Does the origin matter? The effects of cross-border mergers and acquisitions in France

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Abstract

Purpose: The present article analyses the effects of cross-border Mergers and Acquisitions (CBM&As) on targets' Total Factor Productivity (TFP), employment, wages and intangible-asset investment. We investigate whether the impact of CBM&As differs depending on the origin of the investing multinational (MNE). We distinguish between CBM&As from European countries, other developed countries, and emerging countries.

Design/methodology/approach: We make use of a unique firm-level dataset of foreign direct investment in the French manufacturing sector. We apply propensity score matching and difference in differences to estimate the effect of CBM&As.

Findings: The results show that the consequences of CBM&As differ strongly depending on the origin. CBM&As from European MNEs have a positive impact on TFP, wages and intangible-asset investment, and those from emerging countries seem to increase wages and intangible-asset investments. In contrast, CBM&As that originate from MNEs from other developed countries do not have a significant effect.

Originality/value: This article contributes to the growing literature on the effects of Foreign Direct Investment that highlights the relevance of accounting for the MNEs' origin. In particular, it is the first to address the impact of emerging-country MNEs' CBM&As in Europe.

Keywords: Cross-border M&As; Emerging countries; Europe; Firm performance; TFP.

JEL Code: D24; F23, F60, G34

1. Introduction

The impact of Foreign Direct Investment (FDI) on recipient countries' economies and societies is a subject of great academic and policy interest. Multinationals' (MNEs) cross-border Mergers and Acquisitions (CBM&As) could mean that the target firm profits from the transfer of novel technologies and capabilities, economies of scale and access to new markets through trade – benefits that result in higher productivity, research and development (R&D) investment, employment and wages (e.g. Blonigen et al., 2014; Girma and Görg, 2007; Gugler et al., 2003; Jovanovic and Rousseau, 2008). Nevertheless, whether these benefits can be obtained independently of the investing MNE's nationality is still an empirical question open to research (e.g. Bloom et al., 2012; García-Vega et al., 2019; Schiffbauer et al., 2017). Cultural, institutional and technological differences between the investing MNEs and the target firm can affect the gains from CBM&As.

Traditionally, developed countries have been the source of more than 80% of the world's outward FDI (OFDI), but in recent decades, the share of developing countries has gradually increased to nearly 40% (Carril-Caccia and Pavlova, 2018). The surge of Emerging-Country MNEs (EMNEs) has mainly motivated research that addresses the determinants of OFDI (e.g. Moghaddam et al., 2014). Aside from this, some studies consider: the effects of EMNEs' OFDI on the valuation of publicly listed firms (e.g. Chari et al., 2012); the drivers of EMNEs' investment performance (e.g. Buckley et al., 2014; Piperopoulos et al. 2018); the OFDI effects on the investing EMNEs' home country (e.g. Bertrand and Betschinger, 2012; Cozza et al., 2015); and the difference between EMNEs' and developed-country MNEs' productivity and R&D investment (Pittiglio and Reganati, 2019; Sanfilippo, 2015). Nevertheless, evidence is still limited regarding the effect of EMNEs' CBM&As on the productivity, R&D, employment or wages of target firms. On this specific topic, it is a concern whether EMNEs' OFDI into developed countries can signify a redeployment of technology and economic activity from the developed country destination to the EMNEs' origin country or negatively affect host countries' productivity (Pittiglio and Reganati, 2019; Sanfilippo, 2015). While for the USA the effects of EMNEs' CBM&As in terms of productivity and employment have been addressed (Chen, 2011; Chari et al., 2012), to the best of our knowledge it has not yet been tackled for the case of the European Union (EU). The EU is a relevant case of study since the integration

process has led to a surge of CBM&As within member states and from non-EU countries (Carril-Caccia and Pavlova, 2018; Coeurdacier et al., 2009, Pham and Marek, 2019).

This article delves into the implications of CBM&As during the period 2007-2014 on targets firms' Total Factor Productivity (TFP), wages, employment, and intangible assets in French manufacturing. The analysis distinguishes between the effect of CBM&As from MNEs headquartered in European, other developed and emerging countries. To this end, Propensity Score Matching combined with difference in differences is applied. Accordingly, this paper adds to the literature by providing empirical evidence on the direct effects of EMNEs' CBM&As in a European economy by including the counter-factual outcome.[1] Moreover, in terms of data, the present article uses an innovative method of measuring FDI by mixing different sources with Orbis. This approach attempts to identify the real nationality of the investing MNE and to measure the indirect acquisition of subsidiaries.

Results show that when CBM&As are considered homogeneous, they have a positive effect on TFP, wages and on investment in intangible assets, while employment remains unchanged. Estimates that distinguish by the origin of investment highlight that M&As carried out by European MNEs are those that bring the most sizable benefits to the target firm in terms of TFP, wages and intangible assets. Other developed countries' M&As seem not to have any significant impact, while those from EMNEs appear only to positively affect wages and intangible-asset investment. A battery of robustness checks confirms these findings.

The structure of this article is as follows. Section II reviews the literature on the effects of M&As and the role of the source of investment. Section III presents the database, and the methodology is described in Section IV. Section V reports the results, robustness analysis, and provides a discussion of the results. Section VI offers some concluding remarks, highlights several limitations and avenues for future research, and derives some policy implications.

[1] The present paper differs from Buckley et al. (2014) in terms of methodology, and in consequence implies a different contribution to the literature. Buckley et al. (2014) consider how firms evolve after EMNEs' CBM&A, and shed light on its determinants. In this paper, we gauge the effects of CBM&As by comparing the targets' post-M&A evolution with a control group.

2. The effects of FDI: Does the origin matter?

On the positive side, foreign capital inflows are expected to foster the target firms' efficiency, disseminate new technology, provide new capital and access to new markets (Blonigen et al., 2014; Gugler et al., 2003; Jovanovic and Rousseau, 2008). All these potential benefits could also result in higher employment and wages (Girma and Görg, 2007; Liu et al., 2015).

Notwithstanding, there are channels through which FDI might have a negative impact on the host country. CBM&As may lead to the redeployment of the target's economic activity to some other location to avoid duplications between the investor and investee or to minimize costs (Blonigen et al., 2014; Capron et al., 1998; García-Vega et al., 2019). On top of that, in markets with high barriers to entry, M&As could reduce the level of competition and translate into oligopolies (Gugler et al., 2003). Furthermore, the lack of absorptive capacity, changes in management style, or resistance or anxiety of the workforce to change may hamper the CBM&As' potential gains (Seo and Hill, 2005).

2.1. CBM&As from developed countries' MNEs

Until recently, most of the existing empirical analysis considering the implications of CBM&As overlooked the fact that OFDI comes from heterogeneous countries. Disparities in economic development, culture, institutions, managerial practices and technologies between home and host country may influence the implications of FDI in host countries (e.g. Demir and Duan, 2018; García-Vega et al., 2019; Gold et al., 2017; Kamal, 2015; Liu et al., 2015; Marini Thomé et al., 2017; McCarthy and Aalbers, 2016; Stiebale and Vencappa 2018; Vaccarini et al., 2019). Due to these differences, the assumption of homogeneity among the sources of investment is prone to lead to results that conceal the diverse consequences that CBM&As from different groups of countries might have on targets.

Similarity in the above-mentioned dimensions between the investor and the target firm may positively alter the post-M&A target's performance in terms of productivity, intangible-asset investment, wages and employment. Transaction costs faced by MNEs are lower, cultural clashes are less likely, and targets are more likely to be capable of absorbing foreign knowledge and managerial practices. In the context of an EU country,

this would lead to attributing a larger positive impact to CBM&As coming from other European countries than those coming from other developed countries or emerging countries. The EU integration process has entailed a legislative harmonization process whose objective was that from 2007 onward, CBM&As between EU member states should not face any country-specific restriction (Umber et al., 2014). Moreover, since its inception, the EU project has also involved a political convergence and the development of a European identity (see Bayram, 2017). In addition, the remaining European countries have also signed deep trade agreements with the objective of achieving a degree of integration that goes beyond tariff reduction (e.g. EFTA, EFTA-EU, EU-Albania, etc.).

