

Franziska Sohns\*, Dariusz Wójcik

# Do they do as they say?

Analysing the Impact of Brexit on Relocation Intentions in the UK's FinTech Industry

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**Abstract:** This paper responds to Bathelt and Li's (2020) call for selecting more appropriate methods and improving their rigour by evaluating the feasibility of using factorial surveys to anticipate future relocation behaviour. By utilising a case study approach, focussing on Brexit and the UK FinTech industry, the paper examines to what extent business managers' relocation intentions are driven by factors similar to those known to drive actual relocation behaviour and compares business managers' relocation intentions with their companies' actual relocation outcomes. We use a factorial survey conducted in 2018, which allows us to quantitatively analyse the impact of different Brexit scenarios and selected company characteristics on business managers' likelihood to intend to relocate their UK business unit (or some functions thereof) to the EU and/or the US. Additionally, we collected qualitative secondary data on the actual relocation outcomes of the surveyed companies in February 2022 by investigating online platforms, such as LinkedIn, Companies House, and Crunchbase, as well as company webpages. The results of this mixed-methods approach highlight a significant variation in business managers' intentions, and the importance of geographical and institutional proximity for relocation intentions and outcomes. We show that business managers' relocation intentions are driven by factors similar to those known to drive actual relocation behaviour, such as their perception of the economic consequences of different Brexit scenarios, their territorial embeddedness, as well as their nationality. Most importantly, our findings indicate that, although factorial surveys are only moderately accurate when predicting the exact extent and destination of actual relocation, they are highly accurate when predicting whether a company relocates or not.

**\*Corresponding author: Dr. Franziska Sohns** is an Associate Professor in Economic Geography at Anglia Ruskin University, East Road, Cambridge, CB1 1PT; E-mail: [franziska.sohns@aru.ac.uk](mailto:franziska.sohns@aru.ac.uk). <https://orcid.org/0000-0002-5641-7433>

**Dr. Dariusz Wójcik** is a Professor of Economic Geography at the University of Oxford, South Parks Road, Oxford, OX1 3QY; E-mail: [dariusz.wojcik@ouce.ox.ac.uk](mailto:dariusz.wojcik@ouce.ox.ac.uk)

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## 1 Introduction

Climate change is altering weather patterns that were perceived as predictable, the long-forgotten threat of an armed conflict between the United States of America (US) and Russia is suddenly looming again, and a global pandemic is sweeping around the globe, while the Fourth Industrial Revolution is shifting the way we live and work in ways difficult to fully comprehend. It increasingly seems like what had been perceived as established patterns for decades is rather temporary and increasingly unpredictable in nature. In such an uncertain world, anticipating the future correctly and making well-informed decisions has become an important comparative advantage not just for economic but also for political actors. As representatives of an applied research discipline, positioned right in-between economics and social sciences (Martin and Sunley, 2001), economic geographers have always been predestined to make sense of the multi-layered and complex nature of the world, aiming to contribute to the political debate by offering policy recommendations in a timely and relevant manner. As a result, “the discipline has adopted a toolkit of diverse research methods over time” (Bathelt and Li, 2020:3), leading to significant methodological pluralism. While methodological pluralism offers opportunities, such as the ability to pursue a wider range of research ideas, it also comes with challenges, such as the need to ensure rigour in choosing adequate research methods and utilising them correctly.

Well-established in social science (Hox et al., 1991), with a recent application in economic geography (Neise and Revilla Diez, 2018), factorial survey approaches, combining elements of traditional survey research and behavioural experiments into a single method, are one of the latest addi-

tions to the methodological toolkit of the discipline. By using so-called vignettes, each describing a specific hypothetical scenario to approximate complex judgment situations, factorial surveys are seen as a promising approach to analyse anticipated strategic behaviour under uncertain conditions (Oll et al., 2016). As a result, they have also found their way into the realm of policy consultancy where they are being used to derive policy recommendations (Parkins et al., 2022).

However, while factorial surveys offer a promising way of incorporating different scenarios into the analysis of actor-specific anticipations and intentions, they remain hypothetical in nature. Moreover, while intentions constitute the first step towards actual economic behaviour and, as such, can be regarded as an early warning indicator by policy makers who need to consider their policies pro-actively, they do not always translate into actual behaviour. Rather, strategies and actions of economic actors are contingent and need to be regarded as being open-ended in nature (Bathelt and Glückler, 2003). As such, one could not only question the added value of studying actor-specific intentions through factorial surveys, but even emphasise the danger in deriving policy recommendations based on scenarios that might never become reality and intentions that might never translate into actual behaviour. While over the last decades some research has been conducted to analyse this intention-behaviour gap (Sheeran and Webb, 2016) with regards to individuals moving houses (e. g., Rossi, 1955; Landale and Guest, 1985; de Groot et al., 2011), despite its potential value, research analysing how business relocation intentions translate into actual business relocation has remained scarce.

Building upon literature on behavioural economics and relational economic geography (e. g., Cyert and March, 1963; Pred, 1967; North, 1974; Kahneman and Tversky, 1979; Mintzberg et al., 1976; Winter, 1986; Bathelt and Glückler, 2003; Strauss, 2008; Clark, 2010; Bathelt and Glückler, 2018), this paper aims at responding to Bathelt and Li's (2020) call for selecting more appropriate methods and improving their rigour by evaluating the feasibility of utilising factorial surveys in predicting relocation behaviour in uncertain times. To this end, we focus on Brexit, representing a defined period of uncertainty, and utilise a mixed-method approach, aiming to a) analyse whether business managers' relocation intentions are driven by factors similar to those known to drive actual relocation behaviour, and b) compare business managers' relocation intentions with their companies' actual relocation outcomes.

The remainder of the paper is organised as follows: The second section introduces conceptual considerations, while the third section explains the case study design and meth-

odology. The fourth section presents the empirical results, with the final section drawing conclusions and discussing implications.

## 2 Conceptual considerations

Much research in economic geography has investigated factors that drive (re)location decisions of firms. Over time, the emphasis has shifted from describing economic actors as rational, predictable decision-makers (e. g., Isard, 1956) towards regarding their decision-making processes as rather subjective and open-ended (Bathelt and Glückler, 2003). In the following sub-chapters, we engage with this literature to develop a holistic conceptual framework (see Figure 1).

### 2.1 The rational choice approach

Confronted with different strategic options, of which business relocation is one, business managers face the challenge of deciding which of them serves their company's goals and objectives best. The traditional regional science literature (e. g., Isard, 1956), describes strategic decision-making as a rational process, focussing on the strategic fit between a firm and its environment. To this end, business managers are assumed to carefully compile a list of locational requirements of their firms, analyse the features of different regions, and, to maximize profits, design the spatial organization of their production processes accordingly.

As such, it is assumed that managers monitor changes in their business environment regularly, grounding their strategic choices in a deliberate analysis of potential threats and opportunities. In this light, business relocation decisions are seen to be affected by both 'push factors' and 'pull factors'. While push factors are defined as external circumstances that make a company want to leave its current location, pull factors are defined as external conditions that attract companies to a new location (Pellenbarg et al., 2002).

However, while it appears sensible to assume that negative alterations in the external business environment have the potential to push companies away from their current location, it must be kept in mind that companies differ in their need and ability to respond to such changes due to differences in their internal characteristics. When confronted with changes in their external business environment, managers are assumed to deliberately analyse their internal resources and capabilities, evaluating the feasibility of different strategic responses. On this matter, the resource-

based view of the firm (Barney, 1991) argues that a firm's ability to respond to changes derives from the tangible and intangible assets it controls, including physical capital, referring to physical assets, such as plants and equipment; human capital, covering the composition of the workforce; organisational capital, related to the organisational structure and processes; and financial capital, representing a company's financial assets.

## 2.2 Towards more flexible, behavioural, and relational approaches

While the rational choice approach to strategy offers a useful structure for analysing relocation decisions, it has been criticized as simplistic (Whittington, 1993), as it assumes that i) all business managers continuously and effectively assess their business environment and internal resources, ii) accurate information about changes in the business environment is available to all managers; iii) all managers have the same cognitive ability to process such information; iv) the decision-making of managers is not affected by subjective considerations. Most of these assumptions are unrealistic. While some managers analyse their external business environment and internal resources very carefully, others simply ignore them, as they are pre-occupied with the daily business of survival (Porter, 1996). Moreover, information about the business environment is often imperfect and changes dynamically, particularly in times of high uncertainties (Clark, 2010). Finally, business managers differ in the capacity to process and apply information and are never completely free from being affected by subjective factors (e. g., Pred, 1967; Dahl and Sorenson, 2007). Rooted in this critique, alternative approaches have evolved not just in economic geography, but also in related fields, such as business management and economics.

In the *business management literature*, advocates of flexible approaches to strategy (e. g., Phelps and Kapsalis, 2001) argue that, given the complexity and volatility of the modern world, business managers would do better by planning for a range of different future scenarios rather than founding their strategic decisions on the characteristics of their current business environment. They argue that by doing so uncertainty can be reduced significantly, even though it can never be eliminated. Such flexible approaches to strategy, however, still do not take into account that business managers are likely to differ in their capacity and willingness to plan for different scenarios, and that subjective factors are likely to affect their decision-making. Hence, advocates of behavioural approaches to strategy (e. g., Cyert and March, 1963; Mintzberg and Quinn, 1991), argue

that strategic decision-making, far from being a rational endeavour, is influenced by business managers' personalities, experiences, ideologies, and values. Depending on such personal characteristics, business managers vary in their perceptions and judgements of changes in the business environment. Moreover, advocates of the extended resource-based view of the firm (e. g., Arya and Lin, 2007) consider relational resources, such as territorial embeddedness, as being essential in the strategic decision-making of business managers.

