†
	(0.003)	(0.000)	(0.010)	(0.014)	(0.002)	(0.002)	(0.025)	(0.011)
UK_i	0.054*	0.057*	0.164*	-0.215†	0.086*	-0.003	0.257*	0.004
	(0.002)	(0.001)	(0.005)	(0.023)	(0.001)	(0.001)	(0.015)	(0.004)
After Brexit referendum$_t$	0.039	0.052*	0.102	-0.314†	-0.009	0.054	0.007	-0.106*
	(0.010)	(0.002)	(0.024)	(0.036)	(0.010)	(0.029)	(0.002)	(0.003)
Startup has revenue$_i$	0.092*	0.103	-0.012	0.446†	0.111*	0.071	0.213†	-0.001
	(0.002)	(0.027)	(0.022)	(0.050)	(0.002)	(0.051)	(0.021)	(0.065)
Lead investor is a VC$_i$	0.203*	0.172*	0.399*	0.252	0.056	0.200*	0.460	0.206*
	(0.008)	(0.012)	(0.025)	(0.113)	(0.042)	(0.012)	(0.141)	(0.016)
Startup age$_i$	0.060	0.081†	0.033	0.063	0.053	0.059	0.041	0.021
	(0.018)	(0.010)	(0.045)	(0.130)	(0.017)	(0.027)	(0.017)	(0.017)
Constant	0.215†	0.180***	0.409†	0.732†	0.266†	0.206	0.285*	0.421†
	(0.025)	(0.000)	(0.044)	(0.114)	(0.024)	(0.047)	(0.007)	(0.054)
Industry f.e.	Yes	No	No	No	No	No	No	No
Observations	12,783	5,167	1,574	315	1,989	3,268	256	214
R-squared	0.070	0.075	0.053	0.065	0.028	0.052	0.089	0.032
Log-likelihood	-11,365	-3,812	-1,819	-463.6	-1,657	-2,590	-295.5	-182.9

Note. We estimate a DD model (OLS, with s.e. clustered on country in parentheses) on the cross-section of startups at their first round of investment, for UK and EU firms. This regression estimates the net effect of Brexit on the UK relative to the EU.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Appendix Table 2. DD startup sample, panel of first- and second-round investment, UK vs. EU

DV: Ln Investment$_i$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry	All	IT	Healthcare	Financial	B2B	B2C	Energy	Mat & Res
… vs. EU (control)	UK	UK	UK	UK	UK	UK	UK	UK
UK_i * After Brexit referendum$_t$	-0.034***	0.000	0.096***	-0.034***	-0.185***	-0.109***	-0.069**	-0.127**
	(0.003)	(0.005)	(0.000)	(0.002)	(0.006)	(0.001)	(0.026)	(0.042)
UK_i	-0.006**	0.015***	-0.007***	-0.232***	0.029***	-0.042***	0.103***	0.111***
	(0.002)	(0.002)	(0.001)	(0.007)	(0.002)	(0.005)	(0.005)	(0.026)
After Brexit referendum$_t$	0.085***	0.063*	0.067	-0.065*	0.184***	0.108**	-0.099***	0.125
	(0.024)	(0.031)	(0.046)	(0.027)	(0.031)	(0.037)	(0.017)	(0.089)
Startup has revenue$_i$	0.102***	0.151***	0.020	0.198*	0.054	0.069***	0.197	-0.008
	(0.002)	(0.031)	(0.031)	(0.094)	(0.078)	(0.007)	(0.210)	(0.182)
Lead investor is a VC$_i$	0.229***	0.232***	0.365***	0.292***	0.175†	0.183***	0.062†	0.080*
	(0.021)	(0.030)	(0.048)	(0.050)	(0.096)	(0.050)	(0.037)	(0.036)
Startup age$_i$	0.128***	0.132***	0.117***	0.214***	0.137***	0.126***	0.087***	0.072
	(0.016)	(0.025)	(0.035)	(0.032)	(0.040)	(0.028)	(0.018)	(0.065)
Constant	0.214***	0.174***	0.421***	0.603***	0.230***	0.216***	0.205**	0.339***
	(0.033)	(0.017)	(0.031)	(0.003)	(0.015)	(0.015)	(0.070)	(0.056)
Industry f.e.	Yes	No	No	No	No	No	No	No
Observations	7,050	2,834	926	190	1,016	1,812	142	130
Number of startups	3,525	1,417	463	95	508	906	71	65
R-squared	0.130	0.145	0.079	0.123	0.116	0.120	0.087	0.070