Some studies show that CBM&As from European MNEs improve targets' productivity more than US or other developed countries' MNEs (e.g. Dachs and Peters, 2014; Piscitello and Rabbiossi, 2005). EMNEs would therefore be expected to make less successful CBM&As in Europe due to their lack of experience, reputation and capabilities, and cultural and institutional barriers (Bertrand and Betschinger, 2012; Cozza et al., 2015). Based on this strand of the literature, we hypothesize:

Hypothesis A: European MNEs improve French targets' performance to a larger extent than other developed and emerging countries' MNEs.

Nevertheless, differences between home and host countries' characteristics and between investor and investee characteristics may not necessarily imply that CBM&As hamper targets' performance. The technological superiority of certain developed countries' MNEs, and particularly US MNEs (Bloom et al., 2012), can lead to a larger transfer of knowledge and capabilities to the investee. These transfers can result in improvements in terms of productivity, R&D, employment or wages. In this regard, there is evidence that supports the idea that CBM&As in Europe from US MNEs improve productivity more than those from European MNEs (e.g Benfratello and Sembenelli, 2006; Bertrand and Zitouna, 2008; Bloom et al., 2012; Schiffbauer et al., 2017). In terms of wages, for the UK Girma and Görg (2007) show that US CBM&As increase skilled workers' wages, while CBM&As from European nations do not. García-Vega et al. (2019) find that, in Spain, CBM&As from MNEs originating from technology-frontier countries have a higher likelihood of closing targets' R&D labs, but, if these labs are not closed, they significantly increase innovation output.

This strand of the literature would also back the proposition that EMNEs' CBM&As into developed countries should have a minor positive, or even a negative, effect on targets' productivity or investment in innovation (Chen, 2011; Pittiglio and Reganati, 2019; Sanfilippo, 2015). Indeed, previous literature on the determinants of EMNEs' CBM&As have highlighted the objective of acquiring competitive advantages such as brand recognition or new technologies, rather that investing abroad with the objective of exploiting the EMNE's competitive advantages (e.g. Amal et a., 2013; Carril-Caccia and Milgram Baleix, 2020; Luo and Tung, 2007). Thus, instead of transferring new knowledge that can result in higher productivity and intangible assets, EMNEs' CBM&As would seek to exploit the capabilities of target firms. Accordingly, we hypothesize:

Hypothesis B: Developed countries' MNEs, and in particular US MNEs, improve French targets' performance to a larger extent than emerging-country MNEs

2.2. CBM&As from EMNEs

Unlike developed countries' MNEs, EMNEs usually lack firm-specific competitive advantages, and it seems that OFDI serves as a strategy for overcoming competitive disadvantages. CBM&As can provide access to know-how and distribution channels that ease access to developed countries' markets and qualified labour, provide managerial skills and new technologies, and can serve as a mechanism for achieving brand recognition (e.g. Amal et al., 2013; Carril-Caccia & Milgram Baleix, 2020; Child and Rodrigues, 2005; Luo and Tung, 2007; Petti et al., 2019). Moreover, EMNEs' CBM&As may also be motivated by natural resources, efficiency, global value consolidation and geopolitical influence-seeking (Moghaddam et al., 2014).

The studies that shed light on the effects of FDI from developing into developed countries are scarce. Chen (2011) and Chari et al. (2012) analyse the direct impact of CBM&As of US firms. Chen's (2011) findings indicate that CBM&As from industrialized countries boost labour productivity and profitability, while those from developing nations negatively affect labour productivity. Chen (2011) also shows that developed countries' CBM&As are more likely to increase employment, while the opposite is found for EMNEs. Chari et al. (2012) only consider the consequences of CBM&As from

developing countries, and report that profitability increases, but employment, sales, and plant, property and equipment decreases.

For the case of BRICS MNEs in Europe, Sanfilippo (2015) compares them with the rest of MNEs located in Europe and concludes that EMNEs are on average less productive that their equivalents from developed countries. Based on this finding, Sanfilippo (2015) argues that EMNE investments in Europe are likely to decrease the host industry's productivity. Similarly, Pittiglio and Reganati (2019) show that in the EU manufacturing sector, EMNEs' subsidiaries are significantly less productive than developed countries' MNEs. Pittiglio and Reganati (2019) suggest that this productivity gap is likely to be due to the lack of technological transfer from headquarters into the foreign subsidiaries, and because of the transfer back of technology from subsidiaries to the parent firm in the form of reverse technology.

Thus, following the same lines as the literature described above, it would appear that in comparison with developed countries' MNEs, EMNEs have a limited capacity for improving target firms' productivity or innovation, which is already acknowledged in **Hypothesis A** and **B**. However, cultural, institutional and technological differences between investor and target might boost the positive outcomes from CBM&As (e.g. Giuliani et al., 2014; Marini Thomé et al., 2017; McCarthy and Aalbers, 2016). EMNEs may offer other kinds of advantages, such as complementary capabilities and better access to new markets, which may favour target firms' economies of scale and contribute to increasing their size (Bertrand and Betschinger, 2012). Moreover, EMNEs enjoy specific home-country competitive advantages such as low labour costs, government support and the capacity of operating in contexts with low institutional quality (Cuervo-Cazurra and Genc, 2008; Lebedev et al., 2014; Williamson and Wan, 2018). In addition, if EMNEs are less productive than developed countries' MNEs (e.g. Pittiglio and Reganati, 2019; Sanfilippo, 2015), then the technological gap between EMNEs and investees is prone to be smaller. This is likely to favour the integration of new assets. Besides this, EMNEs are more likely to face larger liability of foreignness due to the low institutional reputation of the government of their home country. While this liability can represent a barrier to EMNEs' economic activity, it may also push EMNEs to make a larger effort in contributing to the host country's development (D'Amelio et al., 2016; Gold et al., 2017). Furthermore, asset- and market-seeking by EMNEs may result in an expansion of targets'

economic activity, which can entail higher employment and investment in the development of new capabilities, which can boost investment in intangible assets and productivity.

In terms of innovation, Piperopoulos et al. (2018) show that Chinese MNEs' subsidiaries have better performance when they invest in developed countries than when OFDI is in other emerging countries. Also, the qualitative evidence attained by Giuliani et al. (2014) for EMNEs' subsidiaries in Italy and Germany indicate that: EMNEs do not only transfer knowledge back to headquarters, but several subsidiaries also engage in local innovative activities with research centres, universities and local suppliers. Thus, EMNEs' CBM&As could boost targets' productivity, investment in intangible assets, employment and wages. Accordingly, we posit:

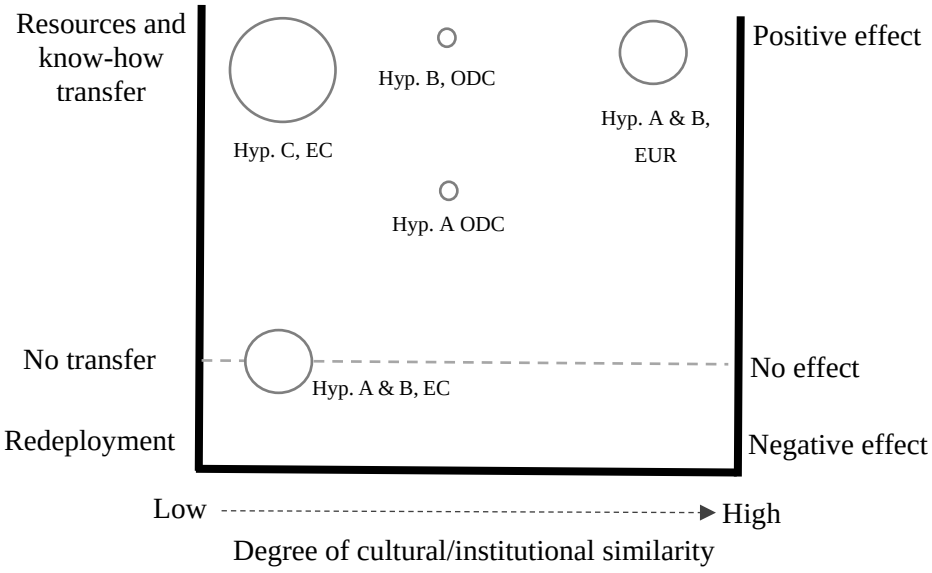
Hypothesis C: Emerging countries' M&As have a positive effect on French targets' performance.