The nature of human behaviour is discussed not only in the business management literature, but also in *behavioural economics*. Behavioural economists examine how the characteristics of economic actors affect their decisions under conditions of risk and uncertainty (Winter, 1986). It is now widely acknowledged that the behaviour of economic actors is not only tied to rational decision-making (Kahneman and Tversky, 1979). Instead, it is assumed to be influenced by a dual system: behavioural processes that are reflective, controlled, deliberative, analytical, and governed by rules; and those that are affective, intuitive, emotional, and relatively unconscious (Kahneman, 2003). The role of affective behaviour is also evident in the "risk-as-feelings" model (Loewenstein et al., 2001), showing that in difficult situations decision-making is often driven by emotional reactions.

Such discussions have also found their way into *economic geography*. Closely related to behavioural economics, behavioural economic geography analyses economic activity in space at the level of individual economic actors (Strauss, 2008). It acknowledges that economic actors differ in their individual characteristics and argues that theoretical models of economic activity can be enhanced by integrating more realistic assumptions about human behaviour (e. g., Pred, 1967; North, 1974; Pen, 2000; Pellenbarg et al., 2002; Strauss, 2008). Based on Pred (1967) who argues that most (re)location decisions are not optimal, since accurate information required to make an optimal (re)location decision is not always readily available, while the cognitive ability of individuals to use information optimally might differ significantly, Pen (2000) calls for economic geographers to incorporate a stronger behavioural perspective when analysing location choices. In response, relational economic geography seeks to provide a deeper understanding of the spatial organization of production processes by drawing attention to the strategies and objectives of economic agents and regarding them as positioned in contexts of intertwined social and institutional relations, and as open-ended (Bathelt and Glückler, 2003). By regarding economic processes as being integrated into networks that are reaching beyond the locational structures of firms (Bathelt

and Glückler, 2018), they set the foundation for analysing the importance of territorial embeddedness for strategic decision-making.

## 2.3 Conceptual framework

We strongly agree with Bathelt and Glückler (2003) and Strauss (2008) that analysing context-specific strategic decision-making of economic agents is core to economic geography. As such, we treat business managers and their relocation intentions and behaviours as the research object of this study. By grounding this paper in the research philosophy of critical realism, we engage with the literature to develop a holistic conceptual framework (see Figure 1). We take an eclectic approach, aiming to consider a wide array of factors that are discussed in the literature as affecting relocation decisions of firms. By doing so, we aim at analysing to which degree the strategic decision-making process of economic actors is open-ended and unpredictable.

To this end, we regard the flexible, behavioural, and relational approaches on the one hand and the rational choice approach on the other as not being mutually exclusive. Rather, we consider the strategic decision-making of business managers as being positioned on a spectrum between one and the other. As such, we follow Lerner et al. (2015) who propose a model of decision-making that attempts to account for both rational and affective elements. Their model shares similarities with the rational choice approach by assuming that decision-makers evaluate different options available to them (e. g., the intention to relocate or not to relocate to the European Union (EU)) by assessing the outcome utility for each option. In line with the flexible choice approach, they assume that the outcome of this assessment is influenced by the characteristics of the options themselves (e. g., the benefits and costs of relocating in a specific Brexit scenario). In addition, they account for the personal characteristics of the decision-maker (e. g., having family and friends in the United Kingdom (UK)). Finally, they also consider the current emotional state of the decision-makers (e. g., feeling moody as it's rainy in London), and the expected emotional outcome of their decision (e. g., expecting to feel happy after relocating to sunny Barcelona). While we do not account for emotions and affective reactions directly, we assume that if they played a predominate role for business managers' relocation intentions, the effects of the more tangible factors on business managers' relocation intentions would be low and insignificant.

## Conceptualising firm relocation

In our approach, we follow Pellenbarg et al. (2002) and define firm relocation as a form of locational adjustment in which one location is substituted for another, as a reaction to changes in the business environment. We assume that the relocation process can be split into two subsequent steps: the decision of whether to leave the current location; and the decision of where to move to. Therefore, we consider the general relocation intentions of business managers, as well as whether they intend to relocate to the EU or the US. Before Brexit, the UK and the EU were part of the same free trade zone, allowing UK firms to access a large market. As all forms of Brexit create new trade barriers, we consider relocating to the EU as a firms' attempt to maintain its market access. In contrast, we see relocation to the US as a firm's attempt to compensate for reduced access to the EU with increased activities in the US. Due to physical and institutional proximity relocating to the EU requires fewer resources and is less risky than relocating to the US (Carrincazeaux and Coris, 2015). Consequently, we expect relocating to the EU to be a more common intention in response to Brexit than relocating to the US.

Moreover, the literature on locational choices distinguishes between two distinctive forms of international firm relocation: partial and integral relocation. While *integral* relocation refers to the dissolution of a business unit in one country and moving it to another, *partial* relocation involves moving some business functions from the original business to a (new) business unit abroad, without abandoning the original business unit (Schmenner, 1982). Partial relocation can take the form of opening branches and/or subsidiaries abroad, and, thus, represents an important form of international expansion. Due to lower costs involved, partial international relocations are more common (Mariotti, 2005).

## Integrating different versions and perceptions of Brexit

In their recent paper, Anderson and Wilson (2018) highlight that, with myriad potential versions and perceptions of Brexit, different individuals and organisations will anticipate the consequences of Brexit in various ways. As such, we analyse international relocation intentions of business managers using a scenario-based approach, allowing us to incorporate aspects of the flexible approach to strategy (Wulf et al., 2010). We distinguish between three scenarios, all of which were widely discussed as potential outcomes of the negotiation process: 1) The UK leaves the EU based on the withdrawal agreement and enters a transition period during which the future relationship between the UK and EU is nego-



tiated in the spirit of the political declaration (Deal Brexit); 2) The UK leaves the EU without a deal and without a transition period, with trade falling largely back on WTO rules (No-deal Brexit); 3) The UK remains in the EU (No Brexit). We expect these scenarios to have a significant effect on business managers' international relocation intentions.

Following Carrincazeaux and Coris (2015), we also expect that the question of relocation arises when the current business model is being challenged due to *perceived* changes in the business environment incoherent with assumptions on which the business model was based. To consider potential changes in the UK's business environment caused by Brexit, we refer to Sohns and Wójcik (2020) who analyse the effects of Brexit on London's entrepreneurial ecosystem. Accordingly, we group potential changes into the domains of markets, finance, human capital, and policy/support. We consider the *domain of markets* as significant for managers' international relocation intentions, since concerns were raised during the negotiation period that free trade of goods and services between the EU and the UK could be curtailed. Moreover, there were concerns that financial services, previously covered by passporting rights that allowed companies regulated by a member-state of the EU to offer their services across the whole European single market, would be excluded from a potential trade deal. In addition, we consider the *domain of finance* as important to business managers' international relocation intentions, since it was feared that businesses located in the UK could face problems regarding access to venture capital and the European Investment Fund. Moreover, the domain of *human capital* is considered significant, since access to talent from the EU was expected to deteriorate as a result of Brexit. Finally, the domain of *policy/support* is considered as important, since there were hopes that the UK government would influence the domains of policy and support, for instance by changing the country's regulatory, legal and tax frameworks, and by offering support infrastructure to the industry to counteract the negative effects of leaving the EU.

### Conceptualising territorial embeddedness

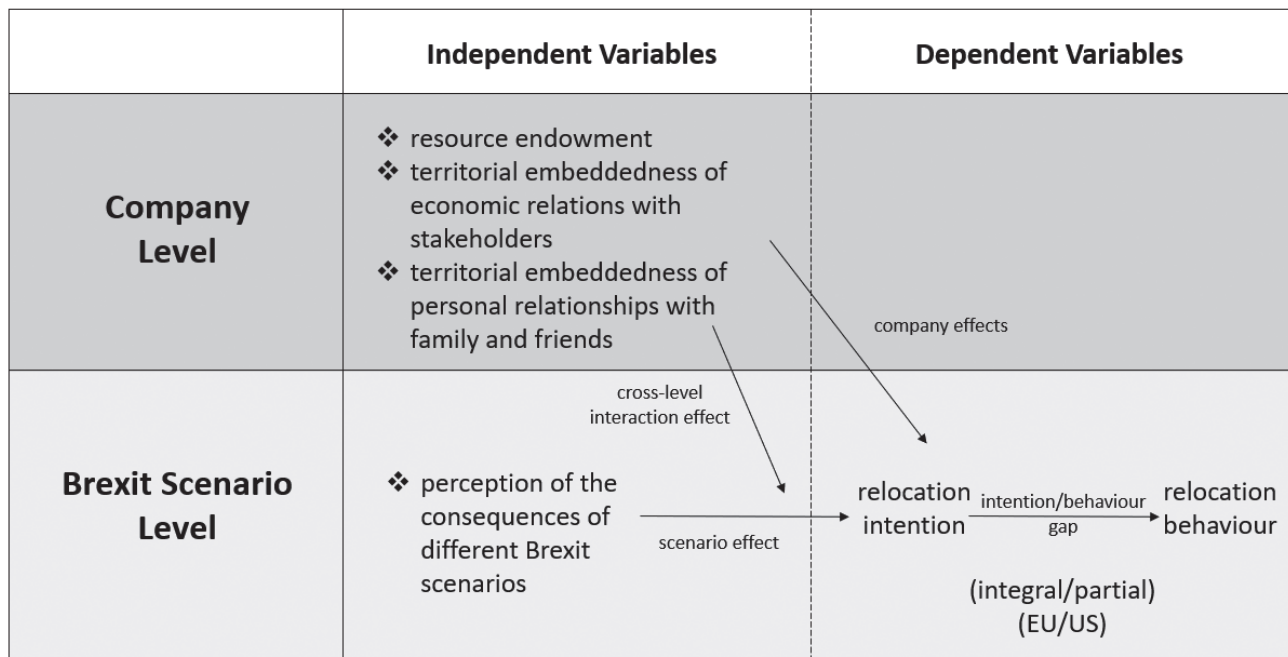
Engaging with the relational approach, we regard business managers' relocation decisions as being embedded in context-specific structures of social and economic relations (Bathelt and Glückler, 2003). In this regard, we consider social and economic relations as the glue that binds enterprises within local economies (Grabher, 1993), leading to increased territorial embeddedness. We define territorial embeddedness as the degree of which organizations

are geographically anchored in a given location, based on the nature of their relationships with other local economic actors and institutions. As such, we expect that high territorial embeddedness in a local economy limits the relocation options available to business managers and, as such, reduces managers' intentions to relocate. Consequently, we apply Arya and Lin's (2007) extended resource-based view, focusing not only on the effect of internal resources, such as physical, human, organisational, and financial capital, but also on the effect of territorial embeddedness. Referring to Carrincazeaux and Coris (2015), we do not only consider relationships with other firms, but also relationships with employees, customers, and financiers as integral part of territorial embeddedness and an important driver of firm relocation. In doing so, we follow Knoblen (2011) who shows that the distance firms are willing to move is positively associated with low (high) level of territorial embeddedness in their home (host) country, as well as with high internal resources endowment.