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on country in parentheses) on the cross-section of startups at their first round of investment. This regression estimates the net effect of Brexit on the UK relative to the EU.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Appendix Table 3. DD investor sample, by investor type and by industry, UK vs. EU

DV: Rate invested in mandate$_{jt,\ ind}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Investor type	All	VC&PE	Corporation	Angel	All	All	All	All	All	All	All
Industry	All	All	All	All	IT	Health	Finance	B2B	B2C	Energy	Mat&Res
… vs. EU (control)	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK	UK
UK mandate * After Brexit referendum$_t$	-0.045	-0.009***	-0.044**	-0.071*	-0.010	-0.047***	0.019	-0.049***	-0.035*	-0.047***	-0.039*
	(0.028)	(0.000)	(0.015)	(0.029)	(0.024)	(0.006)	(0.018)	(0.015)	(0.017)	(0.012)	(0.020)
UK mandate	0.026	0.001	-0.066	0.019	0.016	0.033	0.039	0.006	-0.009	-0.051	0.008
	(0.154)	(0.255)	(0.060)	(0.074)	(0.152)	(0.209)	(0.191)	(0.156)	(0.134)	(0.146)	(0.187)
After Brexit referendum$_t$	-0.087***	-0.057***	-0.235***	-0.095***	-0.089***	-0.056***	-0.075***	-0.047***	-0.050***	-0.038***	-0.030***
	(0.005)	(0.000)	(0.013)	(0.008)	(0.006)	(0.001)	(0.001)	(0.003)	(0.004)	(0.008)	(0.001)
Constant	0.895***	0.686***	0.955***	0.928***	0.876***	0.862***	0.859***	0.929***	0.921***	0.927***	0.957***
	(0.028)	(0.006)	(0.030)	(0.013)	(0.029)	(0.008)	(0.034)	(0.036)	(0.047)	(0.091)	(0.039)
Region f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investor type f.e.	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,287	9,269	1,318	6,173	11,192	4,810	1,026	5,222	7,015	1,018	707
Unique investors	7,441	1,576	774	3,164	4,278	1,840	649	2,493	3,033	583	423
R-squared	0.097	0.088	0.172	0.075	0.079	0.114	0.067	0.088	0.100	0.088	0.057

Note. Unlike in Table 8, we perform a DD analysis of UK vs. EU for the rate of investment in the geographic mandate (in USD).
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Appendix Table 4. DD investor sample, percentage of investments in geographic mandate by investor type

DV: Percentage of investments in mandate$_{jt}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investor type	All	All	VC&PE	VC&PE	Corporation	Corporation	Angel	Angel
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU
UK mandate$_j$ * After Brexit referendum$_t$	-0.053**		-0.026***		-0.116***		-0.068**	
	(0.020)		(0.000)		(0.005)		(0.025)	
EU mandate$_j$ * After Brexit referendum$_t$		-0.000		-0.019***		-0.043**		0.005
		(0.021)		(0.001)		(0.014)		(0.018)
UK mandate$_j$	0.062		0.048		0.017		0.036	
	(0.122)		(0.170)		(0.069)		(0.076)	
EU mandate$_j$		0.066		0.119		0.097+		0.006
		(0.127)		(0.182)		(0.058)		(0.051)
After Brexit referendum$_t$	-0.080***	-0.080***	-0.033***	-0.033***	-0.201***	-0.202***	-0.093***	-0.091***
	(0.001)	(0.003)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.002)
Constant	0.839***	0.843***	0.604***	0.611***	0.810***	0.812***	0.921***	0.926***
	(0.010)	(0.028)	(0.002)	(0.037)	(0.022)	(0.032)	(0.002)	(0.012)
Region f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investor type f.e.	Yes	Yes	No	No	No	No	No	No
Observations	72,459	82,272	29,857	34,416	3,450	4,198	23,085	24,516
Unique investors	20,811	23,662	4,341	5,163	1,620	2,040	10,601	11,265
R-squared	0.112	0.0842	0.212	0.174	0.126	0.108	0.0548	0.0582
Chow test		-0.043***		-0.005***		-0.086***		-0.075***
*H_0: UK_i * $After_t$ –EU_i * $After_t$ =0*								

