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The takeover selection decisions of multinational enterprises: empirical evidence from European target firms

Andrea Ascani[†]

Department of Economic Geography, URU, Utrecht University, Heidelberglaan 2, 3508 TC Utrecht, The Netherlands and Department of Geography and Environment, London School of Economics, Houghton Street, London WC2A 2AE, UK
[†]Corresponding author: a.ascani@lse.ac.uk

Abstract

This article studies the selection patterns of takeover decisions taken by multinational enterprises (MNEs) by analysing the characteristics of acquisition targets. Drawing on the evolutionary economic geography and the international business literatures, our conceptual framework emphasises key micro-level factors influencing cross-border takeovers, such as the global search of MNEs for novel firm-specific knowledge, their cost-reduction behaviour and the heterogeneity of routines among potential target firms. The mediating role of the technological and the regional institutional contexts of target firms is also considered. Using data on a large sample of European target firms for 1997–2013, our results support a process of selection whereby MNEs acquire underperforming firms that developed valuable organisational and cognitive routines, as a strategy to access novel knowledge bases while reducing the cost of purchasing foreign assets.

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1. Introduction

The dramatic growth of foreign direct investment (FDI) in recent decades has drawn considerable academic attention on intriguing issues related to the behaviour and strategies of multinational enterprises (MNEs) (see Iammarino and McCann, 2013). While the emerging debate has benefitted of insights produced by various disciplines, including Economic Geography, relevant aspects of corporate activities remain open to scholarly inquiry, either due to the lack of appropriate data or because existing conceptual tools have not always been fully exploited to guide empirical research. Interestingly, contributions on the micro-level drivers of FDI in the form of cross-border acquisitions are rare and this is even more the case if an evolutionary perspective of analysis is considered. Nonetheless, the ideas associated with evolutionary approaches provide a promising conceptual ground of understanding of many corporate activities (Cantwell, 1989; Boschma and Martin, 2010). In this respect, the

increasing availability of micro-level data on the ownership of firms represents a key factor to operationally integrate an evolutionary perspective into the study of MNEs strategies (Nelson and Winter, 1982; Boschma and Frenken, 2006; Essletzbichler and Rigby, 2007). Furthermore, understanding MNEs behaviour is especially urgent in consideration of the current sheer surge in cross-border takeovers worldwide: UNCTAD reports that global acquisitions attained $721 billion in 2015, from $432 billion in 2014, thus playing the principal role behind the recent rebound in FDI, especially in developed economies (UNCTAD, 2016). In this respect, this article studies the selection patterns of takeover decisions taken by MNEs by analysing the characteristics of acquisition targets. We aim at answering the following research questions: which firms and under what conditions are they taken over by foreign MNEs as part of corporate internationalisation strategies? And, what is the intervening role of different technological environments and spatial institutional contexts in shaping MNEs' selection choices in takeovers? We draw on a conceptual framework informed by the evolutionary economic geography (EEG) and the international business (IB) literatures, where micro-level factors influencing cross-border takeover decisions, such as the global search of MNEs for novel firm-specific knowledge, the heterogeneity of routines among potential target firms and agents' bounded rationality, are intertwined with the mediating role of the technological and regional institutional context where potential target firms are located.

Existing research on MNEs acknowledges that corporate advantages in global markets increasingly rely on a MNE knowledge base rather than on cost advantages in production (Cantwell and Narula, 2001; Iammarino and McCann, 2013). This view mirrors the facts that MNEs are carriers of distinctive technological assets (Dunning, 1993; Delios and Beamish, 2001) and that they pursue cross-border strategies aimed at accessing novel sources of knowledge to consolidate their global technological advantage (Cantwell and Hodson, 1991; Iammarino et al., 2008). While the location-specific dimension of this MNE-driven knowledge accumulation process is widely debated in terms of the spatial proximity dynamics favouring cumulativeness in knowledge creation and diffusion (e.g., Cantwell and Iammarino, 2000), the specific attributes of firms targeted by MNEs fundamentally remain a black-box. Nevertheless, an evolutionary perspective entails that firms are highly heterogeneous within narrowly defined industries, regions and institutional settings (e.g., Giuliani and Bell, 2005). Hence, the MNE aim of strengthening internal technological advantages via the cross-border acquisition of competence-creating subsidiaries (Cantwell and Mudambi, 2005; Mudambi, 2008) is ultimately shaped by the micro diversity of potential target firms within specific geographical contexts. Thus, this article attempts to fill this gap in the existing debate about the technology-sourcing behaviour of MNEs, by precisely opening the black box of target firms characteristics.[1] In this sense, we focus on the tension between the corporate objective of accessing novel knowledge bases and MNEs cost-reduction behaviour. Adopting an evolutionary micro-level perspective of analysis also calls for a consideration of other crucial aspects such as the intervening role of the locational dimension, in terms of different territorial institutional contexts, by considering its varying capacity to facilitate transactions, increasing inter-

1 In a similar vein, Boschma and Frenken (2006) convincingly argue that the starting point of EEG should be that of opening the black-box of firms.

organisational trust and limiting opportunistic behaviour (e.g., Storper, 1997; Rodriguez-Pose and Storper, 2006). Hence, spatial units are conceptualised as fundamental *loci* within and across which micro-evolutionary mechanisms operate (see Boschma and Martin, 2010). Moreover, the article considers the technological complexity of sectors in which firms targeted by MNEs operate, as the specific attributes of knowledge underlying certain activities can guide corporate strategies of technological accumulation and learning (Kogut and Zander, 1993). Finally, the behavioural response of agents to market uncertainties is also considered, by analysing the timing of foreign acquisitions and adopting the notion of bounded rationality (Simon, 1955; Dosi et al., 1988) that, for our purposes, implies that MNEs are subject to cognitive constraints regarding the quality of alternative potential target firms.

The next section is devoted to setting up a conceptual framework regarding selection in foreign acquisitions. Section 3 presents data and describes variables. Section 4 explains the empirical setting of the paper. Results are presented and discussed in Section 5. Section 6 offers concluding remarks as well as considerations for policy.

2. Conceptual framework

2.1. Heterogeneity in target firms, reduction of costs and the selective choices of MNEs

Since the seminal contribution of Nelson and Winter (1982), evolutionary approaches to the understanding of economic processes give centre stage to the notion of firm-specific routines, intended as recurrent cognitive and organisational devices through which the productive knowledge of firms is organised, stored and employed (Becker, 2004). Routines have a firm-specific nature as they produce micro-level contexts for firms' behaviour based on past activities, experience and learning (Boschma and Frenken, 2006). The need for the routinisation of operations at the level of the firm stems from the fact that utility-maximization behaviour is factually hindered by bounded rationality in decision-making, thus implying that cognitive constraints associated with market uncertainties reduce the scope for optimal rational choices (Dosi et al., 1988). Such a conceptualisation of firms as repositories of cognitive and organisational routines entails that firms are able to develop distinctive and economically valuable combinations of resources, among which knowledge plays a fundamental role (Kogut and Zander, 1992; Teece and Pisano, 1994; Maskell, 2001; Rigby and Brown, 2015). Therefore, individual firms' ability to build and follow unique knowledge paths in space and time results in a variety of micro-level outcomes in terms of organizational and productive activities, thus producing a marked heterogeneity between firms (Nelson and Winter, 1982; Boschma and Frenken, 2006; Essletzbichler and Rigby, 2007; Boschma and Martin, 2010). In this framework, understanding MNE global strategies of knowledge accumulation requires a careful consideration of the heterogeneity among potential targets of MNE cross-border takeovers. In fact, far from being random business choices, cross-border acquisitions can be considered as corporate strategies aimed at tapping into relevant knowledge bases in a dynamic accumulative process of competences and technology (Cantwell, 1994; Iammarino and McCann, 2010). Therefore, target firms of foreign acquisitions must possess cognitive and organizational routines that meet MNEs objectives of improving, integrating and substituting existing corporate operating procedures and techniques (Cantwell and

Iammarino, 2003). Interestingly, the MNEs' search for target firms with valuable internal routines shares the objectives of an R&D investment, intended as a Schumpeterian transformative process of prevailing production practices (Nelson and Winter, 1982). In fact, the evidence that MNEs expand overseas by acquiring firms in foreign countries is often interpreted as a strategy aimed at enhancing MNE existing advantages (Caves, 1996). Similarly, IB scholars regard this form of investment as an expedient of MNEs to advance their competitiveness at the global level through the enlargement and deepening of their portfolio of tangible and non-tangible assets (Dunning and Lundan, 2008) or as an instrument to define and refine new corporate technological trajectories via the internal transfer and recombination of knowledge (Cantwell, 1989; Kogut and Zander, 1993). Therefore, corporate acquisition activity is plausibly aimed at accessing novel competences overseas, which lead in turn to the realisation of efficiency gains through the expansion of MNE knowledge base.

The opposite side of the coin is that, similar to an R&D investment, engaging in cross-border takeovers is associated with both economic costs and uncertainties facing MNEs. For instance, information frictions affecting MNEs willing to invest abroad are relevant economic obstacles to corporate investment behaviour (Casson, 1994; Mariotti and Piscitello, 1995). Analogously, acquiring best performing targets can impose high investment costs to MNEs willing to internalise the knowledge base built by such target firms. On the contrary, acquiring under-performing targets allows MNEs to access resources for a relatively lower cost. The latter intuition is based on the evidence that target firms experiencing distressed business conditions sell their assets and resources for a lower price than their fundamental market value (Shleifer and Vishny, 1992; Andrade and Kaplan, 1998). Consistently, existing studies highlight a marked cost-reduction behaviour of MNEs in the organization of their production at a global scale (Gereffi and Korzeniewicz, 1994).