First, as established companies have a larger stock of *physical capital* than younger companies, we assume that the costs for an established company to move tend to be greater than for a younger company (Brouwer et al., 2004). Consequently, we expect startups to be more likely than established companies to consider international *integral* relocation (Storper and Walker, 1989). However, at the same time, we assume established companies to be more likely to consider international *partial* relocation than startups, as they are more likely to operate business units abroad already. Due to their *specific organisational structure*, established firms have greater experience in launching and running business units abroad, and exhibit a greater degree of territorial embeddedness in alternative locations, enhancing their capability and confidence to *partially* relocate (Stam, 2007).

Second, following Carrincazeaux and Coris (2015), we consider *buyer-supplier relationships* as an integral part of organisational capital, affecting managers' international relocation intentions. From a relational perspective, we expect managers of companies that depend on international buyer-supplier relationships to be more likely to consider international relocation than managers of companies that do not depend on such relationships, as they there are less strongly embedded in the UK (Knoblen, 2011). Moreover, we assume buyer-supplier relationships with financial services in the EU to amplify the business managers' relocation intentions, due to the passporting-rights in the realm of financial services being put at risk by Brexit.

Third, we consider the composition of the workforce as an important part of *human capital*, affecting managers' relocation intentions. Employing an international workforce would likely increase managers' ability to consider

**Figure 1:** Conceptual Framework

Source: Own illustration.

international relocation, particularly if their employees are nationals of the considered relocation destination (Thite et al., 2009), due to their reduced embeddedness in the UK. Moreover, we expect a strong dependence on EU nationals to amplify business manager's relocation intentions, due to their staff's right-to-work being put at risk by Brexit.

Fourth, we see *financial capital* as an important factor affecting managers' ability to consider international relocation, as it provides resources needed for such relocation. In this regard, we consider dependencies on different sources of finance, such as bank loans and venture capital, assuming that dependency on the former is a sign of high embeddedness in the UK, while the latter is a sign of low embeddedness in the UK (Knoben, 2011). Moreover, we assume a strong dependency on funding from the European Investment Fund to amplify business managers' relocation intentions, due to access to EU funding being threatened by Brexit.

### Incorporating business managers' personal relationships

Combining aspects of the behavioural and relational approach, we also assume that relocation intentions of managers are influenced not only by business-related factors, but also by their personal characteristics, such as their personal relationships, and their perception of the 'quality of life' (Grabher, 1993; Dahl and Sorenson, 2007; Brown and Mczyski, 2009).

Here, the term 'quality of life' covers location factors, such as cost of living, the quality of educational and health services, cultural facilities, and crime rates, as well as the 'intellectual atmosphere' of a place (Malecki, 1987). In this regard, we consider increasing visibility of subliminal xenophobia and populism within specific segments of the British society as another important location factor, affecting managers' relocation intentions, with business managers who have an international background to be likely to feel less welcome in the UK. Moreover, following Dahl and Sorenson (2007), we consider being deeply embedded in localised personal relationships – seeking proximity to spouses, family members, and friends – as an important factor influencing managers' relocation intentions. As such, we expect business managers who were born outside the UK to be more likely to consider relocation than those who were born in the UK.

## 3 Case study design and methodology

Over the last five years, financial geographers have discussed potential impacts of Brexit on London (e. g., Hall and Wójcik, 2021; Lavery et al., 2018; Sohns and Wójcik, 2020), financial centres in the EU (e. g., Dörry, 2017; Dörry and Dymski, 2021), and those in Asia (e. g., Lai and Pan, 2021).

However, while they offer important ideas, most of them are conceptual rather than empirically grounded and lack a micro-economic, behavioural perspective. To fill this gap in the literature, we utilise a case study approach, analysing the effect of different Brexit scenarios on business managers' strategic relocation intentions/behaviour in the UK FinTech industry.

Following Wójcik (2021:568), we define FinTech as “an economic sector that focuses on the application of recently developed digital technologies to financial services”. As a hybrid industry, FinTech encompasses a variety of different functions, technologies, and institutions (Gomber et al., 2017). While some FinTech companies offer new financial products and services that cover the whole spectrum of financial needs, such as automated wealth management, new payment solutions, and crowdfunding, others focus on the technological building blocks that facilitate the delivery of these products and services, such as machine learning, cybersecurity, and blockchain.

We focus on the FinTech industry, as it is seen as an important growth industry globally. Alongside the US and Singapore, the UK is a leader in FinTech, with the sector generating annual revenues of £11bn, employing 76,500 people, and attracting £3.6bn of investment in 2019 (Ernst & Young, 2020). Existing reports highlight several features of the UK conducive to FinTech development, including a progressive regulatory regime, availability of both domestic and international capital, access to highly qualified labour, and robust demand driven by a large consumer market open to innovation (Ernst & Young, 2020). However, at the same time reports stress that global competition in FinTech has increased in recent years, with competitive pressures coming not only from the US, but also Singapore, India, and Hong Kong, among others. In this context uncertainties associated with Brexit pose a potential threat to the UK's leading position on the global FinTech stage.

To collect primary quantitative data on business managers' relocation intentions in different Brexit scenarios, a factorial survey was conducted during ‘FinTech Connect 2018’, one of the world's leading FinTech conferences, taking place every December in London. The conference unites FinTech companies, policy makers, venture capitalists, and other financial institutions from over 80 countries, and includes a trade exhibition, with approximately 150 FinTech companies represented. We distributed a questionnaire to all exhibitors, and received 47 responses, out of which we focus on 38 companies with a business unit (headquarters, subsidiaries, or offices) in the UK. All the surveyed companies focus on technologies that facilitate the delivery of new financial products and services or provide consultancy services related to them and, as such, represent an important,

but often overlooked part of the FinTech industry. 68 % of them were headquartered in the UK, 13 % in the EU, 13 % in the US, and one in Israel. 72 % were defined as SMEs (with fewer than 150 employees), and 92 % were registered as private limited companies. 74 % of the questionnaires were answered by a representative of the senior management (a founder, CEO/COO, director, partner, or business development manager); 10 % by individuals holding middle-management positions (e. g., head of sales or marketing), and only 16 % by individuals not holding a management position. As such, the responses can be considered as largely reflecting the business strategy of the companies surveyed.

In February 2022, 14 months after the EU–UK Trade and Cooperation Agreement (TCA) was announced, and three years after the factorial survey was conducted, qualitative secondary data on the actual relocation outcomes of these 38 companies were collected by investigating online platforms, such as LinkedIn, Companies House, and Crunchbase, as well as the webpages of the companies. Utilizing a mixed-methods approach, we created a panel dataset that allows us to compare the initial relocation intentions with the actual relocation outcomes of these companies by translating the qualitative information into quantitative data (actual relocation: no=0, yes=1).

### 3.1 Empirical Framework

Survey participants were asked how likely the three Brexit scenarios would lead to the integral (partial) relocation of (some functions of) the UK business unit to the EU, or the US. The likelihood of choosing a specific relocation strategy was measured on an ordinal scale, ranging from “very unlikely” (1), through “unlikely” (2) and “likely” (3), to “very likely” (4). This led to the creation of four dependent variables, based on the combinations of integral and partial relocations and the two relocation destinations.

As shown in the conceptual framework, we distinguish between two groups of independent variables: those at the scenario level and those at the company level (see Table 1 for descriptive statistics). At the *scenario level*, we included two dichotomous variables in the regression model, representing the “Deal” and “No-Deal” Brexit scenarios, with the “No Brexit” scenario used as the reference category. We also included five dichotomous variables representing the participants' perception of the scenarios, focusing on five domains of the entrepreneurial ecosystem: domestic demand, access to foreign markets, talent, and finance, as well as government support. Participants were asked whether they believe that these domains would be positively or negatively affected by a specific Brexit scenario or

**Table 1:** Descriptive Statistics of Independent Variables

Variable	Mean	Std. Dev.	Min	Max
<b>Scenario Level</b>				
domestic demand perceived to worsen (yes=1)	0.30	0.46	0	1
access to international markets perceived to worsen (yes=1)	0.43	0.50	0	1
access to talents perceived to worsen (yes=1)	0.48	0.50	0	1
access to funding perceived to worsen (yes=1)	0.35	0.48	0	1
access to government support perceived to worsen (yes=1)	0.20	0.40	0	1
<b>Company Level</b>				
<b>Resource Endowment</b>				
startup (yes=1)	0.36	0.48	0	1
<b>Employee Relationships</b>				
share of non-UK nationals (EU nationals) employed (as %)	24.29	31.42	0	100
share of non-UK nationals (non-EU nationals) employed (as %)	21.05	30.15	0	100
<b>Buyer-Supplier Relationships</b>				
importance of EU Tech industry	3.11	0.95	1	4
importance of EU Financial Services industry	3.13	0.90	1	4
importance of Tech industry outside the EU	3.03	0.88	1	4
importance of Financial Services industry outside the EU	3.00	0.87	1	4
<b>Financial Relationships</b>				
importance of equity capital	2.52	1.15	1	4
importance of bank loans	2.12	0.96	1	4
importance of venture capital	2.67	1.20	1	4
importance of UK government funding	2.13	0.96	1	4
importance of EU funding	2.08	0.94	1	4
<b>Personal Relationships</b>				
born outside the UK	0.45	0.50	0	1