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on geographic mandate in parentheses) on the percentage of investments (count) in the geographic mandate on a given quarter. Geographic mandate in the UK (EU/US) is defined as having invested over 50 percent of the fund in the UK (EU/US) in the 10 years before the referendum. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control), and so on. The Chow test compares the effect of the DD on both regressions.

†p<0.10, *p<0.05, ** p<0.01, *** p<0.001

Appendix Table 5. DD investor sample, percentage of investments in geographic mandate by industry

DV: Percentage of investments in mandate$_{jt, ind}$	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Industry	IT	IT	Health	Health	Finance	Finance	B2B	B2B	B2C	B2C	Energy	Energy	Mat&Res	Mat&Res
… vs. US (control)	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU	UK	EU
UK mandate$_j$	-0.028†		-0.060***		0.001		-0.043***		-0.020		-0.042***		0.025	
* After Brexit referendum$_t$														
	(0.015)		(0.004)		(0.012)		(0.013)		(0.013)		(0.008)		(0.016)	
EU mandate$_j$		-0.015		-0.015**		-0.010		0.016		0.012		0.019		0.050***
* After Brexit referendum$_t$														
		(0.015)		(0.005)		(0.019)		(0.013)		(0.011)		(0.013)		(0.008)
UK mandate$_i$	0.025		-0.021		0.174		0.097		0.081		0.149		0.057	
	(0.113)		(0.151)		(0.147)		(0.134)		(0.114)		(0.155)		(0.117)	
EU mandate$_i$		0.037		0.016		0.063		0.116		0.104		0.193		0.209
		(0.111)		(0.146)		(0.160)		(0.128)		(0.137)		(0.155)		(0.132)
After Brexit referendum$_t$	-0.069***	-0.070***	-0.038***	-0.037***	-0.042***	-0.041***	-0.052***	-0.053***	-0.059***	-0.061***	-0.051***	-0.058***	-0.053***	-0.065***
	(0.000)	(0.001)	(0.000)	(0.002)	(0.003)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.004)	(0.001)	(0.007)
Constant	0.855***	0.857***	0.877***	0.881***	0.769***	0.794***	0.837***	0.834***	0.843***	0.838***	0.794***	0.763***	0.826***	0.802***
	(0.008)	(0.023)	(0.007)	(0.029)	(0.010)	(0.043)	(0.010)	(0.022)	(0.012)	(0.023)	(0.024)	(0.009)	(0.025)	(0.010)
Region f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Investor type f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39,001	43,547	17,283	19,265	3,948	4,206	15,621	17,821	20,711	23,950	2,081	2,567	1,783	2,074
Unique investors	12,573	14,133	6,178	7,006	2,125	2,284	6,768	7,797	8,140	9,413	1,185	1,486	1,043	1,224
R-squared	0.100	0.089	0.099	0.077	0.121	0.117	0.108	0.089	0.115	0.086	0.121	0.077	0.150	0.116
Chow test		-0.006		-0.039***		0.011		-0.052***		-0.025**		-0.048***		0.005
*H_0: UK_i * $After_t$ –EU_i * $After_t$ =0*														

Note. We estimate a DD model (random effects panel data, since referendum is fixed in time, with s.e. clustered on geographic mandate in parentheses) on the rate of dollar investment in the geographic mandate on a given quarter conditional on an industry. Geographic mandate in the UK (EU/US) is defined as having invested over 50 percent of the fund in the UK (EU/US) in the 10 years before the referendum. Model 1 compares the UK (treated) to the US (control), and Model 2 the EU (treated) to the US (control), and so on. The Chow test compares the effect of the DD on both regressions.
†p<0.10, *p<0.05, ** p<0.01, *** p<0.001