Taken together, the insights on the evolutionary sources of firm heterogeneity, the idea that MNEs cross-border operations are aimed at accessing novel knowledge bases and accumulating technological advantages as well as the cost-reduction behaviour of MNEs underpin the following baseline hypotheses of the present article:

> H.1a: MNEs cross-border takeovers will target firms with valuable organisational and cognitive routines within an industry in order to access novel knowledge bases.

> H.1b: MNEs cross-border takeovers will target underperforming domestic firms within an industry in order to reduce the cost of purchasing foreign assets.

While these hypotheses can be separately tested, our core interest lies in combining them into a single hypothesis about the co-occurrence of the corporate objective of accessing novel knowledge and the cost-reduction behaviour of MNEs, as follows:

> H.1c: MNEs cross-border takeovers will target underperforming firms that developed valuable organisational and cognitive routines within an industry, as a strategy to access novel knowledge bases while reducing the cost of purchasing foreign assets.

2.2. The intervening role of the regional institutional context

While the micro-level considerations made in the previous section represent the main focus of this article, there are compelling reasons to discuss the importance of elements shaping takeover decisions that transcend the firm-level dimension. In fact, the

connection between target firms' knowledge resources and the external competitive environment is key to examine MNEs' selection in cross-border takeovers, as corporate strategic decisions essentially encompass both levels (Priem and Butler, 2001). In this respect, the institutional context within which target firms develop their knowledge paths represents a fundamental factor that economic geographers have long acknowledged. Consistently, inter-organisational interactions and learning tend to be solidly rooted into localised sets of untraded interdependencies (Storper, 1992, 1997), most of which are characterised by an informal nature, that favour the formation of region-specific linkages and support localised and path-dependent processes of knowledge generation and circulation (Morgan, 1997; Cooke and Morgan, 1998; Gertler et al., 2000; Iammarino and McCann, 2006; Martin and Sunley, 2006). The non-standardised and location-specific character of such a nexus of inter-firm relationships facilitating local innovative activities is believed to be primarily shaped by the regional institutional structure, which favour and strengthen norms, conventions and expectations regarding information and knowledge exchange among parties (Gertler, 1997; Braczyk et al., 1998). Indeed, dense regional institutions can support learning and successful knowledge diffusion through frequent and fruitful interactions between local firms, as a result of shared identities and habits, reputational effects, improved coordination, collective action and enhanced confidence about market-mediated and non-market-mediated transactions (Storper, 2005; Rodriguez-Pose and Storper, 2006). This entails that regional economies are also highly diverse in terms of their institutionally driven capacity to generate and support inter-organisational trust and to limit opportunistic behaviour in local economic exchanges, thus producing distinctive regional ensembles of practice, or cultures, regarding inter-firm learning (Gertler, 1995, 2010). Hence, while firm-level organisational and cognitive routines are far from homogeneous and they give rise to diverse knowledge bases across firms, routines themselves tend to be embedded into localised networks of relationships (Grabher, 1993), which confer a persistent regional flavour to the productive and organisational repertoire of firms that share the same territorial and institutional context (Rigby and Essletzbichler, 1997). In this respect, regional institutions provide a macro context to the micro-level processes of knowledge transmission and recombination, thus constituting a mediating factor of evolutionary economic dynamics (Boschma and Frenken, 2006). In other words, while individual firm behaviour is an outcome of internal routines, thus implying that firms' heterogeneity is a relevant feature of the economy even within the same local context, institutions can influence inter-regional micro-level diversity, also within an individual country, thus constituting enabling or constraining local contexts for evolutionary economic processes (Boschma and Martin, 2010; Gertler, 2010).

Considering all the above in our analysis implies that the micro-level selection choices of foreign MNEs taking over domestic firms are influenced by the regional institutional setting in which target firms build their cognitive and organisational routines. Hence, the tension between accessing novel knowledge bases and the cost-reduction behaviour of MNEs can be altered by diverse institutional frameworks at the local level. In regions where the existing set of institutions produces stable and predictable conditions for firm interaction and inter-organisational learning, the scope for knowledge accumulation is more marked than in regional contexts where the absence or weakness of institutional structures limits the capacity of local firms to establish systemic knowledge-based relationships (Lundvall, 1988; Iammarino, 2005). As such, MNEs entering institutionally solid contexts can more easily tap into a regional pool of local knowledge bases by

benefitting of the embeddedness of the target firm into an enabling institutionally driven set of local linkages (Iammarino et al., 2008). Therefore, the MNE cost-reduction behaviour should prevail in these contexts, as the specific knowledge base of the targeted firm becomes less relevant relative to the institutional advantages of the region in terms of opportunities for knowledge diffusion and learning. On the contrary, MNEs targeting firms in regions where the existing institutional construction is more fragile can hardly reach multiple sources of local knowledge due to the constraining institutional fragmentation of local relationships. Thus, the cost-reduction rationale loses relevance in these institutional environments, given that the specific knowledge base of the targeted firm becomes more important in consideration of the lack of opportunities for local knowledge–intensive inter-firm interactions. On these bases, we formulate the following hypothesis regarding the intervening role of the institutional context on MNEs' strategies in cross-border takeovers:

> H.2: In strong (weak) institutional settings, the relative importance of local firms' economic underperformance to target firms' knowledge base increases (decreases) for MNEs' takeover selection choices.

2.3. The influence of industry technological complexity

The selective choices of MNEs engaging in cross-border takeovers can be notably influenced by the specific attributes of knowledge that they seek to access. When knowledge is hard to codify, it is more difficult or costly to imitate and transfer it across separate organisations, thus implying that it is more likely to remain within the boundaries of the firm (Kogut and Zander, 1993; Foss and Pedersen, 2002; Martin and Salomon, 2003). Hence, knowledge underpinning complex technologies tend to be more subject to intra-firm organisational interfaces and accumulative processes of experiential learning (Sorenson et al., 2006), in order to limit the scope of imitation by external agents and secure a firm's competitiveness. Importantly for this article purposes, thus, the relevance of MNEs' search for novel knowledge bases and their cost-reduction behaviour in guiding cross-border takeover decisions can change depending on the complexity of knowledge in different industries. For instance, considering that takeovers can substitute for own R&D expenditure in the search for new knowledge (Blonigen and Taylor, 2000; Phillips and Zhdanov, 2012) can imply that MNEs investing in industries characterised by more complex knowledge are more sensitive to target firms' heterogeneity and cost-reduction factors when engaging in an acquisition. In other words, in relatively more complex technological environments, where updating old production routines or generating new knowledge require more costly R&D investment, MNEs' selection choices can be more markedly characterised by the patterns envisaged in hypothesis H.1c above, when compared with industries with lower knowledge complexity. In fact, where innovation is dependent on more costly R&D investment and higher costs of inter-firm transfer due to the more complex nature of the knowledge involved, MNEs can more systematically innovate by accumulating knowledge via a growing number of foreign subsidiaries (Cantwell, 1989; Hansen and Lovas, 2004). On these premises, we formulate the following hypothesis regarding MNEs selection choices and the technological complexity of an industry:

> H.3: The interplay between target firms' underperformance and the relevance of their organisational and cognitive routines as motivating factors of MNEs cross-border

acquisitions is more marked within industries where technology is based on more complex knowledge.

2.4. MNEs' adaptive strategies to information asymmetry

As previously mentioned, bounded rationality is very likely to impose cognitive constraints on agents' behaviour by requiring them to adopt specific strategies to tackle market uncertainties. More specifically, an MNE decision to acquire a specific firm is plagued by a lack of information regarding the quality of the target. In fact, information asymmetries deeply affect MNEs strategies, either hindering acquisition or at least requiring *ex ante* inspection regarding the assets of a potential target (e.g., Balakrishnan and Koza, 1993; Chen and Hennart, 2004). Therefore, the mere existence of potential firms with attractive knowledge bases and experiencing underperforming business conditions may not be sufficient to incentivise MNEs to engage in cross-border takeovers. In this respect, MNEs are expected to engage in adaptive strategies to overcome the uncertainty associated with an 'information intensive' transaction, such as cross-border takeovers (Froot and Stein, 1991), on which the asymmetric distribution of information between bidders and targets penalises the former. In this respect, we argue that target companies should be able to turn a profit before MNEs incur in a cost to take over a stake of ownership, thus conditioning their engagement on the evidence that target firms are able to be profitable. This can be interpreted as a strategy to compensate the information disadvantage that exists on the MNE side of the transaction. Recent observational evidence on large international acquisitions corroborates this idea.[2] Therefore, we formulate the following hypothesis about the timing of MNEs decision to engage in a cross-border acquisition:

H.4: MNEs engage in cross-border acquisition when target firms experience profitable business conditions, as a strategy to alleviate information asymmetries on targets' quality.

Importantly, while previous hypotheses aim at comparing target firms within industries in different respects, the latter hypothesis is based on the timing of acquisitions.