Note: n=113. Source: Own calculations.

not at all. A value of 1 captures belief in a negative impact; while a value of 0 captures belief in a positive impact or no impact. At the *company level*, we included company age, distinguishing between start-ups (younger than 3.5 years represented by value 1) and established companies (older than 3.5 years – value 0). 36 % of the companies in our sample were start-ups and 64 % established companies. We also considered the share of non-UK nationals employed by the company, distinguishing between the % of EU nationals and the % of non-EU nationals. 55 % of the employees working in the UK establishments of the surveyed companies were British nationals, with 24 % from the EU, and 21 % from non-EU countries. In addition, the perceived importance of B2B relationships with foreign technology companies and foreign financial services companies was captured by four independent variables: the importance of the technology industry located in the EU, the technology industry located outside the EU, the financial services industry located in the EU, and the financial services industry located outside

the EU. These variables were measured on an ordinal scale, ranging from “very unimportant” (1), through “unimportant” (2) and “important” (3), to “very important” (4). On average, the EU financial services industry (3.13) and the EU technology industry (3.11) were seen as slightly more important than the technology industry (3.03) and financial services industry (3.00) located outside the EU. The perceived importance of different sources of finance was captured by five independent variables: the importance of equity capital, bank loans, venture capital, UK government funding, and EU funding (also measured on an ordinal scale, ranging from “very unimportant” to “very important”). On average, venture capital was seen as the most important funding source (2.67), followed by equity capital (2.52), funding from the UK government (2.13), bank loans (2.12), and funding from the EU (2.08). Finally, we considered the origin of the company representatives, a value of 0 representing people born in the UK, and 1 representing those born outside the UK. 45 % of them were born outside the UK.



### 3.2 The Regression Model

Due to the structure of the data, multilevel modelling was used to simultaneously estimate the effect of different Brexit scenarios as well as company characteristics on the likelihood of integral (partial) relocation of (some functions of) the UK business unit. In this approach, the Brexit scenarios are treated as the lower level of analysis, while the 38 surveyed company representatives are treated as the higher level (Oll et al. 2016). As each business manager was asked to judge three different Brexit scenarios (one business manager only judged two of the three scenarios), the dataset consists of 113 observations. As our dependent variables are categorical and ordered, two-level mixed effects ordered logistic regressions were used to estimate the effects of the independent variables on dependent variables:

$$(1) \quad \text{logit} \left[ P(Y_{ij} \leq k) \right] = \beta_{ko} + \beta_p X_{pij} + \beta_q X_{qij} + \varepsilon_{ij} + \eta_j$$

$\text{Logit} \left[ P(Y_{ij} \leq k) \right]$  represents the estimated cumulative log-arithmic probability (log odds) of scenario  $i$  in company  $j$  of being less than or equal to a specific category  $k$ . Here,  $k$  represents the four ordinal outcomes of the dependent variable, representing the likelihood of anticipating to fully (partially) relocate (some functions of) the UK business unit to the EU or the US. In terms of coefficients,  $\beta_{ko}$  represents the constant term of the regression;  $\beta_p$  the coefficients of the independent variables representing the scenario characteristics ( $X_{pij}$ ); and  $\beta_q$  the coefficients of the company characteristics ( $X_{qij}$ ). The error terms are  $\eta_j$  (company level), and  $\varepsilon_{ij}$  (scenario level). To ensure that the assumptions of ordinal logistic regressions are met, we tested for multicollinearity between the independent variables. With an VIF of 2.86, this was ruled out.

## 4 Results

Our descriptive data analysis reveals that 29 % of the company representatives thought it likely or very likely that their UK business unit would be fully relocated to the EU if the UK left the EU without a deal. This share is 37 % when the likelihood of partially relocating to the EU is concerned. In contrast, only 13 % (24 %) saw it likely or very likely that their UK business unit would be fully (partially) relocated to the EU if the UK left the EU based on the withdrawal agreement. In comparison, 8 % (5 %) considered it likely or very likely that their UK business unit would be

fully (partially) relocated to the EU if the UK remained part of the EU (see Figure 2). Regarding the US as a relocation destination, 11 % thought it likely or very likely that their UK business unit would be fully relocated to the US if the UK left the EU without a deal. This share is 13 % when partially relocation to the US is concerned. In contrast, only 3 % (11 %) believed it likely or very likely that their UK business unit would be fully (partially) relocated to the US if the UK left the EU based on the withdrawal agreement. In comparison, 3 % (0 %) considered it likely or very likely that their UK business unit would be fully (partially) relocated to the US if the UK remained part of the EU (see Figure 3).

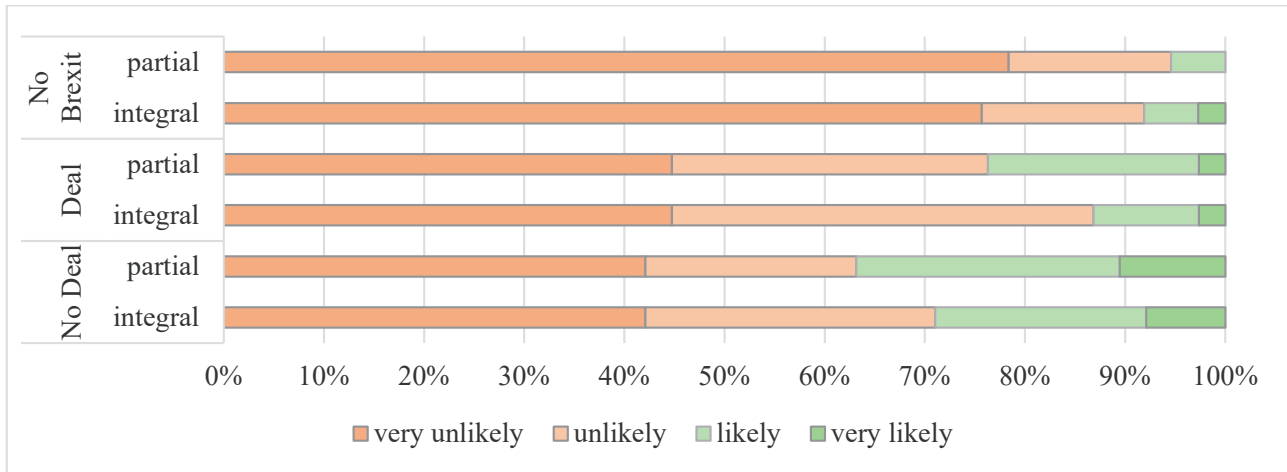
**Key Finding 1:** Most company representatives did not anticipate relocating (any parts of) the business unit under any of the scenarios. For those company representatives who did anticipate relocation, the EU was the most important potential relocation destination, highlighting the significance of geographical and institutional proximity.

Moreover, for those company representatives who did anticipate relocation to the EU, the Brexit outcome seems to matter too. To verify this finding, we applied a Fisher's Exact Test to estimate whether the differences between the Brexit scenarios are significant. The test confirms significant differences in the likelihood of relocating (parts of) the business unit to the EU among Brexit scenarios (integral relocation:  $Pr = 0.024$ ; partial relocation:  $Pr = 0.007$ ). In contrast, no significant differences in the relocation likelihood among Brexit scenarios can be found for either integral or partial relocation to the US (integral relocation:  $Pr = 0.194$ ; partial relocation:  $Pr = 0.262$ ). As such, our descriptive results indicate that the Brexit outcome significantly affects anticipated relocations to the EU, while anticipated relocation to the US is not significantly driven by the Brexit outcome.

### 4.1 Analysing Relocation Intentions

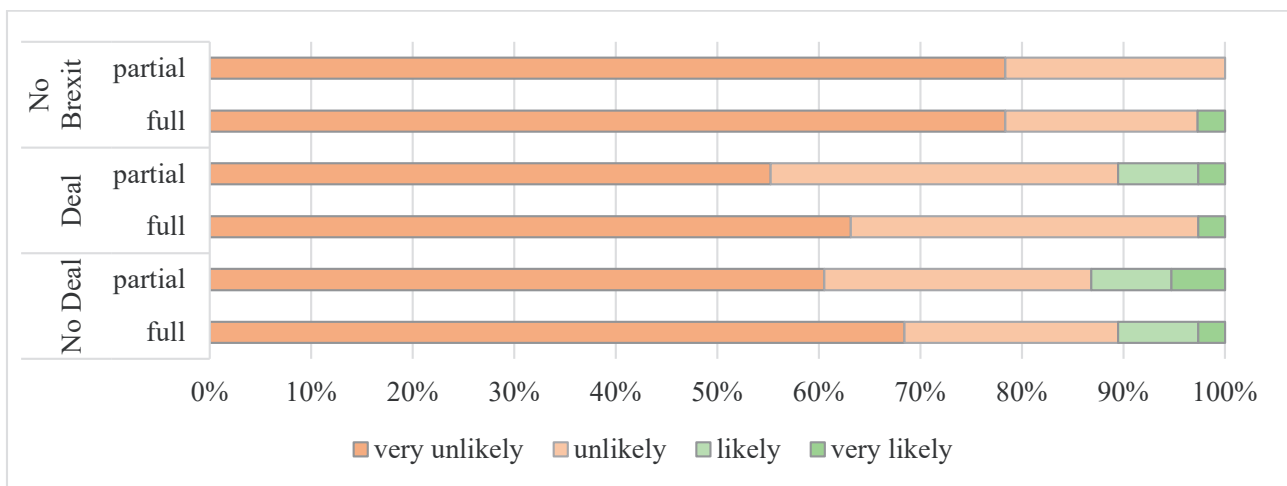
While the descriptive results suggest a significant impact of the Brexit scenarios on the anticipated likelihood of integral (partial) relocation of (some functions of) UK business units to the EU, they are not sufficient to conclude that this effect remains significant when taking additional company characteristics into account. To examine such effects, we developed a range of regression models following a stepwise approach, in which variables are introduced in succession.

