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ABSTRACT

We examine whether *ex post* domestic productivity gains accrue to firms making cross-border acquisitions. We argue that cross-border acquisitions can enhance the acquirers' productivity at home, and we posit that these domestic productivity gains will be greater when there are learning opportunities in the target's host country and when contemporaneous domestic productivity-enhancing investments are made by the acquirer in conjunction with the acquisition. These predictions are supported by data drawn from a sample of French acquiring and non-acquiring firms. Our results indicate that cross-border acquisitions and investing in productivity at home are complementary: each makes the other more beneficial to firm productivity.

INTRODUCTION

The discovery of large, ubiquitous, and persistent productivity differences across firms has shaped the agenda of several research fields seeking to identify the factors affecting productivity—in particular, the 'levers' that managers can use to increase the productivity of their business (for a review, see Syverson, 2011). Among those levers is improved access to foreign markets, which has been touted as a major mechanism by which firms can increase in size and also access new knowledge and resources, making them stronger and more productive in their home market (Schmookler, 1954). For instance, exporting has been shown to be associated with increased innovation (Salomon and Shaver, 2005), and higher domestic productivity has been attributed to the decision to export and invest contemporaneously (Lileeva and Trefler, 2010).

Yet when it comes to cross-border acquisitions, we know little about the productivity benefits for the acquiring firm in its home market. Most studies focus on how cross-border acquisitions affect the host country through changes in the foreign target's productivity (Conyon *et al.*, 2002; Guadalupe, Kuzmina, and Thomas, 2012) or changes in the host country's innovation (Bertrand and Zuniga, 2006). Related international business perspectives—such as reverse internalization (Kogut and Chang, 1991; Almeida, 1996; Anand and Kogut, 1997; Anand and Delios, 2002), national innovation systems (e.g., Nelson, 1993), and regional agglomeration (Alcacer and Chung, 2002; Stuart and Sorenson, 2003)—emphasize the value of becoming larger or gaining access to different capabilities across multiple countries through foreign direct investment, notably acquisitions (Seth, Song, and Pettit, 2002), but without measuring the effects of these factors on the investing firm's domestic productivity.

The relationship between multinationality and performance is complex (Li, 2007; Verbeke and Brugman, 2009; Hennart, 2011; Wiersema and Bowen, 2011). Empirical studies

have produced diverging results (for a review, see Contractor, 2012). Access to foreign markets can yield benefits; however, they cannot be reaped without incurring costs associated with increased complexity, coordination needs, and resource trade-offs (Levinthal and Wu, 2010; Rawley, 2010; Zhou, 2011) in addition to the cost of 'the liability of foreignness' (Kostava and Zaheer, 1999; Zahra, Neubaum, and Huse, 2000).

In order for productivity benefits to outweigh the costs of foreign expansion, firms should engage in cross-border acquisitions in contexts in which they can derive the most benefits. We focus on two specific mechanisms through which cross-border acquisitions enhance the acquirer's productivity in its home market: access to (and transfer of) new knowledge in the host country, and contemporaneous investments in *domestic* productivity-enhancing activities. The latter mechanism reflects that learning benefits do not occur freely and instead require substantial and purposeful effort.

We investigate whether *ex post* domestic benefits accrue to firms that acquire foreign targets by examining domestic productivity outcomes. We posit that, on average, cross-border acquisitions increase the domestic productivity of acquiring (as compared with non-acquiring) firms. We expect that the domestic productivity gains accruing to acquirers to be greater in the presence of (i) learning opportunities in the target's host country and (ii) contemporaneous domestic productivity-enhancing investments made by the acquirer in conjunction with the acquisition process.

To test our hypotheses, we build a sample of French firms that had acquired foreign targets and other French firms that had not made any acquisitions abroad (the latter are referred to as 'non-acquiring firms').[1] The acquisitions occurred from 1993 through 2001, a

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[1] Note that our key objective is to understand how the access to foreign markets (through acquisitions) affects the acquiring firm's productivity in its home market as compared with firms that have not made such cross-border acquisitions. So by 'Non-acquiring firms' we refer to domestic firms that have not made any acquisitions abroad. Such firms might have made domestic acquisitions or—as in the case of most of this group's sample firms—grown organically. We focus on the underlying mechanisms for generating domestic productivity gains in terms of 'learning' arguments; these involve, in particular, learning from exposure to the different

period that encompasses the entire 'fifth wave' of mergers and acquisitions (M&As) and was characterized by a surge in cross-border acquisitions. According to the United Nations (UNCTAD, 2000), cross-border acquisitions accounted for more than a quarter—in both number and value—of total M&A deals during this period and for nearly 80 percent of foreign direct investment (FDI). France was the third most active acquirer in the international market for corporate control in this period (after the United States and the United Kingdom; Brakman, Garretsen, and Van Marrewijk, 2006). We use firm-level data, compiled for the French Ministry of Industry's annual survey, to compare the productivity of acquiring and non-acquiring firms in our sample for the period 1993–2004.

Firms that made cross-border acquisitions were found to have higher domestic productivity (following an acquisition) than did non-acquiring firms. As predicted, productivity gains were greater for targets from more competitive countries—that is, from countries where learning opportunities are higher—and are (positively) moderated by the extent to which the acquiring firms invested contemporaneously in new domestic capital goods. These effects were mutually reinforcing. Our results thus suggest that cross-border acquisitions and investing in home productivity are complementary: each makes the other more beneficial to firm productivity. Another finding is that firms from more competitive domestic industries and with greater internal resources were more likely to make cross-border acquisitions.