3. Data and variables

3.1. Dataset description

Our sample of European companies is drawn from Bureau van Dijk cross-country and longitudinal databases Orbis and Zephyr. Orbis provides firm-level information on accounting and financial items of companies from which we construct proxy measures for domestic firm business performance and routine efficiency. Data on M&A operations are contained in Zephyr, which allows tracking time-varying ownership information of firms. The two datasets can be matched via common company identifiers. Previous research employing these sources is well established and it includes relevant recent works (see Voget, 2011; Maffini and Mokkas, 2011; Giannetti and

2 See for instance the acquisitions of Chrysler at http://uk.reuters.com/article/autos-idUKLU94090620090430 and Alitalia at https://www.bloomberg.com/news/articles/2014-03-03/etihad-profit-surges-as-gulf-carrier-closes-in-on-alitalia-stake.

Ongena, 2012). In our analysis, we consider acquisitions occurred from 1997 to 2013 in 14 European countries, that is, EU-15 countries[3] with the exception of Luxembourg, for which no relevant manufacturing firm is observed. For a more detailed description of data cleaning, refer to the Online Appendix. The final dataset includes 431 cross-border acquisitions.

Not surprisingly, the largest economies in Europe, that is, Germany, France, Italy and the UK account for large majority of transactions, with Spain also being characterized by a relevant share of foreign acquisitions (see Figure A in the Online Appendix). The final sample consists of an unbalanced panel of 288,632 firms observed at multiple points in time over the period 1997–2013, for a total of 1,097,763 observations.

3.2. Variables construction

In order to test our hypotheses on the role of domestic firms' routine heterogeneity as well as their business performance, we construct measures for productivity and profitability. We follow the financial literature in defining the profitability of firms as the ratio between earnings before interest, taxes, depreciation and amortisation costs (EBITDA) and fixed assets (Dewenter and Malatesta, 2001; Campa and Kedia, 2002; Cornett et al., 2008). EBITDA is calculated in Orbis as the difference between gross profit, the total cost of goods sold and other operating expenses. Since EBITDA is calculated before taxes and interest, it provides a good measure of the ability of companies to make profits by effectively using their capital assets. Furthermore, accounting for depreciation and amortisation is important for capital-intensive firms and sectors where these factors can strongly depress earnings. Finally, the variable is normalised by its industry mean and logged, as follows:

$$\text{profitability}_{it} = \ln \frac{\left(\frac{\text{ebitda}}{\text{assets}}\right)_{it}}{\frac{1}{N}\sum_{s=1}^{n}\left(\frac{\text{ebitda}}{\text{assets}}\right)_{st}}, \tag{1}$$

where i denotes the firm, t stands for time and s indicates the NACE 4-digits manufacturing sector.[4] As far as the notion of firm routines is concerned, we proxy it with a measure of labour productivity.[5] This is intended as the ratio between value added and employment, normalised by industry mean, as follows:

$$\text{labour productivity}_{it} = \ln \frac{\left(\frac{\text{value added}}{\text{employment}}\right)_{it}}{\frac{1}{N}\sum_{s=1}^{n}\left(\frac{\text{value added}}{\text{employment}}\right)_{st}}, \tag{2}$$

3 These are the so-called 'Old' EU member countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden and the UK,

4 The sample includes 292 different NACE 4-digits manufacturing sectors.

5 We acknowledge that labour productivity represents a broad proxy measure for routines as the latter notion involves intra-firm dynamics where individual actions, skills and interactions, that cannot be captured with our firm-level data, co-determine firm-level outcomes (Abell et al., 2008; Felin and Foss, 2009). At the same time, this methodological concern should only relatively affect our analysis as our aim is far from understanding the micro-foundations of firm performance or how routines are individually determined within organizations but, rather, we focus on how external actors (i.e. MNEs) adopt strategies based on the intra-industry 'collective' heterogeneity among potential target firms.

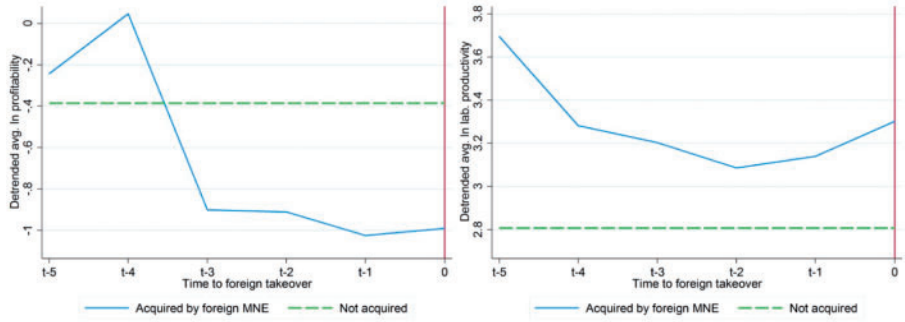

Figure 1. Trends in profitability and labour productivity before foreign takeovers.

where i denotes the firm, t stands for time and s indicates the NACE 4-digits manufacturing sector. As explained in the Online Appendix, we also consider variations of these measures and we test the robustness of our results to the inclusion of these different indicators. The Online Appendix also contains an additional check for the robustness of our estimates in which labour productivity is substituted with TFP.

Figure 1 plots normalised de-trended profitability and labour productivity of domestic firms, in panel left and right, respectively, from 5 years prior to the takeover to when firms are acquired ($t = 0$). The solid line is representative of the average domestic firm acquired during the sample period while the dashed line reports the average profitability and productivity levels of companies that remain domestically owned in the sample. The latter are plotted as horizontal lines given that the notion of relative time to foreign takeover represented on the abscissa axis does not apply to firms that are never acquired. Interestingly, some clear patterns in line with H.1a and H.1b emerge. MNEs acquire firms that have experienced poor business conditions some years before the takeover. Furthermore, not only do profitability shocks seem to be persistent in time, but they also depress firms' profitability below the average level of domestic firms that are not targeted by foreign MNEs. The right panel of Figure 1 clearly suggests that the cherry-picking mechanism suggested by the literature is also relevant in our sample (Guadalupe et al., 2012). In fact, the efficiency of the routines of domestic firms experiencing ownership shifts is always higher than that of those that remain domestic over the sample period.

Additionally, we consider average wage, intangible assets, tax payments and the age of domestic firms as additional covariates. We generate a measure of average wage as the ratio between total wage bill and employment. Wages capture the cost of labour as well as the skill level of workers. Importantly, MNEs aiming at acquiring valuable production practices can target domestic firms characterised by higher average wages and skills (Heyman et al., 2007). The share of intangible assets is calculated on total assets of domestic firms. As mentioned above, acquisitions can be a substitute for R&D investment and domestic firms with a high share of intangible assets can be more attractive for MNEs (Phillips and Zhdanov, 2012). High levels of tax incidence can discourage MNEs' decisions to acquire firms. For instance, Voget (2011) documents that tax increases raise MNEs' propensity to relocate where taxation levels are lower. Finally, domestic firms' age is a proxy for market experience, which can represent an attractive attribute for MNEs entering an unfamiliar environment. Acquiring domestic

firms with deeper knowledge about local market conditions and consumer tastes, in fact, represents a strategy to minimize the disadvantages associated with the 'alien status' of foreign MNEs (Caves, 1971; Teece, 1986). Summary statistics and the correlation matrix for these firm-level variables are reported in the Online Appendix. Finally, we consider a set of covariates to control for traditional geographical determinants of acquisitions, including national GDP, as a customary proxy for market access motives of FDI, a distance-weighted measure of external market potential, in order to account for export-platform FDI and the unemployment rate of destination regions, as an indication of the conditions of the local labour market. GDP data and unemployment rates are taken from OECD statistics, while distance data are from CEPII.

4. Empirical strategy

In this part we introduce the empirical setting adopted for the investigation of the selection decisions of MNEs engaging in cross-border takeovers. We model acquisitions as the linear probability that domestic firms can be acquired at any time during the sample period (see Guadalupe et al., 2012).[6] First, we study the intra-industry patterns of selection to answer the question about which domestic firm is taken over by foreign MNEs within a specific manufacturing sector. Second, we explore the timing of foreign acquisitions to answer the question about when domestic firms are acquired, by exploiting within-target firm variation in characteristics.

Thus, the probability y that a domestic firm i operating in industry s is acquired in a given year t is estimated as:

$$y_{it} = \beta_1 \mathrm{PR}_{it-1} + \beta_2 \mathrm{LP}_{it-1} + \beta_3 \mathrm{PR}_{it-1} \cdot \mathrm{LP}_{it-1} + X_{it-1}\Theta + Z_{dt-1}\Phi + \delta_t + \lambda_s + \omega_{ct} + u_{it}, \tag{3}$$

where PR stands for firm profitability, LP indicates labour productivity, X is a vector of time-varying firm-level covariates and Z is a vector of controls at the level of destination d. We also control for specific influences that can affect cross-border acquisition decisions across years by including time dummies δ. It is well documented that acquisitions occur in waves (Andrade et al., 2001) and such a cyclical nature of corporate business can affect the probability of firms to be acquired in a given year. Moreover, waves of takeovers tend to be clustered within industries as a result of the exposure of firms to technological, regulatory and economic shocks that alter the structure of specific sectors (Mitchell and Mulherin, 1996). Hence, NACE 4-digit industry-fixed effects λ are included in our model to account for any sector-specific disturbance that can affect domestic firms' characteristics as well as the strategic decision of MNEs to incur in a cross-border takeover and select a specific target. A third important aspect of the non-uniform distribution of acquisitions is the geographical dimension. The clustering of acquisitions in specific countries is striking in our data, as evidenced in the right panel of Figure A in the Online Appendix. We generate a set of country-year trends ω that allow controlling for the concentration of

6 We implement a linear model for comparability with other studies and in order to facilitate the interpretation of the magnitude of the coefficients, including the interactive term. Nevertheless, results are robust to the implementation of a logit model. Logit estimates are available upon request.

cross-border takeovers in specific destinations over time. The relevance of national boundaries for the occurrence of international acquisitions tends to be associated with the performance of national stock markets, which are more likely to affect a country as a whole rather than a specific industry (Erel et al., 2012). Finally, u is an idiosyncratic error term.