In the first step, we estimated the intercept models (m0), which contain no explanatory variables and divide the variance into the two independent components related to the scenario and the company levels:



**Figure 2:** Anticipated partial and integral relocation to the EU in different Brexit scenarios

Note: n=113. Source: Own calculations.



**Figure 3:** Anticipated partial and integral relocation to the US in different Brexit scenarios

Note: n=113. Source: Own calculations.

$$(2) \quad \text{logit} \left[ P(Y_{ij} \leq k) \right] = \beta_{ko} + \varepsilon_{ij} + \eta_j$$

Then we calculated the intra-cluster correlations (ICC), which indicate the estimated proportion of the total variance attributed to the two levels, using the following equations with  $\sigma^2_i$  representing the residual variance at the scenario level, and  $\sigma^2_j$  at the company level:

$$(3) \quad ICC_{\text{scenario}} = \frac{\sigma^2_i}{(\sigma^2_i + \sigma^2_j)}; \quad ICC_{\text{company}} = \frac{\sigma^2_j}{(\sigma^2_i + \sigma^2_j)}$$

The estimated ICCs yield two interesting results. Firstly, they show that 34 % of the variation in the likelihood of antici-

pating *partially relocating* the UK business unit to the *EU* can be explained by differences among companies, while the remaining 66 % can be attributed to difference among Brexit scenarios. In contrast, 63 % of the variation in the likelihood of anticipating *partially relocating* the UK business unit to the *US* can be explained by differences among companies, while the remaining 37 % can be attributed to differences among Brexit scenarios. Secondly, our results show that 51 % of the variation in the likelihood of anticipating *fully relocating* the UK business unit to the *EU* can be explained by differences among companies, while the remaining 49 % can be attributed to differences among Brexit scenarios. In contrast, 82 % of the variation in the likelihood of anticipating *fully relocating* the UK business unit to the *US* can be explained by differences among com-

panies, while only 18 % can be attributed to differences among Brexit scenarios.

**Key Finding 2:** Anticipated relocation to the EU is more strongly driven by the Brexit outcome than anticipated relocation to the US. Anticipated partial relocation is more strongly driven by the Brexit outcome than anticipated integral relocation.

In the second step, we added two dichotomous variables to the regression models, representing the “No Deal” and “Deal” Brexit scenarios, while treating the “No Brexit” scenario as the reference scenario (m1), aiming to compare the specific effects of the different Brexit outcomes:

$$(4) \quad \text{logit} \left[ P(Y_{ij} \leq k) \right] = \beta_{ko} + \beta_p X_{pij} + \varepsilon_{ij} + \eta_j$$

The results confirm that both the “No Deal” and the “Deal” Brexit scenario had a significant positive effect on the likelihood of anticipating to fully and partially relocate the UK business unit to the EU and the US, with anticipated relocation to the EU being more strongly driven by the “No Deal” Brexit scenario than by the “Deal” Brexit scenario.

In the third step, we added company characteristics to the regression models (m2) to analyse whether factors commonly known as driving actual relocation behaviour also have a significant effect on relocation intentions of business managers:

$$(5) \quad \text{logit} \left[ P(Y_{ij} \leq k) \right] = \beta_{ko} + \beta_p X_{pij} + \beta_q X_{qij} + \varepsilon_{ij} + \eta_j$$

The results suggest that the effects of the “No Deal” Brexit and “Deal” Brexit scenario remain roughly the same, indicating the robustness of the estimated effects. Moreover, the results offer valuable insights into the general (scenario-independent) effects of different company characteristics on business managers’ relocation intentions. Unfortunately, due to the relatively small number of participants that anticipated to fully relocate the UK business unit to the US, it was not possible to estimate reliable effects for the anticipated likelihood of integral relocation to the US ( $\text{prob} > \chi^2 = 0.4168$ ). Therefore, we cannot rule out that the estimated effects, despite being significant, are random. To guarantee reliability and comparability, the following discussion focuses solely on anticipated *partial* relocation to the EU and US (see Tables 2 and 3). The regression tables for anticipated *integral* relocation can be found in the appendix (see Appendix a and Appendix b).

In line with the extended resource-based view of the firm (Arya and Lin, 2007), our results suggest that company characteristics such as the age of the company, the origin of the workforce, buyer/supplier relationships with companies located abroad, and sources of finance have a significant effect on business managers’ intentions to partially relocate the UK business unit to the EU and the US. For instance, our results suggest that managers of start-ups are significantly less likely to anticipate to partially relocate the UK business unit to the US than managers of established companies, presumably due to their company’s weaker endowment with internal resources. In addition, our results indicate that business managers that perceive B2B relationships with the financial services industry outside the UK as important are significantly more likely to anticipate to partially relocate the UK business unit to the US. Moreover, while business managers that perceive UK-based bank loans as an important source of finance are significantly less likely to anticipate to partially relocate the UK business unit to the EU and the US, business managers that perceive global venture capital and EU funding as important sources of funding are significantly more likely to anticipate to partially relocate the UK business unit to the EU and the US. In the fourth step, we extended the analysis by adding five dichotomous variables, representing business managers’ perception of the potential consequences of different Brexit scenarios (m3). This allows us to respond to Anderson and Wilson (2018) by analysing whether the perception of potential future consequences of different Brexit scenarios drive business managers’ anticipated likelihood to partially relocate their UK business unit to the EU and the US. First, the results validate our decision to focus on anticipated partial relocation, as the regression models estimating anticipated integral relocation do not lead to reliable results (see Appendix a and Appendix b: integral relocation to the EU:  $\text{prob} > \chi^2 = 0.1955$ ; integral relocation to the US:  $\text{prob} > \chi^2 = 0.8687$ ). Second, the results indicate that anticipated partial relocation to the EU is driven solely by concerns about worsening domestic demand, while anticipated partial relocation to the US is driven by concerns about worsening domestic demand, worsening access to international markets, and worsening government support. Interestingly, the Brexit scenario effects on anticipated relocation to the US lose their significance when taking participants’ perception of the potential consequences of different Brexit scenarios into account, while the Brexit scenario effects on anticipated relocation to the EU remain significant despite adding the perception of potential consequences.

**Key Finding 3:** The impacts of the Brexit scenarios on anticipated partial relocation to the US can be clearly attributed

**Table 2:** Regression Results – Anticipated partial Relocation to the EU

Variable	m0	m1	m2	m3
<b>Scenario Level</b>				
No Deal scenario		19.9467***	19.6668***	7.7856***
Deal scenario		9.7217***	9.5870***	4.4765***
domestic demand perceived to worsen				4.3074**
access to international markets perceived to worsen				0.6308
access to talents perceived to worsen				2.3831
access to funding perceived to worsen				1.6673
access to government support perceived to worsen				2.1877
<b>Company Level</b>				
<i>Resource Endowment</i>				
startup			0.9793	1.4239
<i>Employee Relationships</i>				
share of non-UK nationals (EU nationals) employed			0.9930	0.9996
share of non-UK nationals (non-EU nationals) employed			0.9790*	0.9788*
<i>Buyer-Supplier Relationships</i>				
importance of EU Tech industry			0.5661	0.3253
importance of EU Financial Services industry			2.5838	3.5785*
importance of Tech industry outside the EU			0.6595	0.6747
importance of Financial Services industry outside the EU			1.2080	1.2746
<i>Financial Relationships</i>				
importance of equity capital			2.4520**	3.0972**
importance of bank loans			0.4289*	0.3250**
importance of venture capital			1.0814	1.0197
importance of UK government funding			0.4772	0.6094
importance of EU funding			8.7238***	10.8108***
<i>Personal Relationships</i>				
born outside the UK			1.1296	0.5936
/cut1	0.2716	2.2020	5.8221	6.5356
/cut2	1.6316	4.0991	7.7307	8.5279
/cut 3	3.7304	6.7720	10.3335	11.3234
prob > chi2	.	0.0001	0.0485	0.0757
prob >= chibar2	0.0045	0.0000	0.0750	0.1876
var(_cons)	1.6919	4.1818	1.0673	0.8871
ICC	0.3396	0.5597	0.2449	0.2124
n	113	113	113	113

Note: \*\*\*Significant at 1 % level ( $p < 0.01$ ); \*\*Significant at 5 % level ( $p < 0.05$ ), \*Significant at 10 % level ( $p < 0.1$ ).

Source: Own calculations.

to participants' perception of the potential consequences of different Brexit scenarios. In contrast, while the Brexit scenarios have a strong effect on anticipated partial relocation to the EU, most of the potential underlying causes do not, suggesting that there might be other, less tangible, reasons, as to why anticipated partial relocation to the EU seems so strongly driven by the Brexit outcome.