2.3. Hypotheses and expected results overview

Chart 1 summarizes the expected impact of CBM&As on targets' performance depending on each hypothesis and origin of investment. The left-hand axis represents the degree to which the investing MNE transfers resources and know-how to the investee, while the right-hand axis the expected impact of CBM&As on targets' performance. The horizontal axis summarizes the degree of institutional and cultural similarity between the target firms (French) and the different origin of investing firms. For instance, according to hypothesis A, due to greater institutional/cultural similarity with French firms, European (EUR) CBM&As are expected to have a higher positive effect on targets' performance than those from other developed countries (ODC). Then, since ODC MNEs are expected to be capable of transferring more knowledge and capabilities than MNEs from emerging countries (EC), the first is expected to have a higher positive effect than the second.

The following section illustrates the data and methodology used to analyse the implications of CBM&As on targets' productivity, employment, wages and investment in intangible assets.

Chart 1: Summary of expected impact of CBM&As



Note: Author's own design. The size and location of the circles represent the expected impact of the CBM&As of each group of countries: European (EUR), other developed country (ODC) and emerging country (EC). For instance, according to hypotheses A and B, EMNEs' CMB&As could have a negative effect, non-significant or lower positive (in comparison with EUR or ODC MNEs) effect on targets' performance.

3. Dataset and measures of performance

3.1. Dataset

We gather data from Orbis (Bureau van Dijk Electronic Publishing) to build a firm-level panel of French firms in the manufacturing sector. The French manufacturing sector has been chosen for our analysis for several reasons. First, because of the EU integration process the manufacturing sector has seen a relevant growth CBM&As from both member states and non-EU countries (Coeurdacier et al, 2009). Second, among the EU countries France is one of the most prominent recipients of CBM&As (Pham and Marek, 2018). Third, Orbis's French data has a high-quality and wide coverage of small firms (i.e. it is not only restricted to large firms).

Although Orbis has been used previously to study FDI (e.g. Bertrand and Betschinger, 2012; Bloom et al., 2012; Cozza et al., 2015), the present study uses a different approach for identifying FDI projects. To measure FDI, the main drawback of Orbis is that firms are classified into foreign or domestic according to the last year of ownership available. The database does not directly provide information about when ownership changed and the mode of investment. To overcome this limitation, Kalemli-Ozcan et al. (2015) use several versions of the database over time to build a panel of the changes of ownership from domestic to foreign. The main limitation of this strategy is that the year is not precisely identified (i.e. firms change ownership between different Orbis versions), and the mode of investment remains unknown.

Other studies, such as Bertrand and Betschinger (2012) and Cozza et al. (2015), combine Orbis data with Zephyr, Thomson Reuters and fDi Markets databases. In this way, it is possible to identify the year and mode of investment. Nevertheless, the shortcoming of this approach is that it only takes into consideration highly publicly disclosed investment projects. Moreover, it only considers the direct change of ownership provoked by a CBM&A. That is say, each CBM&A is accounted as one flow from one company in one country, to another company in a different country. This is also a limitation. As pointed out by Cantwell (1992), each operation of this kind can involve different indirect changes of ownerships since the investors also merge with or acquire the companies previously owned by the new subsidiary.

To a certain extent, the methodology used to build the dataset for this study overcomes the above-mentioned issues. The FDI database is built based on the information available in Orbis. The time and mode of investment (i.e. M&As or greenfield investment) is mostly determined using the firms' ownership history, while the investor's nationality is determined by relying on the available information on the direct shareholder and ultimate owner nationality[2].

The sample accounts for 8,559 firms with unconsolidated accounts, covers the period 2005-2016 and 22 manufacturing subsectors, according to the 2-digit NACE Rev. 2 classification. The sample only includes fully domestic firms and those firms of which at least 50% of its ownership has been subject to a CBM&A during the period 2007-2014[3]. We have also excluded firms that before the year of acquisition were owned by foreign MNEs, firms without sufficient available data previous and post the year that the CBM&A takes place, and firms that have been the target of an MNE headquartered in a tax haven. In total, 210 CBM&As are considered in the analysis. As reported in Table 1: 62.4% are European MNEs (EUR), 31.4% are from other developed countries (ODC), and 6.2% are from emerging countries (EC). Financial variables are deflated using a 2-digit NACE level producer price index (base 2010), provided by the French National Institute for Statistics and Economics Studies (INSEE). Material costs and total assets are respectively deflated by using the materials and capital goods deflator, and employee costs are deflated using the consumer price index provided by INSEE.

[Insert table 1 here]

[2] For the sake of brevity, a full description of the methodology is available under request.

[3] As described in the methodology, to apply the Propensity Score Matching with difference in difference, and see the effect of CBM&As in the year that takes place and later years, the sample should cover the years before and after the CBM&As take place.

3.2. Measures of performance

We analyse the impact of CBM&As on target firms' TFP, employment, wages and intangible assets. TFP is calculated following Ackerberg et al.'s (2015) correction to the method proposed by Levinsohn and Petrin (2003). Accordingly, we estimate the residual of the following log-linearized Cobb-Douglas production function with the Stata program provided by Manjón and Mañez (2016):

$$y_{it} = \beta_0 + \beta_1 l_{it} + \beta_2 a_{it} + \beta_2 k_{it} + \beta_3 m_{it} + \omega_{it} + \eta_{it} \quad (1)$$

where y_{it}, l_{it},a_{it},k_{it} and m_{it} represent added value, number of employees, age, total assets and material costs respectively from firm i in year t. The error term is additively separable, ω_{it} being a state variable that stands for the transmitted component which has an impact on a firm's decision, and η_{it} is an independent and identically distributed variable which has no impact on a firm's decision. From ω_{it} firms' productivity is derived.

The method proposed by Levinsohn and Petrin (2003) is an extension of that proposed by Olley and Pakes (1996), both of which seek to control for the correlation between input levels and unobserved productivity shocks. The intuition is the following: when suffering from a productivity shock, firms are likely to modify their output and in consequence the inputs. In contrast to Olley and Pakes (1996) and Levinsohn and Petrin (2003), an ordinary least squares (OLS) estimate of the production function does not take into consideration the above-mentioned correlation and consequently is prone to reporting biased TFP estimates.

For our study, Levinsohn and Petrin (2003) is preferred to Olley and Pakes (1996) for two reasons. First, Olley and Pakes (1996) use investment, as a proxy for firms' adjustment to productivity shocks, for estimating TFP, which should be non-zero. This leads to excluding from the sample all firm-year observations in which investment is equal to zero. Second, productivity shocks may not always translate into investment adjustments, while intermediate inputs are easier to adjust and more likely to respond

smoothly to productivity shocks (Levinsohn and Petrin, 2003). Besides TFP, we consider firms' logarithm of the level of: total employment, average wages[4] and intangible assets.