Covariates are included with a 1-year lag in order to avoid that targets' attributes are influenced by foreign ownership. In this respect, Fich et al. (2011) argue that an M&A negotiation period typically last between 31 and 163 days from the initiation date. Furthermore, previous empirical contributions adopt a single year lag to model acquisition decisions (e.g., Guadalupe et al., 2012; Blonigen et al., 2014). Nevertheless, our conceptual framework implies that the strategies of MNEs to overcome uncertainty include a conditional engagement in foreign takeovers based on target firms' ability to turn a profit. Hence, a one-year lag in the profitability measure could be deceptive because future ownership can influence domestic firm strategies. Bearing this in mind, we extend our analysis to include a longer time lag for profitability.

In a subsequent part of the empirical analysis, Equation (3) is modified to accommodate the inclusion of firms' fixed effects. By including this term, we study the intra-firm variation in domestic firms' characteristics associated with the probability of being acquired. In other words, we investigate whether MNEs engage in takeovers when domestic firm attributes change.

5. Results and discussion

This section is structured in five parts, each coinciding with a different empirical test of our hypotheses regarding the acquisition strategies of MNEs. First, the baseline analysis concentrates on the separate relevance of target economic underperformance and the quality of their routines in driving the choices of MNEs towards certain target firms rather than others, thus providing evidence for H.1a and H1.b. Second, we scrutinize hypothesis H.1c, on the basis of which we test for whether MNEs target underperforming firms that developed valuable organisational and cognitive routines within an industry. Third, we consider the relevance of regional institutional contexts in mediating the acquisition behaviour of foreign MNEs, thus testing H.2. Fourth, we produce a test for H.3 by extending the analysis to the study of the intra-industry process of foreign selection across sectors characterised by different technological intensity. Finally, we re-estimate Equation (3) by exploiting within-target firm variation in characteristics, as explained above, in order to analyse the timing of foreign takeovers and to test for H.4.

5.1. Intra-industry probability of foreign acquisition

The baseline results of the estimation of Equation (3) are provided in Table 1. In Columns 1–4, lagged measures of firm profitability and productivity enter the model with the gradual inclusion of covariates. The direction of the effects is consistent with our hypotheses: first, foreign MNEs select domestic firms that experienced negative business shocks 1 year before the acquisition; second, there is evidence of positive foreign selection based on the quality of the routines of domestic companies, proxied by labour productivity. Nevertheless, while the latter relationship is statistically strong, the effect of profitability remains weakly significant and it is not different from zero when

Table 1. Probability of foreign ownership

Dep. Var.: Foreign ownership	(1)	(2)	(3)	(4)	(5)	(6)
Target-level characteristics						
ln profitability$_{t-1}$	−0.0021*	−0.0021*	−0.0023*	−0.0019	−0.0019	
	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	
ln labour productivity$_{t-1}$	0.024***	0.0243***	0.0232***	0.0232***	0.0240***	0.0245**
	(0.0059)	(0.0059)	(0.0059)	(0.0059)	(0.0060)	(0.0099)
ln avg. wage$_{t-1}$	0.0087	0.0086	0.0100*	0.0075	0.0049	0.0071
	(0.0055)	(0.0055)	(0.0055)	(0.0056)	(0.0057)	(0.0094)
ln intangibles share$_{t-1}$		0.0074	0.0074	0.0075	0.0070	0.0064
		(0.0060)	(0.0060)	(0.0061)	(0.0058)	(0.0057)
ln taxation$_{t-1}$			−0.0089***	−0.0091***	−0.0096***	−0.0123***
			(0.0029)	(0.0029)	(0.0031)	(0.0048)
Age				0.0005**	0.0005**	0.0006*
				(0.0002)	(0.0002)	(0.0003)
ln profitability$_{t-4}$						−0.0071***
						(0.0019)
Destination characteristics						
ln external market potential$_{t-1}$					0.0351	0.0138
					(0.0523)	(0.118)
ln market size$_{t-1}$					0.0079	0.0919**
					(0.0240)	(0.0446)
% regional unemployment$_{t-1}$					−0.0006	−0.0010
					(0.0006)	(0.0007)
Observations	1,097,763	1,097,763	1,097,763	1,097,763	1,097,763	583,238
Clusters	288,632	288,632	288,632	288,632	288,632	208,291
Year Fes	Y	Y	Y	Y	Y	Y
Industry Fes	Y	Y	Y	Y	Y	Y
Country-year trends	Y	Y	Y	Y	Y	Y
R-squared	0.001	0.001	0.001	0.001	0.001	0.002
Adjusted *R*-squared	0.001	0.001	0.001	0.001	0.001	0.002
Percent correctly predicted	83.65	83.64	83.59	83.49	80.91	83.08

Notes: Firm-level clustered standard errors in parentheses.
$^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$.

all other firms' characteristics are considered. According to our conceptual framework, it is likely that negative business shocks motivating cross-border takeovers are persistent in time and that foreign MNEs acquire domestic firms after more than 1 year of underperforming economic conditions. Furthermore, firms' profitability with a single year lag can be influenced by future foreign ownership, as argued above. Therefore, in Column 6 we consider a 4-year lag on profitability as an approximation of long and persistent firms' business conditions.[7] Interestingly, the statistical significance

7 Similar results, available upon request, are obtained with two-years and three-years lag. Adopting a four-year lag suggests that the importance of poor business performance is a persistent factor affecting MNE decision to engage in a takeover. Nevertheless, we lose some observations when adopting such a long time lag. The dropped sample of firms, however, does not contains any systematic difference with the full sample, nor any problematic time, industry or country pattern. The number of acquisitions in the reduced sample is 301.

of the coefficient remarkably increases, suggesting that domestic firms characterised by weak business performance are acquired some years later. The magnitude of this coefficient is also larger when compared with the other specifications. Importantly, the inclusion of this longer lag does not change the relationship between firms' productivity and the probability of being acquired. Overall, based on the results in Table 1, we fail to reject H.1a and H.1b. The goodness-of-fit of the linear probability model is also reasonable, with a percentage of correctly predicted cases above 80% across specifications.

The coefficient in Column 6 implies that a one standard-deviation increase in lagged labour productivity makes a firm 1.6% more likely to be acquired in the following year. The size of this effect is in line with previous contributions: comparable regressions in Guadalupe et al. (2012) report an effect of 1% in a sample of Spanish firms. Second, weak business conditions of domestic firms matter for MNEs strategies, but this effect is mainly observed when considering long time lags: a one standard-deviation decrease in the 4-years lagged measure of profitability in Column 6 makes a firm 1.2% more likely to be acquired in the future. Therefore, earlier profitability shocks are important to predict foreign acquisitions, while the evidence associated with 1-year lagged profitability remains weak, consistently with the view that future foreign ownership influences domestic firms' business performance 1 year before the takeover.

5.2. Interactive effects in the probability of foreign acquisition

In this part we produce an empirical test for H.1c, by focussing on the role of the interaction effect between firms' profitability and productivity. For $\beta_1 + \beta_3(\mathrm{LP}) < 0$, an underperforming business performance is associated with foreign takeovers for firms that are endowed with more efficient production routines, thus corroborating the validity of our hypothesis. We re-parameterise Equation (3) in a way that the estimated coefficient on profitability can be directly interpreted as $\beta_1 + \beta_3(\mathrm{LP})$, where LP stands for established values on the productivity distribution, including medians, upper and lower quartiles as well as 90th and 10th percentiles. Similarly, the estimated coefficient on labour productivity can be interpreted as $\beta_2 + \beta_3(\mathrm{PR})$. This re-parameterization is equivalent to a two-step procedure in which the interaction effect is first estimated without imposing any value to the interacted variables and, second, interesting values for the independent variables are considered in order to compute the magnitude of the partial effects. However, a key advantage of the re-parameterization is that it allows to directly estimate the standard error of the partial effects, while the two-step procedure does not inform us on the statistical significance of the manually computed coefficients for partial effects (see Jaccard and Turrisi, 2003; Wooldridge, 2009).

Table 2 present results for re-parameterised model, where each column indicates the considered value in the interaction.[8] Domestic firms experiencing poor business conditions are acquired by foreign MNEs 4 years later and this effect holds across the productivity distribution. Furthermore, both the relevance of this effect and, to a lesser extent, its statistical significance depends on the efficiency of domestic firms' routines. Companies that are more productive (Columns 1 and 2) gradually have a higher

8 Control variables are included in each regression and their sign and significance are in line with the estimates of Table 1. Full results for Table 2 are available upon request.