In the fifth step, we added cross-level interaction effects to the regression models to analyse whether the Brexit sce-

nario effects on anticipated partial relocation to the EU (m4) and US (m5) vary among companies with different internal characteristics. To limit the complexity of the models, we decided to add each interaction effect separately:

$$(6) \quad \text{logit} \left[ P(Y_{ij} \leq k) \right] = \beta_{ko} + \beta_p X_{pij} + \beta_q X_{qij} + \beta_p X_{pij} * \beta_q X_{qij} + \varepsilon_{ij} + \eta_j$$



**Table 3:** Regression Results – Anticipated partial Relocation to the US

Variable	m0	m1	m2	m3
<b>Scenario Level</b>				
No Deal scenario		12.1974***	13.3265***	1.8303
Deal scenario		13.1764***	13.6762***	2.9109
domestic demand perceived to worsen				4.2592*
access to international markets perceived to worsen				13.9511**
access to talents perceived to worsen				1.3258
access to funding perceived to worsen				0.4472
access to government support perceived to worsen				6.4581**
<b>Company Level</b>				
<i>Resource Endowment</i>				
startup			0.0574**	0.1183**
<i>Employee Relationships</i>				
share of non-UK nationals (EU nationals) employed			0.9752*	0.9792*
share of non-UK nationals (non-EU nationals) employed			1.0334**	1.0295**
<i>Buyer-Supplier Relationships</i>				
importance of EU Tech industry			0.2943	0.0707***
importance of EU Financial Services industry			7.8521**	16.6011***
importance of Tech industry outside the EU			0.0588***	0.1161***
importance of Financial Services industry outside the EU			52.1883***	21.6732***
<i>Financial Relationships</i>				
importance of equity capital			16.4568***	21.3535***
importance of bank loans			0.2246**	0.1589***
importance of venture capital			2.6850*	2.9470***
importance of UK government funding			2.5418	4.6126**
importance of EU funding			7.1868**	4.8519**
<i>Personal Relationships</i>				
born outside the UK			0.3390	0.4002
/cut1	1.1532	3.3014	20.7035	19.4030
/cut2	4.0657	7.0833	24.5202	23.6185
/cut 3	5.5902	8.9844	26.3832	26.0127
prob > chi2	.	0.0042	0.1041	0.0080
prob >= chibar2	0.0000	0.0000	0.0406	.
var(_cons)	5.6422	10.3625	1.4405	3.16e-30
ICC	0.6317	0.7590	0.3045	9.59e-31
n	113	113	113	113

Note: \*\*\*Significant at 1 % level ( $p < 0.01$ ); \*\*Significant at 5 % level ( $p < 0.05$ ); \*Significant at 10 % level ( $p < 0.1$ ).

Source: Own calculations

The results in Table 4 indicate significant interaction effects, suggesting that certain company characteristics amplify the effects of the Brexit scenarios on anticipated partial relocation to the EU. First, the positive effect of the “No Deal” Brexit scenario appears to be significantly stronger for established companies than for start-ups. Second, it seems that the positive effect of the “No Deal” Brexit scenario is significantly stronger for companies employing a larger share of EU nationals. Third, the results suggest that the positive effects of the “No Deal” Brexit and “Deal” Brexit scenarios

are significantly stronger for companies that perceive relationships with the technology industry outside the UK (both inside EU and outside the EU) as more important than for companies that perceive such relationships as less important. In addition, it appears that the positive effect of the “No Deal” Brexit scenario is significantly stronger for companies that perceive relationships with financial services located in the EU as more important than for companies that perceive such relationships as less important. Fourth, the results indicate that the positive effects of the “No Deal”

Table 4: Anticipated partial Relocation to the EU – Cross-level Interaction Effects (m4)

Variable	startup	EU staff	non-EU staff	Tech EU	Fin EU	Tech world	Fin world	equity capital	bank loan	venture capital	UK funding	EU funding	born outside UK
<b>Scenario Level</b>													
No Deal scenario	53.4729***	8.1898***	33.1845***	0.0191**	0.0679	0.3612	16.9384	25.0015**	46.9477**	2.2079	4.6155	0.7577	4.6079*
Deal scenario	20.7848***	7.5590**	12.0444***	0.1264	0.5383	0.1279	2.1571	5.9171	5.0912	1.0690	3.9004	1.4365	3.8701*
interaction No Deal	0.0911*	1.0465**	0.9716	12.3367***	6.5543***	4.4153**	1.0645	0.9148	0.6749	2.5473*	2.0138	4.6183**	33.0340***
interaction Deal	0.1520	1.0181	0.9872	5.0984***	2.6870	4.7548**	1.6499	1.1942	1.3966	2.4730*	1.5576	2.4387	8.7390*
<b>Company Level</b>													
<b>Resource Endowment</b>													
startup	5.9998	0.9706	0.9572	0.8646	0.9062	0.8960	0.9944	0.9757	0.9696	0.9186	0.9975	0.9558	0.9099
<b>Employee Relationships</b>													
share of non-UK nationals (EU nationals) employed	0.9932	0.9671	0.9930	0.9889	0.9911	0.9908	0.9926	0.9932	0.9932	0.9908	0.9930	0.9920	0.9921
share of non-UK nationals (non-EU nationals) employed	0.9779*	0.9778*	0.9957	0.9728*	0.9753*	0.9771*	0.9790*	0.9787*	0.9779*	0.9771*	0.9791*	0.9777*	0.9777*
<b>Buyer-Supplier Relationships</b>													
importance of EU Tech industry	0.5370	0.5409	0.5680	0.1015**	0.5455	0.5801	0.5652	0.5637	0.5429	0.5821	0.5862	0.5967	0.5386
importance of EU Financial Services industry	2.7456	2.6623	2.6635	2.9519	0.8883	2.6306	2.6139	2.6128	2.7308	2.4762	2.4860	2.3518	2.7758
importance of Tech industry outside the EU	0.6597	0.7052	0.6420	0.7464	0.6579	0.1997*	0.6492	0.6578	0.6655	0.6811	0.4155	0.6692	0.7124
importance of Financial Services industry outside the EU	1.2130	1.1598	1.2169	1.0590	1.1944	1.1804	0.9803	1.2038	1.1979	1.1639	1.1109	1.2270	1.1807
<b>Financial Relationships</b>													
importance of equity capital	2.4737**	2.4803**	2.4740**	2.7487**	2.5103**	2.5552**	2.4855**	2.3811	2.5546**	2.4680**	2.4717**	2.3742*	2.6207**
importance of bank loans	0.4228**	0.3965*	0.4191*	0.3711*	0.4142*	0.4054*	0.4245*	0.4322*	0.4338	0.3786*	0.4155*	0.4154*	0.3841*
importance of venture capital	1.0790	1.0821	1.0845	1.1340	1.1109	1.1063	1.0837	1.0826	1.0932	0.5020	1.1109	1.1180	1.1738
importance of UK government funding	0.4354	0.4391	0.4698	0.4447	0.4525	0.4627	0.4665	0.4754	0.4744	0.4642	0.2888	0.4433	0.4496
importance of EU funding	9.6427***	10.4447***	9.0414***	12.8829***	10.2760***	10.5414***	9.1060***	8.8057***	9.0616***	10.5510***	9.1095***	3.8130	10.2917***
<b>Personal Relationships</b>													
born outside the UK	1.2269	1.1638	1.1070	1.3744	1.2846	1.3034	1.1496	1.1303	1.1121	1.3701	1.1056	1.2520	0.1080
/cut1	6.6097	5.4037	6.1535	2.1041	2.6804	2.9479	5.2643	5.7820	6.1029	4.1122	4.9469	3.7375	5.2997
/cut2	8.6125	7.4904	8.1149	4.4635	4.7791	5.0639	7.2037	7.6933	8.0681	6.1667	6.8718	5.7339	7.4070
/cut 3	11.3068	10.3645	10.7692	7.6329	7.6286	7.9445	9.8412	10.3045	10.7288	9.0422	9.5364	8.6688	10.3115
prob > chi2	0.0765	0.0523	0.0471	0.0341	0.0428	0.0628	0.0669	0.0670	0.0647	0.0656	0.0669	0.0416	0.0453
prob >= chi2	0.0527	0.0331	0.073	0.0105	0.0353	0.0262	0.0623	0.0729	0.0621	0.0331	0.0653	0.0458	0.0378
var(_cons)	1.2769	1.5371	1.1011	2.2039	1.1761	1.6357	1.1631	1.0815	1.1723	1.5747	1.1659	1.3800	1.4366
ICC	0.2796	0.3184	0.2508	0.4012	0.3110	0.3321	0.2612	0.2474	0.2627	0.3237	0.2617	0.2955	0.3039
n	113	113	113	113	113	113	113	113	113	113	113	113	113

Note: \*\*\*Significant at 1% level ( $p < 0.01$ ); \*\*Significant at 5% level ( $p < 0.05$ ); \*Significant at 10% level ( $p < 0.1$ ). Own calculations.

Brexit and “Deal” Brexit scenario are significantly stronger for companies that perceive venture capital as more important than for companies that perceive it as less important. In addition, it appears that the positive effect of the “No Deal” Brexit scenario is significantly stronger for companies that perceive EU funding as more important than for companies that perceive it as less important. Fifth, the positive effects of the “No Deal” Brexit and “Deal” Brexit scenario appears to be stronger for companies run by non-UK natives than for companies run by UK natives.

Finally, the results reported in Appendix c. suggest that some of the interaction effects (such as the importance of relationships with the technology industry outside the UK, the importance of relationships with financial services in the EU, the importance of EU funding, and the origin of the company representative) might also influence anticipated relocation to the US. However, the insignificant “prob>chi” values indicate the low robustness of the model, making us treat these effects with caution.

**Key Finding 4:** Being embedded in social and economic relations that are reaching beyond the UK amplifies business managers’ reactions to Brexit, increasing their likelihood to consider moving their company (or parts thereof) abroad.

## 4.2 Comparing Relocation Intentions and Relocation Behaviour

The findings presented above are in line with previous research on actual relocation behaviour. As such, at the first glance, one could question the added value of such results. However, our results highlight that business managers’ relocation *intentions* are not arbitrary but driven by factors similar to those known as driving actual relocation *behaviour*. Nevertheless, despite being driven by similar factors, relocation intentions do not necessarily have to translate into actual moves, particularly in times of high uncertainty. To further evaluate the feasibility of using factorial surveys to anticipate strategic behaviour under such conditions, we compare business managers’ relocation intentions with their with their companies’ actual relocation outcomes.