4. Methodology

When analysing the effects of CBM&As, the first concern is to identify the characteristics of firms that make them more likely to become a target. This is particularly important since target firms can self-select into receiving FDI, and thus give rise to an endogeneity problem that may bias the estimates when comparing the performance of firms that were the target of a CBM&A and those that were not. MNEs may "cherry pick" the most productive firms (Arnold and Javorcik, 2005). In this case, the comparison of post-CBM&A firms with non-CBM&A firms would then likely show that the former perform better than the latter. However, it wouldn't be clear whether this difference between the two groups is due to the efficiency gains brought by the CBM&As or if it is due to the targets' superiority prior to the CBM&A. Another alternative is that foreign investors may seek to acquire or merge with firms whose value has diminished due to sudden negative shocks and/or firms facing credit constraints and losses but that still possess valuable assets for the investor. In sum, "*fire-sale FDI*" (Krugman, 2000) and "*cherries for sale*" (Blonigen et al., 2014) should also be considered to avoid selection bias.

To overcome this endogeneity issue and to gauge accurately the impact of CBM&As, we apply Propensity Score Matching (PSM) combined with difference in differences (e.g. Arnold and Javorcik, 2005; Girma and Görg, 2007). Observational studies use PSM for estimating the effects of receiving a treatment in comparison with not receiving it, and it is expected to reduce the self-selection bias (Caliendo and Kopeinig, 2008; Rosenbaum and Rubin, 1983).

Based on the probability of receiving a treatment conditional on a set of covariates X_i (Caliendo and Kopeinig, 2008), PSM selects a comparison group to be compared with the treated group (i.e. firms that become the target of a CBM&A). The objective is to eliminate the potential correlation between the outcome (e.g. the impact of CBM&As on TFP) with a set of observable variables (X_i) from the treated and untreated. The quality of the estimate of the impact of the treatment will depend on the control population and

[4] The average wage is approximated by dividing the total costs of employees by the number of employees.

selection model (Dehejia and Wahba, 2002; Guo and Fraser, 2014). To this end, we estimate the following logit model:

$$MA_{it} = \alpha + \beta_1 Age_{it} + \beta_2 Age_{it}^2 + \beta_3 Size_{it-1} + \beta_4 CapLab_{it-1} + \beta_5 Liquidity_{it-1} + \beta_6 ExpInt_{it-1} + \beta_7 TFP_{it-1} + \beta_8 TFP_{it-2} + \lambda_j + \lambda_x + \lambda_t + u_{it} \quad (2)$$

Subscripts i and t stand for firm i in year t. MA is a dummy equal to one when the firm receives investment in year t. λ_j, λ_x and λ_t represent sector, province and year fixed effects, respectively, and u_{it} is the error term. The covariates X_i in the selection model are the firms' age and age squared (Age_{it}, Age_{it}^2), the size of the firm in terms of employment[5] ($Size_{it-1}$), the capital labour ratio ($CapLab_{it-1}$), liquidity ratio[6] ($Liquidity_{it-1}$), the share of exports over total sales, namely export intensity ($ExpInt_{it-1}$), and the TFP (TFP_{it-1}, TFP_{it-2}). Setting the characteristics of firms that determine the likelihood of receiving FDI in time $t-1$ prevents including a target's attributes acquired after the CBM&A in the selection model (Arnold and Javorcik, 2005; Blonigen et al., 2014; Girma and Görg, 2007). Furthermore, as in the years previous to CBM&As there might be a negative shock on future target firms (e.g. Blonigen et al., 2014; Cozza et al., 2015), TFP is set in $t-2$ too. Descriptive statistics are available in Table 2.

[Insert table 2 here]

In the application of PSM it is important to highlight that firms in our dataset become targets at varying times (i.e. the treatment does not occur uniformly). This characteristic of the analysis of the effects of CBM&As requires assigning counterfactual treatment dates to the firms that have not been treated. To this end, as in Chari et al. (2012) and Cozza et al. (2015), we adopt the approach of proportional random investment year assignment.

The analysis is performed by applying nearest-neighbour with replacement[7]. This strategy ensures a reduction in bias since the closest comparison unit is used for calculating the

[5] Small, medium and large firms (9, 49 and 250 workers).
[6] In which the liquidity is current assets minus current liabilities divided by total assets.
[7] We use the Stata program PSMATCH2 from Leuven and Sianesi (2018).

effect of the treatment (Dehejia and Wahba, 2002). Moreover, we restrict the sample to the common support, that is to say, the analysis is circumscribed to the treated firms whose propensity scores are within the limits of the propensity score calculated for the control group (Guo and Fraser, 2014).

Once the reliability of the selection model is guaranteed (i.e. there are no significant differences in the X_i covariates between the treated and the selected untreated), we estimate the effects with difference-in-differences. For instance, to measure the impact of the CBM&As on TFP, after matching, we estimate by OLS with robust standard errors the following equation:

$$TFP_{it} = \beta_0 + \beta_1 t_i + \beta_2 treated_i + \beta_3 treated_i t_i + \lambda_j + \lambda_x + \lambda_t + u_{it} \quad (3)$$

Where the dependent variable is the outcome variable (e.g. TFP), t_i is a dummy which takes 0 in the year before the investment and one in the period of investment (t) or subsequent years ($t+1$, $t+2$ and $t+3$), and $treated_i$ is a dummy that takes one if a firm has been treated. The coefficient β_3 quantifies the average effect of M&A on target firms' TFP in the year of the CBM&A and subsequent years. Then, similar to Bertrand and Zitouna (2008) and García-Vega et al (2019), Equation (3) is modified to analyse whether the impact of CBM&As on TFP differs depending on the origin:

$$TFP_{it} = \beta_0 + \beta_1 t_i + \beta_2 treatedEUR_i + \beta_3 treatedODC_i + \beta_4 treatedEC_i + \beta_5 treatedEUR_i t_i + \beta_6 treatedODC_i t_i + \beta_7 treatedLDC_i t_i + \lambda_j + \lambda_x + \lambda_t + u_{it} \quad (4)$$

where $treatedEUR_{it}$, $treatedODC_{it}$ and $treatedEC_{it}$ are dummies that take 1 in the year in which the CBM&A took place from EUR, ODC and EC, respectively. The coefficients β_5, β_6 and β_7 represent the average impact of the CBM&As.

5. Results

5.1. Propensity Score Matching

The first empirical concern refers to whether the potential endogeneity issue is overcome by the selection model. The results from the logistic model are displayed in Table 3. In line with the previous literature (e.g. Arnold and Javorcik, 2005; Bertrand and Zitouna, 2008; Chari et al., 2012), the logistic estimates indicate that, on average, the firm size ($Size_{it-1}$), capital labour intensity ($CapLab_{it-1}$) and export intensity ($ExpInt_{it-1}$) increase the likelihood of being acquired by a foreign MNE. The liquidity ratio has a negative impact on the likelihood of being acquired, being quite close to the level of significance (p=0.11). As in Kamal (2015), domestic firms' productivity does not appear to affect the likelihood of receiving FDI, and the number of years the firm has been operating and the number of years squared are also non-significant.

[Insert table 3 here]

Table 4 illustrates that the PSM with nearest neighbour selects a comparison group that does not show significant difference with the treated firms. The X_i variables before acquisition are not significantly different between the two groups. Moreover, the resulting standardized bias after matching is in all cases below the 10% threshold[8]. Table 4 also shows that the set of X_i all become insignificant when considering the probability of CBM&As between the firms that were acquired and the selected control group. In other words, the model that assesses the likelihood of receiving FDI before matching completely loses its explanatory power after matching. All these tests guarantee the appropriate selection of a control group to estimate the impact of CBM&As on firms' performance.

[Insert table 4 here]

[8] Standardized differences and the existing bias are calculated using the following formula $d = \frac{(\bar{x}_t - \bar{x}_{unt})}{\sqrt{\frac{s_t^2 + s_{unt}^2}{2}}}$ where t represents treated firms and unt untreated firms. A standardized bias above 10% is usually considered to imply the existence of meaningful imbalance (Austin, 2009).