Table 2. Interactive effects in the probability of foreign acquisition

Dep. Var.: Foreign ownership	(1) 90th percentile	(2) Upper quartile	(3) Median	(4) Lower quartile	(5) 10th percentile
ln profitability$_{t-4}$	−0.0103***	−0.0087***	−0.0071***	−0.0055***	−0.0037*
	(0.0029)	(0.0023)	(0.0019)	(0.0017)	(0.0019)
ln labour productivity$_{t-1}$	0.0155	0.0198**	0.0240**	0.0284***	0.0333***
	(0.0106)	(0.0101)	(0.0099)	(0.0102)	(0.0110)
ln profit$_{t-4}$ * ln lab. productivity$_{t-1}$	−0.0047**	−0.0047**	−0.0047**	−0.0047**	−0.0047**
	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0023)
Observations	583,238	583,238	583,238	583,238	583,238
Clusters	208,291	208,291	208,291	208,291	208,291
Controls	Y	Y	Y	Y	Y
Year FEs	Y	Y	Y	Y	Y
Industry FEs	Y	Y	Y	Y	Y
Country-year dummies	Y	Y	Y	Y	Y
R-squared	0.002	0.002	0.002	0.002	0.002
Adjusted *R*-squared	0.001	0.001	0.001	0.001	0.001
Percent correctly predicted	83.02	83.02	83.08	83.02	83.02

Notes: Firm-level clustered standard errors in parentheses.
$^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$. Interaction terms are centred on specific values of interacted variables, as indicated in each column. Control variables include both target- and destination-level characteristics.

probability of being acquired than those that are less productive (Columns 4 and 5). Moreover, for the least productive domestic firms, the significance of profitability shocks tends to be weaker (Column 5). Considering the coefficients on profitability in Columns 1 and 5, a one standard deviation decrease in lagged profitability makes a firm between 1.7% and 0.6% more likely to be taken over by a foreign MNE, respectively.

In other words, foreign selection on domestic firms' poor business performance is almost three times larger for target companies endowed with the most efficient routines when compared with the least efficient. A similar interpretation applies to the re-parameterised coefficients on labour productivity, $\beta_2 + \beta_3$(PR): both the magnitude and the significance of the effect of productivity on the probability of being acquired are strongly dependent on the profitability of target firms 4 years earlier. Moving from high to low profitable domestic firms (Columns 1–5) gradually increases the statistical relevance and the strength of the productivity effect, consistently with H.1c.

Figure 2 plots these effects and graphically suggests that domestic firms on the same level of the productivity distribution (straight lines) have a higher probability of being targeted by foreign takeovers if they experienced poor business conditions 4 years earlier.

5.3. Foreign acquisitions and regional institutional context

This section extends the analysis of corporate acquisition strategies to consider the environment external to target firms, as this represents the context in which they develop their routines and, therefore, it constitutes an essential dimension to explain

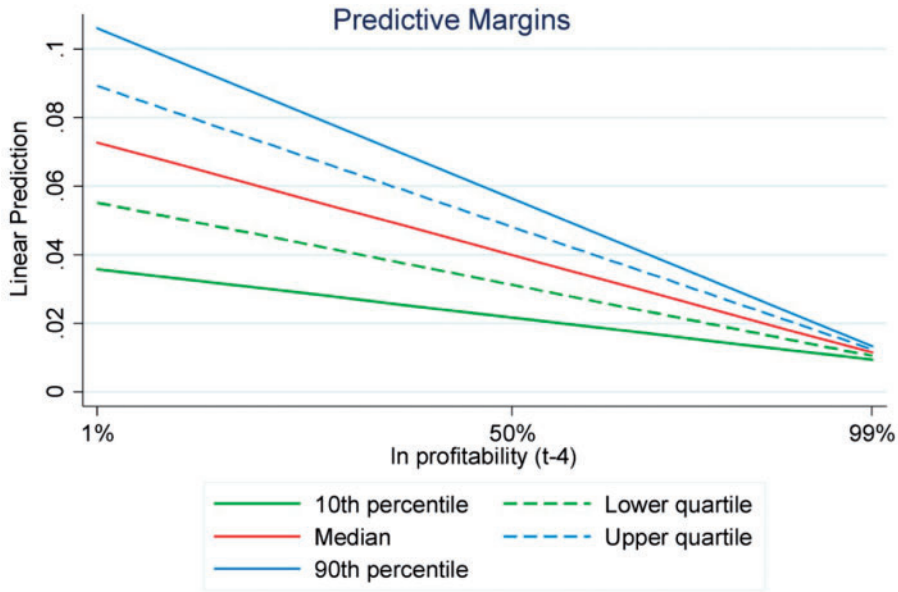

Figure 2. Interactive effects and probability of foreign acquisition.
Notes: The different straight lines refer to different levels of labour productivity, as explained in the legend.

MNEs' decisions (Priem and Butler, 2001). Specifically, we consider the local institutional dimension, which is often highlighted to be crucial to understand globalisation processes (Storper, 1997)., In light of the recent emphasis on the importance of the regional institutional context, rather than the national, to examine socio-economic processes (Boschma and Frenken, 2009), including the global strategies of MNEs (Iammarino and McCann, 2013; Phelps et al., 2003), we rely on data on institutional conditions taken from Charron et al. (2014), who recently produced a Quality of Government Index for European regions in 2010. This is based on surveys capturing public opinions and perceptions regarding different aspects of regional government quality. By employing this data, we are able to categorise NUTS-1 and NUTS-2 regions according to their level of government quality and match them with information on regions contained in Orbis. Hence, we obtain regions with 'High–medium quality institutions' and regions with 'Medium–low quality institutions' by separating them on the basis of the median score of the index. While the index refers to year 2010 and our data on target companies range from 1997 to 2013, we are confident that the relative position of regions in terms of institutional quality has not changed dramatically in such a relatively short time span, also considering the path-dependent nature of institutions and their well-documented resistance to transformation (Rodriguez-Pose, 2013). While the literature on regional institutions does not necessarily refer to administrative regions from the conceptual standpoint, but—rather—to dense agglomerations or city-regions where untraded relational assets produce favourable conditions for valuable interdependencies (Scott and Storper, 2003), the need to operationally represent subnational geographies in institutional terms requires us to employ administrative regions as a proxy. Thus, we are able to test for

H.2, which posits that better institutional settings generate more stable and predictable conditions for firm interaction and inter-organisational learning, thus increasing the scope for establishing systemic knowledge-based relationships. This entails that within institutionally strong contexts the relative importance of local firms' economic underperformance to target firms' knowledge base increases for MNEs' takeover choices.

Table 3 reports regression results for the two different categories of regions classified according to their institutional quality.[9] Interestingly, in regions with solid institutions, a one-standard deviation decrease in profitability increases the takeover probability of median-productivity domestic firms of 2.5%, while the same profitability decrease is associated with an increase of 0.3% in regions with below-median institutions.[10] Therefore, regions with better institutions are more markedly characterised by cost-reduction motives governing MNEs strategies, as also suggested by the negative coefficient on the level of taxation in Column 1, consistently with hypothesis H.2. In Column 2, we detect a larger set of motives for international acquisitions, suggesting that these elements can compensate for institutional flaws. These factors include the experience of target firms in the local economy, as proxied by age, as well as the ease of access to foreign markets, as indicated by the external market potential measure. Last but not least, when targeting companies located in regions with institutional weaknesses, MNEs tend to pick firms in regions where labour markets are more dynamic, as evidenced by the negative coefficient on the unemployment rate.

5.4. Foreign acquisitions across technological classes

Interestingly, the selection patterns of cross-border acquisitions can be associated with the technological profiles of specific industries. While we controlled for industry-fixed effects in our previous analysis, thus minimising unobserved heterogeneity across manufacturing industries, this section investigates foreign selection choices by unpacking industrial sectors according to their technological intensity. In order to test hypothesis H.3, we employ the Eurostat aggregations of manufacturing sectors by technological intensity based on NACE Rev.2 to identify industries characterised by different technological intensities. We group firms into high-, medium- and low-technology sectors at the 4-digits level. These categories encompass 7849 firms grouped in 18 high-technology industries, 113,173 firms in 164 medium-technology industries and 87,269 firms in 110 low-technology industries. Before estimation, we re-parameterise Equation (3) by entering median, upper and lower quartile values of profitability and productivity in the interaction terms. Table 4 presents the intra-industry probability of being acquired by foreign MNEs across sectors with different technological intensity.[11]

Results suggest that firms operating in high-technology industries have a stronger probability of being acquired when they experience negative probability shocks when compared with firms in medium- and low-technology sectors. For instance, in Column 2, a one standard-deviation decrease in the lagged value of profitability for companies

9 Values of profitability and productivity are fixed on medians in the interaction term.
10 Standard deviations for these subsamples are 1.5747 and 0.5721, respectively.
11 Control variables are included in each regression and their sign and significance are in line with the estimates of Table 1. Full results for Table 4 are available upon request.