According to information publicly available on LinkedIn, Companies House, Crunchbase, and the webpages of the companies under consideration, five (13 %) of the 38 companies under consideration had fully dissolved their UK establishments by the end of February 2022. Three out of the five establishments that were fully dissolved where small sales offices of foreign multinational companies headquartered in Israel and the US. Since closing their branches

in the UK, they have shifted their focus back to their home markets. Back in 2018, business representatives of all three anticipated domestic demand in the UK to worsen due to Brexit. As such, it can be assumed that they had established a branch in the UK to explore the market and decided to end this endeavour. In contrast, two out of the five establishments that were fully dissolved were UK-based companies founded and managed by Europeans who went back to their home country – Belgium and Romania – after Brexit. Interestingly, the Romanian founder started a similar company in Romania, offering the same services under a different company name. Moreover, the Belgian founder still describes himself as the “active CEO” of the company on LinkedIn. As such it can be assumed that, while the company is currently dormant, it might be re-opened in Belgium in the future. In line with the results of the factorial survey analysis, these findings indicate that the national background of the founders matters, with founders of European origin being more likely to relocate to the EU. All the UK establishments considered thus far were small, employing fewer than five employees in the UK in 2018. As such, the findings suggest that size matters as well with regards to full relocation, with smaller establishments being more likely to be closed than larger ones.

Furthermore, 15 (39 %) of the 38 companies under consideration had opened new offices overseas by February 2022 without closing their UK establishment. While the publicly available data does not allow for a systematic distinction between partial relocation and international expansion, as well as a systematic identification of the motives behind opening a new office abroad, the data provides, at least, anecdotal evidence. For instance, one of the companies under consideration stated on their webpage that they moved their headquarters from London to Sofia as a response to declining growth opportunities in the UK. Another stated that they had to open an additional office in Malta to keep the EEA passport. In line with the results of the factorial survey analysis, these findings indicate the importance of concerns about worsening domestic demand in the aftermath of Brexit, as well as the importance of maintaining links with the financial services industry in the EU. Interestingly, the data indicates that companies under consideration opened offices in the EU’s financial centres, such as Paris, Milan, Amsterdam, Madrid, and Brussels or moved to European cities more strongly regarded as technology hubs, such as Barcelona, Berlin, Kraków, Bucharest, Sofia, and Kyiv. As such, instead of significant concentration in specific European cities, our results suggest a more dispersed relocation pattern. In contrast, partial relocation/expansion to the US mainly led to New York. In addition, some of the companies under consideration opened offices

outside of the EU and the US in cities including Auckland, Melbourne, and Singapore.

To analyse the intention-behaviour gap by comparing business managers' relocation intentions with their companies' actual relocation outcomes, we use two distinctive classification approaches to judge the accuracy of business managers' predictions: a conservative and a more permissive one. In the conservative approach, we categorize a business manager's prediction as incorrect if their companies' actual relocation outcome deviates from their relocation intention in any, even the slightest, respect. For instance, we would categorize business managers' predictions as incorrect if they anticipated to partially relocate to the EU, but their company had fully relocated to the EU. In contrast, in the permissive approach, we categorize a business manager's prediction as correct if they correctly anticipated to relocate irrespective of the extent and destination of the relocation. For instance, we would categorize business managers' predictions as correct if they anticipated to partially relocate to the US, but their company fully relocated to the EU.

Depending on the classification approach, between 66 % (conservative approach) and 84 % (permissive approach) of the 38 companies under consideration behaved as their business managers anticipated, suggesting a moderate to high degree of correlation between relocation intentions and actual relocation outcomes. Based on the more permissive classification, we had a closer look at the six companies that did not behave as their business manager anticipated. Five of them are companies whose business managers did not indicate that they would relocate/expand at all but did so in the end. While one of these companies was dissolved in the UK and re-opened in Romania, the majority opened additional offices abroad while maintaining their UK establishments. Given the dynamic development of the global FinTech industry, the latter group may have been encouraged by their growth and expanded earlier than their business representative expected in 2018. However, it is also possible that the business representatives' predictions were not based on adequate information or arbitrary. The latter might, indeed, be the case, since the share of business representatives without managerial responsibility is significantly larger in this specific sub-sample (60 %) than in the overall sample (16 %). Interestingly, only one company did not relocate/expand despite its CEO anticipating that it would be partially relocated in a "Deal" Brexit and "No Deal" Brexit scenario. This company is headquartered in Barcelona and, in 2018, had offices in London and Minsk. Given their presence in the EU, there wasn't a pressing need to open another office in response to Brexit. However, while not publicly announced, it is possible that

some business functions have been shifted from London to Barcelona.

**Key Finding 5:** Although factorial surveys are only moderately accurate when predicting the exact extent and destination of actual relocations, they are highly accurate when predicting whether a company relocates or not.

## 5 Discussion and conclusions

Using Brexit and the UK FinTech industry as a case study, this paper responded to Bathelt and Li's (2020) call for selecting more appropriate methods and improving their rigour by evaluating the feasibility of using factorial surveys to anticipate future relocation behaviour. Looking at relocation intentions from a micro-economic, behavioural perspective, we aimed at analysing the gap between relocation intentions and actual relocation behaviour by investigating the degree to which business managers' relocation *intentions* are driven by factors similar to those known as driving actual relocation *behaviour* as well as by estimating the correlation between the two.

Our findings in relation to relocation *intentions* are broadly in line with the literature on actual relocation *behaviour*. First, our results confirm the empirical results of Carrincazeaux and Coris (2015), highlighting the importance of geographical and institutional proximity for relocation intentions by showing the relative importance of the EU as a potential relocation destination. It appears that business managers consider relocation to the EU as a means to maintain access to the European Single Market, given that Brexit was likely to create new trade barriers between the EU and the UK. However, it also appears that some business managers consider compensating for the worsening domestic demand in the UK, reduced access to the EU, and reduced government support with increased presence in the US, taking advantage of the size of the financial markets and demand for financial services as well as technological capabilities in the US. Second, our results confirm that not all companies respond to Brexit in the same way, highlighting the importance social and economic relations beyond the UK in considering relocation (Grabher, 1993; Bathelt and Glückler, 2003; Arya and Lin, 2007; Dahl and Sorenson, 2007; Brown and Mczyński, 2009). Third, while our results suggest that there might be additional, less tangible reasons as to why anticipated partial relocation to the EU seems strongly driven by the Brexit outcome, our results also show that anticipated partial relocation to the US can be clearly attributed to business managers' perception of the potential



consequences of different Brexit scenarios (Carrincazeaux and Coris, 2015).

We see these findings as an indication that business managers' relocation intentions are not arbitrary but rather based on relational and geographical considerations, such as their company's integration in global value chains and the territorial embeddedness of their personal networks, as well as their perceptions of the potential consequences of different Brexit scenarios for their local business environment. As such, on the conceptual front, our findings highlight the importance of including actor-specific perceptions and relational thinking when conceptualising factors that drive business managers' strategic decision-making under uncertainty (Bathelt and Glückler, 2003; Lerner et al., 2015; Anderson and Wilson, 2018).

On the methodological front, the results suggest that, although factorial surveys may only be moderately accurate when predicting the exact extent and destination of business relocations, they are highly accurate when predicting relocation outcomes more generally. The vast majority of business managers that wrongly predicted the future relocation outcome of their company underestimated the likelihood of relocation. In contrast, only one business manager overestimated it. As such, it seems that overall factorial surveys might underestimate future relocation outcomes. Put differently, factorial surveys could be seen as a relatively conservative estimation method for future behaviour. As such, we show the potential of factorial surveys as a well-structured approach for conducting microeconomic, behavioural studies in economic geography, which can offer policy makers a useful tool for approximating the potential effects of different policies on future relocation decisions of business managers in strategically important industries.

While we strongly believe in the value added of considering factorial surveys when conducting microeconomic, behavioural studies in economic geography, it is important to stress the exploratory nature of our research as offering some of the first and limited insights into the rigour of factorial surveys. First, our case study is based on a relatively small sample of only 38 companies and can only be seen as representative of the target population, i. e., FinTech companies attending FinTech Connect in December 2018. Second, our analysis is based on three rather simplistic Brexit scenarios. While the actual negotiation outcome can be placed somewhere between the "No Deal" and the "Deal" scenarios, the precise details of the final deal could not be reflected in a hypothetical scenario back in late 2018. Third, other personal characteristics not included in our model, such as political opinions, are likely to have an impact on business managers' relocation intentions. Unfortunately, we were not able to add the political opinions of the inter-

viewed business managers to the model, as the variance in the variables was too small (e. g., only three of the interviewed business managers voted for leave). Fourth, our analysis of the actual relocation outcomes is based on secondary data that does not allow for a systematic distinction between partial relocation and international expansion or a systematic identification of the motives behind opening a new office abroad.

With such limitations in mind, our paper should be seen as a call for future research. As economic decision-making is a context-specific process and, as such, it is plausible to assume that the degree to which intentions translate into actual behaviour differs among contexts, we would like to encourage future research to employ our research design to analyse the feasibility of utilising factorial surveys in other industries and countries and/or in the context of different risks and uncertainties.

In doing so, we would recommend considering the following four points we regard as useful for developing a rigorous research design. *First*, we suggest designing the specific vignettes used to describe the hypothetical scenarios with great care. While bearing in mind that an accurate description of the actual future outcome is very unlikely to be achievable, we still suggest researching as many potential scenarios as possible and including the extreme case scenarios as well as a number of scenarios that fall in between these two. When deciding on how many scenarios to include, we believe it is important to reflect on the trade-off between including too few and too many scenarios – while including many scenarios comes with the advantage of an increased likelihood of representing the actual future outcome, it comes with the disadvantage of potentially overwhelming the survey participants with too many options. Moreover, ensuring that the scenarios are well-described is essential to enable the survey participants to fully understand and relate to them. However, while a very detailed description comes with the advantage of providing survey participants with a richer factual background on which to base their responses, it also comes with the disadvantage of being potentially overwhelming. *Second*, it is advisable to survey the main strategic decision-makers to ensure that the responses are not biased due to a lack of adequate information concerning the company's strategy. *Third*, to verify the correlation between intentions and behaviour, it is important to reflect on the accuracy of the follow-up data collection process. While secondary data is more accessible, it can come with the disadvantage of often not being specific enough to accurately match intentions with actual behaviour. Therefore, we encourage future research to collect primary qualitative data, aiming at analysing the scope, nature, and underlying motives of the ultimate

relocation behaviours. *Fourth*, echoing Mintzberg (1990), strategy is defined as a process by which managers gradually come to terms with the environment. Hence, strategic intentions, including the underlying motives, are constantly modified. As such, future research should ideally survey decision-makers at multiple times during a period of uncertainty, taking a more nuanced panel approach than we did.