5.2. The effect of CBM&As

Productivity

Table 5 reports the estimates regarding how CBM&As affect TFP. Column 1 refers to the estimates that consider CBM&As as homogeneous (Equation (3)). Estimates from columns 2-4 are based on Equation (4), thus differentiating the effects of CBM&As from the 3 groups of countries under analysis (EUR, ODC and EC).

Without distinguishing between sources, estimates indicate that CBM&As improve TFP by 7.57%[9] in the third year after acquisition. Estimates illustrate that TFP is differently affected depending on the origin of investment. CBM&As by EUR MNEs only lead to a 8.44% increase in TFP in the third year after acquisition, while ODC and EC MNEs' CBM&As do not affect TFP. Accordingly, the results only confirm Hypothesis A.

[Insert table 5 here]

Employment and wages

In terms of employment, as reported in Table 6, no evidence is obtained supporting the view that CBM&As increase the target firm scale in a way that increases its overall level of employment. In addition, the lack of significance also discards the hypothesis that MNEs' CBM&As entail a redeployment of jobs to a different country.

Even though no evidence is reached on the impact of CBM&As on employment, estimates in Table 7 show that CBM&As have a significant effect on target firms' average wages. Considering CBM&As as homogeneous, it shows that in the second and third year after acquisition target firms experience 7.47% and 9.86% growth in average wages. This finding suggests that MNEs' CBM&As often result in a wage premium (e.g. Girma and Görg, 2007; Liu et al., 2015). Similar to the case of TFP, estimates show that CBM&As from European MNEs increase target firms' wages the most. The coefficients associated with ODC are not significant, although it is positive and close to the level of significance in the third year after acquisition. EC CBM&As appear to have a positive effect on wages

[9] $(e^{0.073} - 1)$x100.

in the second year after acquisition. Thus, in terms of wages, Hypotheses A and C are supported.

[Insert tables 6 and 7 here]

Intangible assets

When CBM&As are considered as homogeneous, estimates show that targets' intangible assets increase by 20%, 42% and 34% in the year of the CBM&A and in the first and second year after, respectively (see Table 8). However, the impact of CBM&As on intangible assets also seem to depend on the origin of investment. Those from EUR and EC MNEs seem to have a significant effect on targets' investment in intangible assets. European MNEs increase the investment in intangible assets in the year of the CBM&A and in the succeeding year by 29% and 44%, respectively, and in the second year after the coefficient is positive and close to the standard level of significance. The transfer of technology from EC MNEs, or the higher effort in terms of domestic investment, becomes relevant in the second and third year after acquisition. In contrast, ODC CBM&As do not seem to have a significant effect on targets' intangible assets. Thus, the results support Hypotheses A and C.

[Insert table 8]

5.3. Robustness analysis

In this section, we present some further sensitivity analyses to check the robustness of our results. First, we restrict the matching so that matched firms belong to the same industry as the treated firm, but do not belong to the same region. The latter is done to avoid the estimated effect being influenced by possible spillover effects (Javorcik and Poelhekke, 2017). Second, as in Bertrand and Betschinger (2012) and Stiebale and Vencappa (2018), we perform the PSM and difference-in-differences analysis separately for each pair of groups of firms (EUR-Domestic, ODC-Domestic and EC-Domestic). Third, we test the impact of CBM&As over productivity by calculating TFP, as in Levinsohn and Petrin (2003) without the Ackerberg et al. (2015) correction and the OLS residual. Furthermore, we employ the value added per employee. Finally, we use a different country classification with the objective of further disentangling the effect of European and other developed countries' CBM&As. The new classification divides the origin of takeovers according to the following origins of MNEs: European Union (EU), Other Developed Countries (ODC2)[10], United States (US) and Emerging Countries (EC). This classification allows us to directly test whether acquisitions by US MNEs result in better post-merger performance (Bloom et al., 2012). To conserve space, estimates are available under request.

Overall, robustness tests confirm the base results. However, for the case of the direct comparison between EC and domestic firms, all coefficients lose significance. This is probably due to the limited number of observations. Regarding the results from estimates with a different country classification, the positive effect from EU MNEs on TFP, wages and intangible-asset investment are identical to those estimated for European (EUR) MNEs. The new group of Other Developed Countries (ODC2) still has a non-significant effect in all variables but intangible assets. Lastly, estimates show that takeovers from US MNEs do not have any significant effect.

[10] Including European MNEs that do not belong to the EU.

5.4. Discussion

Chart 2 summarizes the empirical results reported in Tables 5-8. Hypothesis A is supported for all considered dimensions but employment. The higher benefits in terms of TFP by European MNEs' CBM&As is in line with Piscitello and Rabbiossi (2005) for the case of Italy. In addition, European CBM&As seem to increase targets' wages and intangible-asset investment. Hence, because of the ongoing European economic and political integration process, it is likely that cultural and institutional similarity between European firms results in lower transaction costs for the investing European MNEs. This eases the transfer of knowledge from the MNE to the target, resulting in higher productivity, wages and intangible-asset investment.

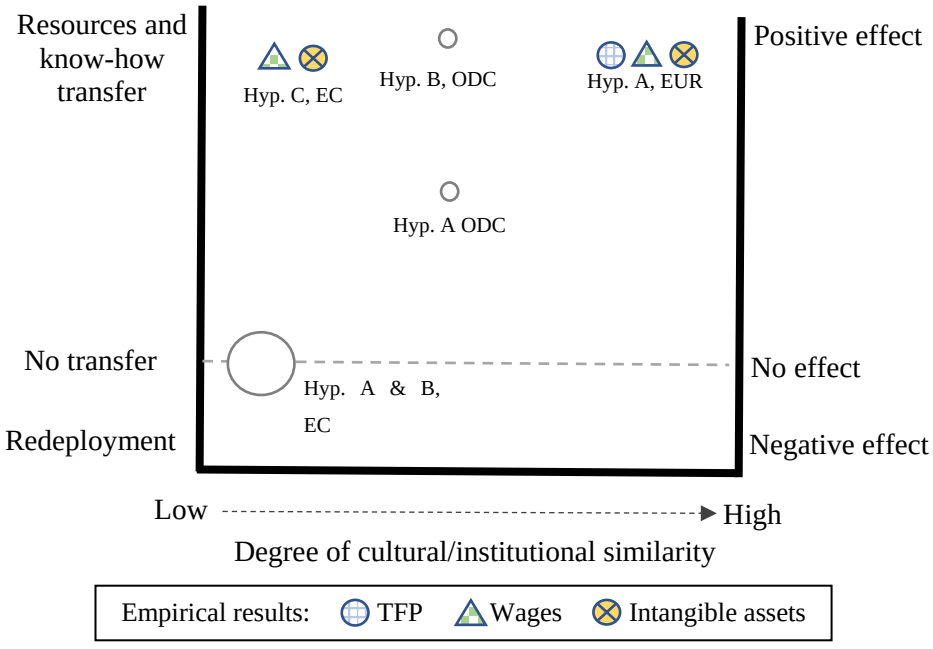
However, the results do not support Hypothesis B. CBM&As from ODCs' MNEs do not appear to have any remarkable effect on targets' studied dimensions. Neither do the results support the conjecture that CBM&As from this group of countries result in a redeployment of targets' economic activity into a different location. Indeed, estimates do not show a reduction in the level of employment or intangible-asset investment. The overall lack of positive effect of ODCs' CBM&As may be due to two main reasons. First, as a consequence of institutional and cultural differences, the transfer of competitive advantages to target firms might be limited or take a longer span of time than that considered in the present study. Second, the lack of significance for ODC MNEs, which are mainly from the US, may be due to the higher opportunity cost of innovating in the target firm than in a different subsidiary of a technologically leading MNE (García-Vega et al., 2019).

For the case of ECs' CBM&As, the results obtained are in contrast to the findings from Chen (2011) and the conclusions from Sanfilippo (2015) and Pittiglio and Reganati (2019). The results do not support the view that EMNEs' FDI would result in a lower level of productivity or a redeployment of intangible assets and economic activity to their home country. In fact, for the case of wages and intangible-asset investment, the findings are aligned with Hypothesis C.