Table 3. Foreign acquisitions and regional institutional context

Dep. Var.: Foreign ownership	(1) High–medium quality institutions	(2) Medium–low quality institutions
Target-level characteristics		
ln profitability$_{t-4}$	−0.0161**	−0.0052***
	(0.0074)	(0.0017)
ln labour productivity$_{t-1}$	0.0403	0.0221**
	(0.0306)	(0.0102)
ln profit$_{t-4}$ * ln lab. productivity$_{t-1}$	−0.0013	−0.0050**
	(0.0072)	(0.0024)
ln avg. wage$_{t-1}$	0.0268	0.0002
	(0.0268)	(0.0099)
ln intangibles share$_{t-1}$	0.0947*	0.0043
	(0.0485)	(0.0040)
ln taxation$_{t-1}$	−0.0265**	−0.0063
	(0.0127)	(0.0044)
Age	−0.0006	0.0012***
	(0.0005)	(0.0004)
Destination characteristics		
ln external market potential$_{t-1}$	−0.295	0.229**
	(0.343)	(0.116)
ln market size$_{t-1}$	0.0784	0.0750
	(0.118)	(0.0631)
% regional unemployment$_{t-1}$	−0.0047	−0.0013**
	(0.0064)	(0.0006)
Observations	103,238	480,000
Clusters	39,699	168,592
Year FEs	Y	Y
Industry FEs	Y	Y
Country-year dummies	Y	Y
R-squared	0.004	0.002
Adjusted *R*-squared	0.001	0.001
Percent correctly predicted	69.52	84.94

Notes: Firm-level clustered standard errors in parentheses.
$^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$.

on the median level of productivity operating in high-technology industries makes firms 6.1% more likely to be targeted by foreign takeovers.[12] Comparable firms in medium- and low-technology sectors experience almost a 1% larger probability of being acquired for a similar decrease in profitability (Columns 5 and 8), thus suggesting that the level of technological complexity of an industry plays a remarkable role in affecting takeover decisions.[13] Furthermore, as evidenced in the previous analysis, the effect of poor profitability conditions tends to be moderated by the quality of the specific routines of

12 The standard deviation of the sub-sample of firms in high-technology industries is 1.8036.
13 The standard deviation for the medium- and low-technology sub-samples is 1.5130 and 1.7229, respectively.

Table 4. Probability of foreign acquisition by technological class

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	High technology			Medium technology			Low technology		
Dep. Var.: Foreign ownership	Upper quartile	Median	Lower quartile	Upper quartile	Median	Lower quartile	Upper quartile	Median	Lower quartile
ln profitability$_{t-4}$	−0.0434**	−0.0339**	−0.0243*	−0.0063*	−0.0056*	−0.0049*	−0.0076***	−0.0057***	−0.0037*
	(0.0182)	(0.0146)	(0.0126)	(0.0036)	(0.0029)	(0.0026)	(0.0026)	(0.0021)	(0.0020)
ln labour productivity$_{t-1}$	0.0058	0.0319	0.0585	0.0183	0.0202	0.0222	0.0238**	0.0285**	0.0336**
	(0.0414)	(0.0440)	(0.0516)	(0.0159)	(0.0154)	(0.0156)	(0.0120)	(0.0123)	(0.0131)
ln profitability$_{t-4}$ * ln labour productivity$_{t-1}$	−0.0245*	−0.0245*	−0.0245*	−0.0022	−0.0022	−0.0022	−0.0051*	−0.0051*	−0.0051*
	(0.0145)	(0.0145)	(0.0145)	(0.0038)	(0.0038)	(0.0038)	(0.0027)	(0.0027)	(0.0027)
Observations	21,819	21,819	21,819	325,227	325,227	325,227	236,192	236,192	236,192
Clusters	7849	7849	7849	113,173	113,173	113,173	87,269	87,269	87,269
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry FEs	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country-year trends	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-squared	0.010	0.010	0.010	0.002	0.002	0.002	0.002	0.002	0.002
Adjusted *R*-squared	0.007	0.007	0.007	0.001	0.001	0.001	0.002	0.002	0.002
Percent correctly predicted	87.49	87.49	87.49	82.53	82.53	82.53	89.47	89.47	89.47

Notes: Firm-level clustered standard errors in parentheses.
***$p<0.01$, **$p<0.05$, *$p<0.1$. Interaction terms are centred on specific values of interacted variables, as indicated in each column. Control variables include both target- and destination-level characteristics.

domestic companies. For instance, in high-technology sectors, firms on the upper quartile of the productivity distribution have a larger probability of being acquired than less productive firms: a decrease of one standard-deviation in profitability makes more productive firms 7.8% more likely to be acquired by foreign MNEs within an industry (Column 1). The same decrease in profitability makes less productive firms 4.4% more likely to be acquired (Column 3). These results corroborate the idea that acquisitions can be a means to access new cognitive and organisational routines in industries characterised by more complex technologies. In this respect, the existence of firms experiencing weak business conditions further incentivises foreign MNEs to engage in a cross-border operation. Based on this evidence, we fail to reject H.3, thus supporting the view that the interplay between the business underperformance of domestic firms and the relevance of their heterogeneous routines in influencing MNE acquisition behaviour is substantially stronger within more complex technological environments.

5.5. Timing of foreign acquisitions

In this section we study the timing of foreign takeovers, by including firm-fixed effects in Equation (3), as explained in the methodological section. The objective is to detect a significant effect in the variation of attributes within domestic firms immediately prior to foreign acquisitions. Therefore, all regressors are entered with a single time lag. Table 5 presents the results for this estimation.

Lagged profitability exhibits a statistically significant coefficient, suggesting that, conditional on being domestically owned before a takeover, firms targeted by foreign MNEs experience a positive variation in business conditions 1 year before the acquisition. Our conceptual framework suggests that MNEs need to address the uncertainty associated with an information intensive transaction, such as a foreign takeover. In this respect, hypothesis H.4 suggests that MNEs' adaptive strategies can include the conditional engagement in an acquisition based on the observable improvement of targets' performance. Therefore, the detected positive effect of profitability can plausibly be endogenous to future foreign ownership. Interpreting this effect differently, instead, would imply that MNEs acquire domestic firms when these exogenously recover from business shocks. While we cannot directly test for the role of the asymmetric distribution of information between MNEs and domestic targets, which theoretically motivates our hypothesis, we can exploit information on the announcement date of foreign acquisitions to produce an indirect test. The period between the official announcement of a foreign acquisition and its completion lasts only few months in our data. Therefore, a lag of 1 year on our measure of profitability should suffice to tackle reverse causality, assuming that foreign ownership does not affect a target's profitability before the acquisition announcement. Nonetheless, it is very plausible that negotiations between acquirers and targets start earlier than the announcement date of a deal. Hence, we construct a new dependent variable based on the announcement date of a takeover rather than its completion date, in order to test whether the positive effect of within-target firm variation in profitability on the probability of being acquired remains stable. The intuition is that the year before the announcement of an acquisition should be a point in time when future foreign ownership can hardly influence a firm's profitability. As documented by Fich et al. (2011), the typical time span of an acquisition from the initiation date of negotiations to completion ranges from about 1 to 4 months.

Table 5. Timing of foreign acquisition

Dep. Var.: Foreign ownership	(1)	(2)	(3)	(4)	(5)
ln profitability$_{t-1}$	0.0041**	0.0041**	0.0042**	0.0041**	0.0041**
	(0.0017)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
ln labour productivity$_{t-1}$	0.0020	0.0016	0.0016	0.0012	0.0012
	(0.0087)	(0.014)	(0.0135)	(0.0135)	(0.0135)
ln average wage$_{t-1}$		0.0008	0.0008	0.0013	0.0013
		(0.0123)	(0.0123)	(0.0123)	(0.0123)
ln intangibles share$_{t-1}$			0.0063	0.0063	0.0063
			(0.0074)	(0.0074)	(0.0074)
ln taxation$_{t-1}$				−0.0041	−0.0041
				(0.0038)	(0.0038)
Age					0.165**
					(0.0825)
Observations	1,097,763	1,097,763	1,097,763	1,097,763	1,097,763
Clusters	288,632	288,632	288,632	288,632	288,632
R-squared	0.45	0.45	0.45	0.45	0.45
Adjusted *R*-squared	0.26	0.26	0.26	0.26	0.26
Year Fes	Y	Y	Y	Y	Y
Country-year trends	Y	Y	Y	Y	Y
Firm Fes	Y	Y	Y	Y	Y
Percent correctly predicted	86.75	86.73	86.69	86.42	82.77

Notes: Firm-level clustered standard errors in parentheses.
***$p<0.01$, **$p<0.05$, *$p<0.1$. All variables are normalised by industry means computed yearly at NACE 4-digits level.

Table 6 presents results based on this approach. Column 1 reports the same regression of Column 5 of Table 5 to facilitate comparability. Column 2 contains coefficients for a regression where the dependent variable is constructed on announcement dates. The effect of within-firm variation on profitability is still significant. One concern with the regression in Column 2 emerges as a relevant number of acquisitions are announced and completed in the same year in our data. This partially invalidates the empirical strategy applied in the regression in Column 2, as our lagged profitability measure does not change from completion-based to announcement-based dependent variable and it partially remains endogenous to future foreign ownership. Nevertheless, a good number of foreign takeovers in our data are announced at the end of each year and completed early in the next calendar year. By considering only these deals, we are able to minimize the concerns associated with the regression in Column 2. Results are presented in Column 3 of Table 6. The effect of within-firm variation in profitability on the probability of being acquired is not statistically different from zero when considering this subgroup of deals, thus suggesting that results in Table 5 and Column 2 of Table 6 are subject, to different extents, to a reverse causality bias, whereby future foreign ownership influences the business performance of target firms. This mechanism is consistent with the existence of corporate adaptation strategies aimed at minimizing the information asymmetry that penalises MNEs engaging in foreign acquisitions, as suggested in H.4.