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## Appendix

### Appendix a: Regression Results – Anticipated integral Relocation to the EU

Variable	m0	m1	m2	m3
<b>Scenario Level</b>				
No Deal scenario		13.0163***	13.6859***	10.5262***
Deal scenario		6.0394***	5.9886***	5.0195**
domestic demand perceived to worsen				1.7595
access to international markets perceived to worsen				1.7533
access to talents perceived to worsen				0.4543
access to funding perceived to worsen				2.6184
access to government support perceived to worsen				0.2648
<b>Company Level</b>				
<i>Resource Endowment</i>				
startup			0.9765	1.3232
<i>Employee Relationships</i>				
share of non-UK nationals (EU nationals) employed			0.9876	0.9832
share of non-UK nationals (non-EU nationals) employed			0.9608**	0.9608**
<i>Buyer-Supplier Relationships</i>				
importance of EU Tech industry			0.3026	0.2978
importance of EU Financial Services industry			1.8549	1.4919
importance of Tech industry outside the EU			3.0003	3.0980
importance of Financial Services industry outside the EU			0.2495*	0.2363*
<i>Financial Relationships</i>				
importance of equity capital			0.8968	0.7743
importance of bank loans			0.4104	0.5136
importance of venture capital			1.1513	0.9409
importance of UK government funding			1.8924	1.6532
importance of EU funding			1.5980	1.7013
<i>Personal Relationships</i>				
born outside the UK			9.4694*	17.8670**
/cut1	0.2602	1.8431	−0.3110	−1.4557
/cut2	2.3054	4.4144	2.2849	1.2565
/cut 3	4.3334	6.7948	4.6229	3.6125
prob > chi2	.	0.0007	0.0671	0.1955
prob >= chibar2	0.0001	0.0000	0.0023	0.0030
var(_cons)	3.3799	5.7098	2.3512	2.4623
ICC	0.5068	0.6345	0.4168	0.4281
N	113	113	113	113

Note: \*\*\*Significant at 1 % level ( $p < 0.01$ ); \*\*Significant at 5 % level ( $p < 0.05$ ), \*Significant at 10 % level ( $p < 0.1$ )



**Appendix b:** Regression Results – Anticipated integral Relocation to the US

Variable	m0	m1	m2	m3
<b>Scenario Level</b>				
No Deal scenario		6.0784**	6.0253**	16.5880*
Deal scenario		5.1939**	5.1083**	14.9098**
domestic demand perceived to worsen				0.4518
access to international markets perceived to worsen				18.2096*
access to talents perceived to worsen				0.0228*
access to funding perceived to worsen				0.6114
access to government support perceived to worsen				4.1422
<b>Company Level</b>				
<i>Resource Endowment</i>				
startup			1.4007	3.6840
<i>Employee Relationships</i>				
share of non-UK nationals (EU nationals) employed			0.9344**	0.9194**
share of non-UK nationals (non-EU nationals) employed			0.9804	0.9749
<i>Buyer-Supplier Relationships</i>				
importance of EU Tech industry			0.0071**	0.0030**
importance of EU Financial Services industry			24.6317*	42.0171*
importance of Tech industry outside the EU			4.7940	5.0711
importance of Financial Services industry outside the EU			0.3976	0.3304
<i>Financial Relationships</i>				
importance of equity capital			0.8172	0.8121
importance of bank loans			0.4136	0.4455
importance of venture capital			2.6118	3.1651
importance of UK government funding			14.4645**	13.1276**
importance of EU funding			0.4879	0.6222
<i>Personal Relationships</i>				
born outside the UK			164.1015***	706.7760**
/cut1	2.3380	4.0632	5.0389	5.8770
/cut2	6.5873	8.9382	9.7206	11.1476
/cut 3	8.4724	11.0943	11.4887	13.1400
prob > chi2	.	0.0812	0.4698	0.8687
prob >= chibar2	0.0000	0.0000	0.0001	0.0001
var(_cons)	15.0540	21.1558	5.7834	8.2640
ICC	0.8207	0.8654	0.6374	0.7153
n	113	113	113	113

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Note: \*\*\*Significant at 1 % level ( $p < 0.01$ ); \*\*Significant at 5 % level ( $p < 0.05$ ), \*Significant at 10 % level ( $p < 0.1$ )

Appendix c: Anticipated partial Relocation to the US – Cross-level Interaction Effects (m5)

Variable	startup	EU staff	non-EU staff	Tech EU	Fin EU	Tech world	Fin world	equity capital	bank loan	venture capital	UK funding	EU funding	born outside UK
<b>Scenario Level</b>													
No Deal scenario	20.0875***	7.6250**	19.6061***	0.0646	0.0942	0.1714	1.4336	21.1192	160.6312**	23.8088*	1.6190	0.7623	5.6366*
Deal scenario	18.9858***	9.1239**	21.5008***	0.2440	1.7935	0.1162	0.5188	0.9672	130.6061**	14.3799	11.5262	17.359	4.2048
interaction No Deal	0.3239	1.0458	0.9858	7.0301**	5.0240**	4.7964**	2.0825	0.8910	0.3348	0.8017	2.7147	3.9234*	10.7762
interaction Deal	0.4193	1.0383	0.9829	4.5405**	2.0096	5.4364**	2.9215	2.7135	0.3775	0.9853	1.1426	0.9580	19.9998*
<b>Company Level</b>													
<b>Resource Endowment</b>													
startup	0.1254	0.05440**	0.0550**	0.0319**	0.0437**	0.0341**	0.0473**	0.0500**	0.0506**	0.0582**	0.0524**	0.0443**	0.0453**
<b>Employee Relationships</b>													
share of non-UK nationals (EU nationals) employed	0.9746*	0.93789	0.9746*	0.9709*	0.9734*	0.9717*	0.9741*	0.9738	0.9744	0.9755	0.9742	0.9723*	0.9717*
share of non-UK nationals (non-EU nationals) employed	1.0337**	1.0358**	1.0473**	1.0375**	1.0346**	1.0371**	1.0343**	1.0360**	1.0349**	1.0335**	1.0355**	1.0362**	1.0363**
<b>Buyer-Supplier Relationships</b>													
importance of EU Tech industry	0.2918	0.2711	0.2932	0.0636**	0.2707	0.2936	0.2818	0.2700	0.2527	0.2858	0.2854	0.2874	0.2730
importance of EU Financial Services industry	8.0816**	8.6266**	8.0457**	10.2746**	3.7773	9.0869**	8.6990**	9.2778**	9.6180**	8.0794**	8.5033**	8.7280**	8.8906**
importance of Tech industry outside the EU	0.0574***	0.0582**	0.0551***	0.0419***	0.0467***	0.0113***	0.0518***	0.0513***	0.0523***	0.0593***	0.0503***	0.0431***	0.0521***
importance of Financial Services industry outside the EU	54.5027***	58.8287***	56.3253***	89.9936***	71.2392***	82.6860***	29.6219***	65.478***	61.609***	52.0262***	65.6005***	78.2758***	69.4648***
<b>Financial Relationships</b>													
importance of equity capital	16.9068***	17.5150***	16.9315***	24.3116***	20.0140***	22.1638***	18.3499***	13.7423***	19.5781***	16.5103***	19.4098***	21.5745***	20.0857***
importance of bank loans	0.2196**	0.2187**	0.2217**	0.1881**	0.2110**	0.1925**	0.2132**	0.2090**	0.4883	0.2242**	0.2020**	0.2003**	0.2062**
importance of venture capital	2.7326**	2.7790**	2.7211**	3.2570**	2.9227**	3.0599**	2.8271**	2.8745**	2.8183**	2.9705*	2.8651**	2.9017**	2.9008**
importance of UK government funding	2.5276	2.7828	2.5399	3.2922	2.7824	3.1042	2.7291	2.6946	2.7082	2.5408	1.6342	2.7656	2.7729
importance of EU funding	7.3170**	6.9738**	7.4573**	8.7170**	8.1412**	8.3173**	7.6773**	7.6835**	7.7575**	7.1066**	8.4849**	5.3092	8.0525**
<b>Personal Relationships</b>													
born outside the UK	0.3354	0.3466	0.3360	0.3076	0.3260	0.3284	0.3297	0.3090	0.3116	0.3336	0.3109	0.3179	0.0363*
/cut1	21.2077	21.0328	21.2813	19.9568	19.4722	19.2119	19.2792	21.1231	23.6873	20.9789	20.9199	21.4746	21.4175
/cut2	25.0582	24.9284	25.1552	24.2265	23.5504	23.4549	23.2720	25.2097	27.6928	24.8168	24.9177	25.5328	25.4974
/cut 3	26.9500	26.8691	27.0031	26.4191	25.5161	25.5705	25.2077	27.1255	29.6224	26.6678	26.8974	27.6016	27.5535
prob > chi2	0.1830	0.2476	0.1807	0.2022	0.1614	0.1646	0.1686	0.1680	0.2343	0.1810	0.1946	0.1598	0.1702
prob >= chi2	0.0383	0.0277	0.0435	0.0243	0.0339	0.0305	0.0389	0.0272	0.0236	0.0391	0.0256	0.0274	0.0224
var(cons)	1.4864	1.7463	1.3954	1.8874	1.5935	1.6820	1.4784	1.7497	1.7331	1.4567	1.7509	1.7517	1.7349
ICC	0.3112	0.3468	0.2978	0.3646	0.3263	0.3383	0.3101	0.3472	0.3450	0.3069	0.3474	0.3475	0.3453
n	113	113	113	113	113	113	113	113	113	113	113	113	113

Note: \*\*\*Significant at 1% level ( $p < 0.01$ ); \*\*Significant at 5% level ( $p < 0.05$ ), \*Significant at 10% level ( $p < 0.1$ ). Source: Own calculations.