The growth in wages is probably driven by EMNEs' objective of maintaining and incorporating highly-qualified workforces in their global value chains (e.g. Carril-Caccia

and Milgram-Baleix, 2020; Child and Rodrigues, 2005; Petti et al., 2019). The positive effect on intangible-asset investment confirms the conclusions reached by Giuliani et al. (2014) for Germany and Italy; several EMNEs' subsidiaries engage in local innovative activities. Although EMNEs would not be expected to transfer technological know-how into a developed country, their objective of developing new competitive advantages and accessing strategic technologies to be globally competitive is probably the driver of investment in intangible assets (e.g. Amal et al., 2013; Moghaddam et al., 2014; Petti et al., 2019). Moreover, it is likely that the positive effect of EMNE CBM&As on targets' performance is also explained by their effort to overcome their liability of foreignness due to the low institutional reputation of their home country government (D'Amelio et al., 2016; Gold et al., 2017), and by their capacity to provide complementary capabilities to the target firm (Bertrand and Betschinger, 2012; Lebedev et al., 2014; Williamson and Wan, 2018). Nevertheless, the positive effects on targets' performance takes longer in the case of EC than EUR MNEs, and this is probably due to the higher transaction costs faced by the first. Accordingly, we cannot discard the possibility that if a longer post-CBM&As period were analysed, EMNE investment would eventually have a positive effect on targets' TFP.

Chart 2: Empirical results summary



Note: Author's own design. This chart summarizes the main empirical results reported in Tables 5-8, and links them with the hypotheses discussed in Section II.

6. Concluding remarks

This paper contributes to the literature that analyses the effects of CBM&As and considers the implications of EMNEs OFDI. The study gives strong support to the hypothesis that the impact of CBM&As depends on the home country of the investing MNE. Our analysis also assesses the impact of CBM&As from EMNEs on targets from a European country (France). Furthermore, in terms of data, the present article uses an innovative method of measuring FDI by mixing different sources with ORBIS. This approach attempts to identify the real nationality of investment and includes the indirect acquisition of subsidiaries in the analysis.

The results highlight that investors should not be considered as homogeneous. The evidence obtained does not support the view that the superiority of developed countries' MNEs, in terms of productivity, necessarily entails better post-CBM&A performance. In fact, CBM&As from ODC, and particularly from the US, appear not to affect targets' TFP, employment, wages or investment in intangible assets. However, the study shows that CBM&As from EUR investors improve targets' TFP, wages and intangible-asset investment. Thus, for the case of CBM&As from advanced economies, the results emphasize that institutional and cultural similarities boost post-CBM&A performance.

Moreover, the results also show that CBM&As from EC seem to increase wages and investment in intangible assets. Accordingly, the findings support the hypothesis that EMNEs' effort to overcome their liability of foreignness, the opportunity to combine complementary assets and the quest to tap into the knowledge and technologies available in developed countries all benefit target firms.

6.1. Limitations and future research

The present study has several limitations and opens the way to future avenues of research. First, it would be desirable to consider other European countries; France is one of the most important economies in the EU and among the main recipients of CBM&As, but the results obtained and our conclusions might not be applicable to other member states.

Second, data limitations do not allow us to go further than 3 years after the CBM&A took place. This is a relevant limitation, since the positive (or negative) implications of CBM&As may take more years to manifest fully. For instance, the results obtained suggest that EMNEs' CBM&As increase intangible-asset investments, which in the long run might also positively affect productivity. Moreover, as EMNEs' OFDI continues to grow, future studies will be able to consider a larger number of CBM&As than the one considered in the present study.

Third, in terms of employment and wages, the insight given in the present paper is limited. CBM&As can bring a change in the composition of labour and differently affect wages depending on the labour skill (e.g. Huttunen, 2007; Lehto and Böckerman, 2008). More detailed firm-level labour data would allow better exploration of this hypothesis, which would represent a valuable contribution to the literature that focuses on the effects of EMNEs' OFDI in developed nations.

6.2. Implications for practice

This study shows that CBM&As within European MNEs result in an improvement in targets' productivity, wages and investment in intangible assets. From this perspective, it would be desirable to continue the European integration process that reduces MNEs' transaction costs and facilitates the transfer of knowledge across borders. This is particularly relevant in the ongoing debate on the implications of the EU project and its enlargement or disintegration (i.e. Brexit).

Furthermore, the present paper provides new evidence on the implications of EMNEs' CBM&As. China is a paradigmatic case of the relevance and challenges posed by the rise of EMNEs. While China is nowadays one of the world's top investors, several host countries have raised concerns in terms of security and loss of technological know-how or sovereignty. The evidence obtained here does not support these fears but suggests the opposite: EMNEs' CBM&As seem to have a positive effect on targets' wages and investment in intangible assets. Thus, provided these findings are supported by future analyses on different countries, European countries should seek to develop solid bilateral legal frameworks which eases FDI from ECs while protecting the property of sensitive technologies.

Table 1: Origin of M&As

EUR		ODC		EC	
Great Britain	33	United States	47	India	4
Germany	21	Japan	14	South Korea	4
Italy	19	Australia	2	China	3
Belgium	18	Canada	2	Algeria	1
Spain	10	Israel	1	Turkey	1
Netherlands	9				
Sweden	7				
Poland	5				
Norway	3				
Austria	2				
Denmark	2				
Finland	1				
Greece	1				
Total	**131**		**66**		**13**

Note: Author's own elaboration.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	94,020	25.12	15.53	1	117
Age^2	94,020	872.26	1042.25	1	13689
$Size$	92,830	0.90	0.82	0	3
$CapLab$	92,806	4.52	0.76	1.44	8.61
$Liquidity$	93,982	0.25	0.27	-1.66	1.10
$ExpInt$	93,877	0.10	0.19	0	1
TFP	92,783	2.20	0.40	-3.72	4.50
$Employ$	92,830	2.90	1.39	0	10.81
$Wage$	92,183	3.68	0.32	1.96	5.11
$Intagible$	93,987	2.91	2.37	0	13.58

Note: Author's own elaboration. Employ, Wage, Intangible, CapLab and TFP are in logarithms.

Table 3: Binomial selection model

	(1)
	MA
Age_{it}	0.003
	(0.02)
Age_{it}^2	-0.000
	(0.00)
$Size_{it-1}^2$	1.070***
	(0.12)
$CapLab_{it-1}$	0.478***
	(0.12)
$Liquidity_{it-1}$	-0.515
	(0.32)
$ExpInt_{it-1}$	1.818***
	(0.28)
TFP_{it-1}	-0.375
	(0.37)
TFP_{it-2}	0.204
	(0.38)
Constant	-8.230***
	(1.51)
Observations	8559
Pseudo R2	0.243

Standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 4: Balance test and bias reduction

Variable	Unmatched (U) Matched (M)	Mean Treated	Mean Control	% Bias	% Bias redution	t-test t	t-test p>t
Age_{it}	U	27.581	23.495	26.5		3.81	0.000
	M	27.581	27.919	-2.2	91.7	-0.22	0.826
Age_{it}^2	U	999.64	787.5	21.2		3.06	0.002
	M	999.64	1035	-3.5	83.4	-0.33	0.744
$Size_{it-1}$	U	1.8381	0.83327	133.3		17.95	0.000
	M	1.8381	1.8286	1.3	99.1	0.12	0.901
$CapLab_{it-1}$	U	4.9442	4.475	65.1		8.89	0.000
	M	4.9442	4.8772	9.3	85.7	1.01	0.315
$Liquidity_{it-1}$	U	0.22991	0.23853	-3.2		-0.45	0.652
	M	0.22991	0.24435	-5.3	-67.4	-0.59	0.553
$ExpInt_{it-1}$	U	0.31914	0.08906	93.5		17.59	0.000
	M	0.31914	0.32115	-0.8	99.1	-0.07	0.945
TFP_{it-1}	U	2.4213	2.1958	54.8		8.38	0.000
	M	2.4213	2.4304	-2.2	96	-0.22	0.829
TFP_{it-2}	U	2.4237	2.195	59.1		8.46	0.000
	M	2.4237	2.4602	-9.4	84.1	-0.93	0.355
	Ps R2	**LR chi2**	**P>chi2**				
U	0.196	386.08	0.000				
M	0.007	3.82	0.873				

Note: Based on author's own calculations using PSMATCH2 Stata module.