Table 6. Announcements and timing of foreign ownership

Dep. Var.: Foreign ownership	(1) Completed deals	(2) Announcements	(3) Announcements
ln profitability$_{t-1}$	0.0041**	0.0032**	0.0002
	(0.0018)	(0.0016)	(0.0008)
ln labour productivity$_{t-1}$	0.0012	−0.0055	−0.00417
	(0.0135)	(0.0114)	(0.0044)
ln average wage$_{t-1}$	0.0013	0.0041	0.0005
	(0.0123)	(0.0107)	(0.0038)
ln intangibles share$_{t-1}$	0.0063	0.0029	−0.0005
	(0.0074)	(0.0068)	(0.0026)
ln taxation$_{t-1}$	−0.0041	−0.0019	−0.0002
	(0.0038)	(0.0033)	(0.0017)
Age	0.165**	0.0593	0.0049
	(0.0825)	(0.0624)	(0.0280)
Observations	1,097,763	1,097,763	1,097,419
Clusters	288632	288,632	288,560
Year FEs	0.45	Y	Y
Country-year trends	0.26	Y	Y
Firm FEs	Y	Y	Y
R-squared	Y	0.44	0.43
Adjusted *R*-squared	Y	0.24	0.23
Percent correctly predicted	82.77	62.77	64.91

Notes: Firm-level clustered standard errors in parentheses.
***$p<0.01$, **$p<0.05$, *$p<0.1$. Column 1 reports the same results of Column 5 of Table 6 for comparability. Column 2 report results for acquisitions defined on the basis of announcement dates. Column 3 is similar to Column 2, but acquisitions that are announced and completed in the same calendar year are not included.

6. Concluding remarks

The relevance of cross-border acquisitions over other forms of FDI has notably grown in the last decades. This is particularly the case of foreign investment in advanced economies, where the acquisition of pre-existing domestic firms is the preferential entry strategy of MNEs. Nonetheless, academic research focusing on the selection decisions of MNEs that engage in international takeovers has lagged behind, in part as a result of the lack of information on changes in the ownership structure of companies over time. Therefore, shedding light on the systematic patterns of selection that characterise the choices of international acquirers has become particularly urgent in both academic and policy terms.

In this article, we adopt an evolutionary perspective of analysis of selection in foreign takeovers, based on the idea of heterogeneity in the population of domestic target companies in terms of firm-specific routines—that is, the way in which the productive knowledge of firms is stored and employed over time (Nelson and Winter, 1982; Rumelt, 1991; Boschma and Frenken, 2006; Essletzbichler and Rigby, 2007). In this context, MNEs' expansion in foreign markets by means of takeovers is increasingly considered as a strategy aimed at defining and refining new corporate trajectories (Cantwell, 1989; Kogut and Zander, 1993) as well as improving global competitiveness,

still maintaining a cost-reduction behaviour (Caves, 1996; Dunning and Lundan, 2008). In this light, our empirical results relative to European target firms suggest that domestic firms' heterogeneity in business performance and production routines pushes foreign MNEs to select the most productive targets experiencing persistent underperforming business conditions, as a strategy to access valuable assets at a relatively lower cost. Furthermore, because MNEs need to overcome the information disadvantage on the quality of domestic firms, they condition their engagement in a takeover on the observable improvement of the business performance of targets. These results can be also informative for other strands of related research in Economic Geography, including works on global production networks (GPNs). In fact, while we do not directly test for any GPN theoretical predictions, our findings are consistent with a view of selection decisions in foreign takeovers being governed by an optimisation process based on the existence of intrafirm coordination strategies that lead MNEs to purchase specific target firms to achieve greater advantages for relatively lower costs (Yeung and Coe, 2015).

Importantly, geographical recipient contexts also play a role in terms of the institutional environment in which potential target firms develop their routines and compete, as regional institutions can enable inter-organisational learning and the circulation of knowledge on a local basis. MNEs acquisition strategies, in fact, are more based on a cost-reduction behaviour within institutionally solid contexts, as the specific knowledge base of the targeted firm is less relevant relative to the regional institutional advantages in terms of local opportunities for knowledge access. On the contrary, where the existing institutional environment is weaker, foreign MNEs can hardly reach multiple sources of local knowledge due to the constraining institutional fragmentation of local linkages, thus favouring the specific knowledge base of the targeted firm in corporate takeover strategies. We also document the presence of a remarkable relationship between the technological intensity of an industry and the economic forces influencing foreign takeovers, indirectly suggesting that in sectors characterised by higher technological complexity foreign acquisitions of underperforming companies endowed with efficient routines can substitute expensive R&D. Overall, these findings can clarify relevant issues in the study of MNEs' investment: first, what micro-level strategies MNEs tend to follow when selecting an investment target within an industrial sector; second, why target firms improve their business performance immediately before being acquired; third, how foreign takeover motives can vary across technological classes and regions with diverse institutional contexts.

This article also contributes to the debate the inter-firm spatial transmission of routines. In this respect, the EEG literature emphasises the local path-dependent nature of routine transmission and recombination, which provides an explanation of industry evolution and clustering by means of spinoff dynamics and labour mobility at the regional level (Klepper, 2007; Boschma and Frenken, 2011). We suggest an *international* mechanism of routine transmission and recombination that potentially complements the *regional* 'branching' process examined in the existing literature (Frenken and Boschma, 2007): that is, the ownership shift from domestic to foreign as a result of an international acquisition. Such an ownership change, in fact, can plausibly be a catalyst of routine recombination among organisations that do not necessarily share the same local context. While exploring in detail this specific extension of enquiry is beyond the scope of this article, our findings may strengthen the interest for considering also the global scale of industry dynamics in an evolutionary perspective.

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Supplementary material

Supplementary data for this paper are available at *Journal of Economic Geography* online.

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References

Abell, P., Felin, T., Foss N. (2008) Building micro-foundations for the routines, capabilities, and performance links. *Managerial and Decision Economics*, 29: 489–502.

Andrade, G., Kaplan, S. (1998) How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed. *The Journal of Finance*, 53: 1443–1493.

Andrade, G., Mitchell, M., Stafford, E. (2001) New evidence and perspectives on mergers. *Journal of Economic Perspectives*, 15: 103–120.

Balakrishnan, S., Koza, M. (1993) Information asymmetry, adverse selection and joint-ventures: theory and evidence. *Journal of Economic Behaviour and Organization*, 20: 99–117.

Becker, M. (2004) Organizational routines: a review of the literature. *Industrial and Corporate Change*, 13: 643–678.

Blonigen, B., Fontagné, L., Sly, N., Toubal, F. (2014) Cherries for sale: the incidence and timing of cross-border M&A. *Journal of International Economics*, 94: 341–357.

Blonigen, B., Taylor, C. (2000) R&D intensity and acquisitions in high-technology industries: evidence from the US electronic and electrical equipment industries. *Journal of Industrial Economics*, 48: 47–70.

Boschma, R., Frenken, K. (2006) Why is economic geography not an evolutionary science? Towards an evolutionary economic geography. *Journal of Economic Geography*, 6: 273–302.

Boschma, R., Frenken, K. (2009) Some notes on institutions in Evolutionary Economic Geography. *Economic Geography*, 85: 151–158.

Boschma, R., Frenken, K. (2011) The emerging empirics of evolutionary economic geography. *Journal of Economic Geography*, 11: 295–307.

Boschma, R., Martin, R. (eds) (2010) *The Handbook of Evolutionary Economic Geography*. Cheltenham: Edward Elgar.

Braczyk, H.-J., Cooke, P., Heidenreich, M. (eds) (1998) *Regional Innovation Systems*. London: UCL Press.

Campa, J., Kedia, S. (2002) Explaining the diversification discount. *Journal of Finance*, 57: 1731–1762.

Cantwell, J. (1989) *Technological Innovation and Multinational Corporations*. Oxford, UK: Basil Blackwell.

Cantwell J. (ed.) (1994) *Transnational Corporations and Innovatory Activities*. London: Routledge.

Cantwell, J., Hodson, C. (1991) Global R&D and UK competitiveness. In M. Casson (ed.) *Global Research Strategy and International Competitiveness*. Oxford/Cambridge, MA: Blackwell.

Cantwell, J., Iammarino, S. (2000) Multinational corporations and the location of technological innovation in the UK regions. *Regional Studies*, 34: 317–332.