Table 5: Impact on TFP

t	All sample	EUR	ODC	EC	No. Obs
	(1)	(2)	(3)	(4)	
0	-0.021	-0.024	-0.016	-0.009	804
	(0.03)	(0.03)	(0.06)	(0.10)	
1	0.011	-0.004	0.030	0.054	800
	(0.03)	(0.04)	(0.06)	(0.09)	
2	0.023	0.031	0.018	-0.035	791
	(0.03)	(0.03)	(0.06)	(0.10)	
3	0.073**	0.081**	0.091	-0.101	737
	(0.04)	(0.04)	(0.07)	(0.11)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 6: Impact on employment

t	All sample	EUR	ODC	EC	No. Obs
0	0.001	0.007	0.005	-0.087	804
	(0.03)	(0.03)	(0.05)	(0.08)	
1	-0.019	-0.011	-0.016	-0.075	800
	(0.04)	(0.04)	(0.08)	(0.08)	
2	-0.058	-0.045	-0.069	-0.036	791
	(0.05)	(0.05)	(0.08)	(0.12)	
3	-0.020	-0.004	-0.022	-0.159	737
	(0.07)	(0.07)	(0.10)	(0.19)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 7: Impact on wages

t	All sample	EUR	ODC	EC	No. Obs
0	-0.011	-0.026	-0.003	0.104	804
	(0.03)	(0.03)	(0.07)	(0.16)	
1	0.043	0.015	0.067	0.212	800
	(0.03)	(0.03)	(0.06)	(0.14)	
2	0.072**	0.064**	0.056	0.222*	790
	(0.03)	(0.03)	(0.06)	(0.13)	
3	0.094***	0.093***	0.084	0.165	737
	(0.03)	(0.03)	(0.05)	(0.14)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 8: Impact on intangible assets

t	All sample	EUR	ODC	EC	No. Obs
0	0.186*	0.255**	0.146	-0.342	806
	(0.11)	(0.12)	(0.21)	(0.49)	
1	0.352**	0.364**	0.337	0.317	803
	(0.14)	(0.14)	(0.26)	(0.60)	
2	0.296*	0.252	0.200	1.230**	797
	(0.17)	(0.17)	(0.31)	(0.60)	
3	0.297	0.204	0.298	1.116*	750
	(0.21)	(0.21)	(0.39)	(0.63)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

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Online appendix from the article "Does the origin matter? The effects of cross-border mergers and acquisitions in France"

Robustness analysis

Matched firms belong to the same industry as the treated firm, but do not belong to the same region.

Table A: Impact on TFP

t	All sample	EUR	ODC	LDC	No. Obs
0	-0.018	-0.022	-0.012	-0.006	798
	(0.03)	(0.03)	(0.06)	(0.10)	
1	0.024	0.007	0.045	0.083	792
	(0.03)	(0.04)	(0.06)	(0.09)	
2	0.033	0.037	0.030	0.005	786
	(0.03)	(0.03)	(0.06)	(0.11)	
3	0.063*	0.069*	0.078	-0.087	739
	(0.04)	(0.04)	(0.04)	(0.11)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table B: Impact on employment

t	All sample	EUR	ODC	EC	No. Obs
0	0.012	0.016	0.027	-0.132*	798
	(0.03)	(0.03)	(0.05)	(0.07)	
1	-0.001	0.002	-0.008	-0.094	792
	(0.04)	(0.04)	(0.07)	(0.07)	
2	-0.022	-0.020	-0.017	0.008	786
	(0.04)	(0.04)	(0.07)	(0.12)	
3	-0.045	-0.027	-0.052	-0.164	739
	(0.06)	(0.06)	(0.10)	(0.19)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table C: Impact on wages

t	All sample	EUR	ODC	EC	No. Obs
0	0.000	-0.014	0.012	0.088	798
	(0.02)	(0.03)	(0.07)	(0.16)	
1	0.047*	0.017	0.077	0.194	791
	(0.03)	(0.03)	(0.06)	(0.14)	
2	0.055**	0.048**	0.042	0.196	785
	(0.03)	(0.02)	(0.06)	(0.13)	
3	0.090***	0.088***	0.084	0.148	738
	(0.03)	(0.03)	(0.05)	(0.15)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table D: Impact on intangible assets

t	All sample	EUR	ODC	EC	No. Obs
0	0.257**	0.331**	0.238	-0.418	799
	(0.12)	(0.13)	(0.21)	(0.50)	
1	0.348**	0.353**	0.319	0.445	795
	(0.15)	(0.15)	(0.27)	(0.62)	
2	0.406**	0.341*	0.333	1.454**	792
	(0.18)	(0.18)	(0.32)	(0.61)	
3	0.360*	0.299	0.276	1.283**	752
	(0.21)	(0.22)	(0.39)	(0.65)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

PSM and difference-in-differences analysis separately for each pair of groups of firms (EUR-Domestic, ODC-Domestic and EC-Domestic).

Impact of CBM&As over productivity by calculating TFP, as in Levinsohn and Petrin (2003) without the Ackerberg et al. (2015) correction (LevPet) and the OLS residual (OLS). Furthermore, we employ the value added per employee (VAemp).

Table X: CBM&As effect on different measures of productivity

Productivity measure	All sample				EUR				ODC				LDC			
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
LevPet	-0.020	0.014	0.032	0.071**	-0.025	-0.002	0.039	0.080**	-0.015	0.032	0.025	0 .084	0.008	0.073	-0.016	-0.072
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.06)	(0.06)	(0.06)	(0.06)	(0.10)	(0.09)	(0.10)	(0.10)
OLS	-0.020	0.014	0,032	0.072**	-0,025	-0.002	0.038	0.080**	-0.016	0.032	0.026	0.084	0.008	0.073	-0.016	-0.073
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.06)	(0.06)	(0.06)	(0.06)	(0.10)	(0.09)	(0.10)	(0.10)
VAemp	-0.003	0.007	0.012	0.015*	-0,004	0.003	0.013	0.019*	-0.003	0.012	0.007	0.010	0.004	0.022	0.015	-0.007
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)

Different country classification

Table 9: Robustness analysis, TFP

t	All sample	EU	ODC	US	EC	No. Obs
0	-0.018	-0.027	0.076	-0.053	-0.011	804
	(0.03)	(0.03)	(0.12)	(0.06)	(0.10)	
1	0.024	-0.001	0.069	0.001	0.053	800
	(0.03)	(0.04)	(0.13)	(0.06)	(0.09)	
2	0.033	0.033	0.099	-0.025	-0.036	791
	(0.03)	(0.03)	(0.14)	(0.06)	(0.10)	
3	0.063*	0.085**	0.067	0.090	-0.101	739
	(0.04)	(0.04)	(0.13)	(0.07)	(0.11)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 10: Robustness analysis, employment

t	All sample	EU	ODC	US	EC	No. Obs
0	0.012	0.008	-0.039	0.025	-0.086	804
	(0.03)	(0.04)	(0.05)	(0.06)	(0.08)	
1	-0.001	-0.010	-0.051	-0.002	-0.075	800
	(0.04)	(0.04)	(0.08)	(0.10)	(0.08)	
2	-0.022	-0.037	-0.113	-0.070	-0.036	791
	(0.04)	(0.05)	(0.10)	(0.10)	(0.12)	
3	-0.045	-0.001	-0.121	0.007	-0.158	739
	(0.06)	(0.08)	(0.17)	(0.12)	(0.19)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

Table 11: Robustness analysis, wages

t	All sample	EU	ODC	US	EC	No. Obs
0	0.000	-0.029	0.108	-0.049	0.100	804
	(0.02)	(0.03)	(0.11)	(0.08)	(0.16)	
1	0.047*	0.013	0.143	0.033	0.211	800
	(0.03)	(0.03)	(0.12)	(0.06)	(0.14)	
2	0.055**	0.065**	0.109	0.029	0.221*	790
	(0.03)	(0.03)	(0.13)	(0.06)	(0.13)	
3	0.090***	0.091***	0.178	0.046	0.164	737
	(0.03)	(0.03)	(0.11)	(0.05)	(0.14)	

Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$ç

Table 12: Robustness analysis, intangible assets

t	All sample	EU	ODC	US	EC	No. Obs
0	0.257**	0.259**	-0.138	0.282	-0.343	806
	(0.12)	(0.12)	(0.16)	(0.28)	(0.49)	
1	0.348**	0.350**	0.190	0.448	0.318	803
	(0.15)	(0.14)	(0.29)	(0.34)	(0.60)	
2	0.406**	0.244	0.343	0.163	1.226**	797
	(0.18)	(0.17)	(0.38)	(0.39)	(0.60)	
3	0.360*	0.190	0.919*	0.030	1.107*	750
	(0.21)	(0.22)	(0.55)	(0.47)	(0.63)	

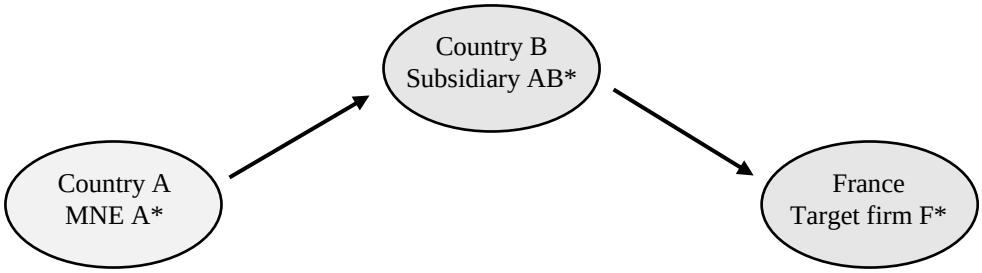
Note: Author's own calculations by estimating equations (3) and (4). Where 0 is the year of acquisition.
Robust standard errors in parentheses
$^{*}p< 0.10$, $^{**}p< 0.05$, $^{***}p< 0.01$

FDI database

The firm-level FDI database used in this article is mostly based on data retrieved from Orbis. In line with the definition of FDI (IMF, 2009), foreign firms in Orbis are identified by the presence of foreign shareholders with at least 10% of ownership. This is done by considering both direct shareholders and the ultimate owner. Once the foreign firms have been identified, we mainly rely on the ownership history available in Orbis to identify the year and mode of investment (i.e. greenfield investment versus M&A).

In addition, by identifying the nationality of the direct shareholder and the ultimate owner, we can detect whether investments transit through third countries. As illustrated in Diagram 1, the use of transit countries implies that investments reach the ultimate destination through a different country than the one in which the investing MNE is headquartered. Following the example from Diagram 1, while the direct shareholder after acquisition of target firm F* would be from country B (subsidiary AB*), the nationality of the MNE (the global ultimate owner, MNE A*) is country A.

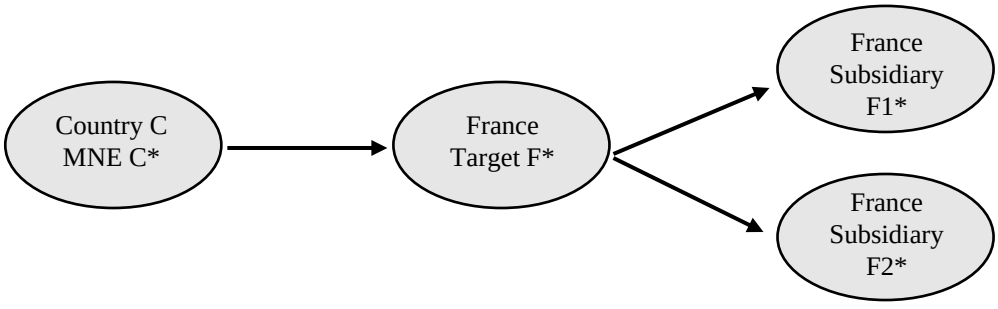
Diagram 1: Use of transit countries



Note: Author's own design.

Moreover, the information about shareholders and ultimate owners also allows us to identify those subsidiaries that are acquired indirectly through an M&A project. Diagram 2 illustrates an example. MNE C* acquires firm F* which at the same time owns F1* and F2*. An example of this type of M&A in France is the acquisition of EFD Induction by the Norwegian Arendals Fossekompani in the year 2008. It involved Arendals Fossekompani coming to own 2 subsidiaries in 2 different French regions. The indirect acquisition of firms may also take place when M&As realised in a third country modify the nationality of the owner of a firm based in the country under analysis. For instance, the acquisition of Trefinos from Spain by the Portuguese Amorimin 2012 also involved the indirect change of ownership of the firm named Bouchons à Champagne Sagrera from France.

Diagram 2: Indirect acquisitions of subsidiaries



Note: Author's own design.

The correct identification of capital flows entering through transit countries and indirect acquisition of firms is a relevant feature of the database. Not accounting for these dimensions would result in an erroneous classification of the foreign acquirer's nationality and the exclusion from the analysis of firms that are acquired by foreign investors.

In order to identify an M&A, we look into each firm's report from Orbis. The report provides the ownership history of the firm (i.e. for how long a shareholder owned a firm). We also check if there is any M&A registered in the Zephyr database. If there is an M&A identified by Zephyr, we use this information; if not, we use the shareholders' ownership history. In the latter case, an M&A is recorded in the year in which there is a change of shareholders. If none of these sources of information – Zephyr or the shareholders ownership history – provides accurate information on the nature of the acquisition, we use information from Thomson Reuters. If the acquisition project is not available in Thomson Reuters, we search for news and the investor and target companies' websites. Then, to identify the indirect acquisition of subsidiaries, we check whether the acquired firm owned other subsidiaries in the French manufacturing sector before the year of acquisition.

The identification of greenfield investment is mainly based on the ownership history available in Orbis for each firm. If the ownership history starts in the same year as the one in which the firm was created with a foreign shareholder, a greenfield investment is recorded. In addition, if the first two years of the ownership history are missing and the remaining years are available with a foreign owner, and no evidence of the contrary is found in the companies' website, we also classify the operation as the fruit of a greenfield investment. In case the gap between the creation of the firm and the beginning of the ownership history in Orbis is larger than two years, we complete the information searching in news and the companies' websites.

During the period 2005-2014, the described strategy allows us to identify 889 changes of ownership due to M&As and 247 greenfield investments. We compare our database with the population of foreign firms in the French manufacturing sector according to the OECD databases Activities of Foreign Affiliates (AFA) and Activity of Multinational Enterprises (AMNE)[11]. On average the database records 59% of the firms identified by the OECD database. This level of representativeness is quite high considering that: (1) the database only relies on firms that are active during the whole period; (2) the database does not collect the acquisition of foreign firms by French domestic firms; and (3) the

[11]Due to data availability, AFA is used for the period 2005-2007 and AMNE for the period 2008-2014.

sample is restricted to firms with key information (financial variables value added, exports, sales, material costs and number of employees) available for at least one year.

IMF (International Monetary Fund). (2009). Balance of Payments and International Investment Position Manual, Sixth Edition (BPM6). Washington, D.C, International Monetary Fund.