Cantwell, J., Iammarino, S. (2003) *Multinational Corporations and European Regional Systems of Innovation*. Routledge Studies in Global Competition. London, UK: Routledge.
Cantwell, J., Mudambi, R. (2005) MNE competence-creating subsidiary mandates. *Strategic Management Journal*, 26: 1109–1128.
Cantwell, J., Narula, R. (2001) The eclectic paradigm in the global economy. *International Journal of the Economics of Business*, 8: 155–172.
Casson, M. (1994) Why are firms hierarchical? *Journal of the Economics of Business*, 1: 47–76.
Caves, R. (1971) International corporations: the industrial economies of foreign investment. *Economica*, 38: 1–27.
Caves, R. (1996) *Multinational Enterprise and Economic Analysis*. Cambridge, MA: Cambridge University Press.
Charron, N., Dijkstra, L., Lapuente, V. (2014) Regional governance matters: quality of government within European Union member States. *Regional Studies*, 48: 68–90.
Chen, S., Hennart, J. (2004) A hostage theory of joint ventures: why do Japanese investors choose partial over full acquisition to enter the United States? *Journal of Business Research*, 57: 1126–1134.
Cooke, P., Morgan, K. (1998) *The Associational Economy: Firms, Regions and Innovation*. Oxford, UK: Oxford University Press.
Cornett, M., Marcus, A., Tehranian, H. (2008) Corporate governance and pay-for-performance: the impact of earnings management. *Journal of Financial Economics*, 87: 357–373.
Delios, A., Beamish, P. (2001) Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance. *The Academy of Management Journal*, 44: 1028–1038.
Dewenter, K., Malatesta, P. (2001) State-owned and privately-owned firms: an empirical analysis of profitability, leverage and labor intensity. *American Economic Review*, 91: 320–334.
Dosi, G., Freeman, C., Nelson, R., Silverberg, G., Soete, L. (eds) (1988) *Technical Change and Economic Theory*. London: Pinter Publishers.
Dunning, J. H. (1993) *Multinational Enterprises and the Global Economy*. Don Mills, Ontario: Addison-Wesley.
Dunning, J., Lundan, S. (2008) *Multinational Enterprises and the Global Economy*. Cheltenham: Edward Elgar Publishing.
Erel, I., Liao, R., Weisbach, M. (2012) Determinants of cross-border mergers and acquisitions. *Journal of Finance*, 57: 1045–1082.
Essletzbichler, J., Rigby, D. (2007) Exploring evolutionary economic geographies. *Journal of Economic Geography*, 7: 549–571.
Felin, T., Foss, N. (2009) Organizational routines and capabilities: historical drift and a course-correction toward microfoundations. *Scandinavian Journal of Management*, 25: 157–167.
Fich, E., Cai, J., Tran, A. (2011) Stock option grants to target CEOs during private merger negotiations. *Journal of Financial Economics*, 101: 413–430.
Foss, N., Pedersen, T. (2002) Sources of subsidiary knowledge and organizational means of knowledge transfer. *Journal of International Management*, 8: 49–67.
Frenken, K., Boschma, R. (2007) A theoretical framework for evolutionary economic geography: industrial dynamics and urban growth as a branching process. *Journal of Economic Geography*, 7: 635–649.
Froot, K., Stein, J. (1991) Exchange rates and foreign direct investment: an imperfect capital markets approach. *The Quarterly Journal of Economics*, 106: 1191–1217.
Gereffi, G., Korzeniewicz, M. (1994) *Commodity Chains and Global Capitalism*. Westport, CT: Praeger.
Gertler, M. (1995) Being there: proximity, organisation and culture in the development and adoption of advanced manufacturing technologies. *Economic Geography*, 71: 1–26.
Gertler, M. (1997) The invention of regional culture. In R. Lee and J. Wills (eds) *Geographies of Economies*, pp. 53–64. London: Arnold.
Gertler, M. (2010) Rules of the game: the place of institutions in regional economic change. *Regional Studies*, 44: 1–15.
Gertler, M., Wolfe, D., Garkut, D. (2000) No place like home? The embeddedness of innovation in a regional economy. *Review of International Political Economy*, 7: 688–718.
Giannetti, M., Ongena, S. (2012) 'Lending by example': direct and indirect effects of foreign banks in emerging markets. *Journal of International Economics*, 86: 167–180.

Giuliani, E., Bell, M. (2005) The micro-determinants of meso-level learning and innovation: evidence from a Chilean wine cluster. *Research Policy*, 34: 47–68.
Grabher, G. (ed) (1993) *The Embedded Firm: On the Socioeconomics of Industrial Networks*. London: Routledge.
Guadalupe, M., Kuzmina, O., Thomas, C. (2012) Innovation and foreign ownership. *American Economic Review*, 102: 3594–3627.
Hansen, M., Lovas, B. (2004) How do multinational companies leverage technological competences? Moving from single to interdependent explanations. *Strategic Management Journal*, 25: 801–822.
Heyman, F., Sjoholm, F., Tinvall, P. G. (2007) Is there really a foreign ownership wage premium? Evidence from matched employer–employee data. *Journal of International Economics*, 73: 355–376.
Iammarino, S. (2005) An evolutionary integrated view of Regional Systems of Innovation: concepts, measures and historical perspectives. *European Planning Studies*, 13: 497–519.
Iammarino, S., McCann, P. (2006) The structure and evolution of industrial clusters: transactions, technology and knowledge spillovers. *Research Policy*, 35: 1018–1036.
Iammarino, S., McCann, P. (2010) The relationship between multinational firms and innovative clusters. In R. Boschma and R. Martin (eds) *The Handbook of Evolutionary Economic Geography*, pp. 182–204. Cheltenham, UK: Edward Elgar.
Iammarino, S., McCann, P. (2013) *Multinationals and Economic Geography: Location, Technology and Innovation*. Cheltenham: Edward Elgar.
Iammarino, S., Padilla-Perez, R., von Tunzelmann, N. (2008) Technological capabilities and global–local interactions: the electronics industry in two Mexican regions. *World Development*, 36: 1980–2003.
Jaccard, J., Turrisi, R. (2003) *Interaction Effects in Multiple Regression*. 2nd edn. Thousand Oaks, CA: Sage.
Klepper, S. (2007) Disagreements, spinoffs, and the evolution of Detroit as the capital of the US automobile industry. *Management Science*, 53: 616–631.
Kogut, B., Zander, U. (1992) Knowledge of the firm, combinative capabilities and the replication of technology. *Organization Science*, 3: 383–397.
Kogut, B., Zander, U. (1993) Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24: 625–645.
Lundvall, B. A. (1988) Innovation as an interactive process: from user–producer interaction to the National System of Innovation. In G. Dosi, C. Freeman, R. Nelson, G. Silverberg, and L. Soete (eds) *Technical Change and Economic Theory*, pp. 61–83. London: Pinter Publishers.
Maffini, G., Mokkas, S. (2011) Profit sharing and measured productivity of multinational firms. *Oxford Bulletin of Economic and Statistics*, 73: 1–19.
Mariotti, S., Piscitello, L. (1995) Information costs and location of FDIs within the host country: empirical evidence from Italy. *Journal of International Business Studies*, 26: 815–841.
Martin, X., Salomon, R. (2003) Knowledge transfer capacity and its implications for the theory of the multinational corporation. *Journal of International Business Studies*, 34: 356–373.
Martin, R., Sunley, P. (2006) Path dependence and regional economic evolution. *Journal of Economic Geography*, 6: 395–437.
Maskell, P. (2001) The firm in economic geography. *Economic Geography*, 77: 329–344.
Mitchell, M., Mulherin, H. (1996) The impact of industry shocks on takeover and restructuring activity. *Journal of Financial Economics*, 41: 193–229.
Morgan, K. (1997) The learning region: institutions, innovation, and regional renewal. *Regional Studies*, 31: 491–503.
Mudambi, R. (2008) Location, control and innovation in knowledge-intensive industries. *Journal of Economic Geography*, 8: 699–725.
Nelson, R., Winter, S. (1982) *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
Phelps, N., MacKinnon, D., Stone, I., Braidford, P. (2003) Embedding the multinationals? Institutions and the development of overseas manufacturing affiliates in Wales and North East England. *Regional Studies*, 37: 27–40.
Phillips, G., Zhdanov, A. (2012) R&D and the incentives for mergers and acquisition activity. *Review of Financial Studies*, 26: 34–78.

Priem, R., Butler, J. (2001) Is the resource-based "view" a useful perspective for strategic management research? *The Academy of Management Review*, 26: 22–40.
Rigby, D., Brown, M. (2015). Who benefits from agglomeration? *Regional Studies*, 49: 28–43.
Rigby, D., Essletzbichler, J. (1997) Evolution, process variety, and regional trajectories of technological change US manufacturing. *Economic Geography*, 73: 269–284.
Rodriguez-Pose, A., Storper, M. (2006) Better rules or stronger communities? On the social foundations of institutional change and its economic effects. *Economic Geography*, 82: 1–25.
Rodriguez-Pose, A. (2013) Do institutions matter for regional development? *Regional Studies*, 47: 1034–1047.
Rumelt, R. (1991) How much does industry matter? *Strategic Management Journal*, 12: 167–185.
Scott, A., Storper, M. (2003) Regions, globalization and development. *Regional Studies*, 37: 579–593.
Shleifer, A., Vishny, R. 1992. Liquidation values and debt capacity: a market equilibrium approach. *Journal of Finance*, 47: 1343–1366.
Simon, H. A. (1955) On a class of skew distribution functions. *Biometrika*, 42: 425–440.
Sorenson, O., Rivkin, J., Fleming, L. (2006) Complexity, networks, and knowledge flow. *Research Policy*, 35: 994–1017.
Storper, M. (1992) The Limits to Globalization: Technology Districts and International Trade. *Economic Geography*, 68: 60–93.
Storper, M. (1997) *The Regional World. Territorial Development in a Global Economy*. New York and London: Guilford Press.
Storper, M. (2005) Society, community, and economic development. *Studies in Comparative International Development* 39: 30–57.
Teece, D. J. (1986) Transaction cost economics and the multinational enterprise. *Journal of Economic Behaviour and Organization* 7: 21–45.
Teece, D. J., Pisano, G. (1994) The dynamic capabilities of firms: an introduction. *Industrial and Corporate Change*, 3: 537–556.
UNCTAD. (2016) *World Investment Report 2016. Investor Nationality: Policy Challenges*. Geneva: United Nations Publications.
Voget, J. (2011) Relocation of headquarters and international taxation. *Journal of Public Economics*, 95: 1067–1081.
Wooldridge, J. (2009) *Introductory Econometrics. A Modern Approach*. 4th edn. South Western: Cengage Learning.
Yeung, H., Coe, N. (2015) Toward a dynamic theory of global production networks. *Economic Geography*, 91: 29–58.