Our study contributes to the corporate strategy literature by showing how cross-border acquisitions can be a lever for productivity and also by indicating that a firm's acquisition activities must be considered in conjunction with its internal investments. We contribute to

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technological, managerial, and organizational capabilities that reside in a foreign firm and/or are features of the ecosystem within which the target firm is embedded. Comparing firms that have acquired abroad with firms that have not acquired abroad gives us a fairly robust benchmark by which to assess the learning benefits for firms that have (versus those that have not) accessed foreign resources and knowledge. Such international acquirers compete with non-acquiring firms also in the domestic market. Comparing the productivity gains of firms that acquire foreign firms with their domestic but non-acquiring peers gives us a better understanding of how cross-border acquisitions help firms become more competitive in their home market.

the international business (IB) literature by examining the conditions under which access to foreign markets through cross-border acquisitions enables firms to enhance their domestic productivity. Finally, our decision to use labor productivity as the dependent variable is a valuable contribution from the methodological standpoint. Productivity has become a key measure for strategy scholars seeking to understand how a firm's resources create value through its operational and organizational efficiency (Lieberman and Dhawan, 2005; Rawley, 2010; Siegel and Simons, 2010) beyond the sole consideration of maximizing shareholder wealth (Lieberman and Dhawan, 2005; Lieberman and Kang, 2008). In our study, changes in the acquirer's domestic productivity are used to capture the direct operational consequences of acquisitions on the firm's domestic activities; a change in productivity is preferred to more consolidated indicators, such as a change in share price or accounting profits, which could also (and confoundingly) reflect 'value capture' benefits due to financial leverage or fiscal advantages.

The rest of this paper is structured as follows. We start by presenting the study's background and advancing our hypotheses. We then describe our data and methods before reporting our empirical results and explaining supplementary robustness checks and empirical investigations. Finally, we discuss our findings as well as the contributions and limitations of the study.

THEORETICAL BACKGROUND

In this section, we first examine how the access to foreign markets through acquisitions affects the acquiring firm's productivity in its home market as compared with domestic firms that have not made such cross-border acquisitions. We then focus on the two underlying mechanisms reinforcing those domestic productivity gains: learning opportunities and contemporaneous domestic investments.

Enhancing domestic productivity via cross-border acquisitions

Cross-border expansion enables firms to access new knowledge from foreign sources and to then transfer that learning back home (Contractor *et al.*, 2010). Scholars in strategic management argue that firms must venture beyond their own boundaries in order to enter new resource domains (Stuart and Podolny, 1996; Rosenkopf and Nerkar, 2001; Lee and Lieberman, 2010) and as a means of complementing their internal resources (Villalonga and McGahan, 2005; Cassiman and Veugelers, 2006; Oxley and Wada, 2009). External search is commonly equated with more distant search: it helps resource-seeking firms overcome the internal resource and social constraints associated with localized internal search (Helfat and Lieberman, 2002; Menon and Pfeffer, 2003; Capron and Mitchell, 2009; 2012). More specifically, M&A research has shown that acquirers often seek targets with resources that compensate for their own resource deficiencies and that can be redeployed. Karim and Mitchell (2000) found that acquirers were more likely than non-acquirers to possess capabilities that had only recently been developed in the industry.

In parallel, IB scholars have stressed the value of gaining access to resources across multiple geographic settings (Salomon and Shaver, 2005). Firms have a tendency to seek new resources and develop external sourcing relationships in proximity to their local environment, which constrains the firm's ability to expand its resource base. External relationships built over time with partners embedded in the same geographical region may prove to be self-reinforcing and harder to change (Rangan, 2000; Rosenkopf and Almeida, 2003). Foreign direct investment helps overcome the constraints associated with geographically bounded search (Almeida, 1996; Anand and Kogut, 1997; Alcacer and Chung, 2002). Because the firm's capacity to learn about and evaluate resources in a given location declines with geographic distance from that location, cross-border acquisitions are viewed as a means to access resources from distant markets—resources that are often embedded in local

knowledge clusters (Contractor, 2012)—while acquiring the context-specific skills necessary to absorb the attendant new capabilities (Anand and Delios, 2002).

By enabling access to a larger international market, cross-border acquisitions also provide the opportunity to exploit productivity gains through scale economies not only in manufacturing but also in research and development (R&D), sales, and administration. It could be argued that scale economies can be achieved domestically, but doing so is more difficult for firms in smaller home nations—especially those in manufacturing industries (Contractor, 2012). Furthermore, cross-border acquisitions provide opportunities for *institutional arbitrage*. This term is commonly used in the international business literature with reference to the practice of arranging activities in different national contexts so as to benefit from differences in legal and regulatory systems (Kogut, 1983; Chacar, Newburry, and Vissa, 2010). In the context of cross-border acquisitions, one could consider gains from the institutional arbitrage opportunities associated with tax and legal optimization. Thus the acquiring firm can capture value (e.g., tax optimization) or create value simply by restructuring assets and redeploying resources after the acquisition (Capron and Guillén, 2009).

Moreover, scholars in economics have explored how exposure to foreign markets is related to producers' choices and productivity dispersion. Plant-level exporting has received a good deal of attention, driven in part by the strong relationship established between exporting and productivity (see Bernard and Jensen, 1995). In addition to the learning argument, it has been suggested that exporting may allow firms to operate on a more efficient scale and thereby bring down their average cost curves. Overall, this stream of research suggests that exposure to foreign markets leads to better choices by producers at the micro level (Bartelsman and Doms, 2000).

It may be that these learning and efficiency benefits could be equally well captured by so-called greenfield FDI—although addressing that possibility is beyond the scope of this study. Trade-theoretical explanations of entry (Head and Ries, 2008; Nocke and Yeaple, 2008), when combined with an internalization perspective (Caves, 1982), posit that firms engage in greenfield FDI to take advantage of differences in production costs or to exploit their existing resources; the result is often a duplication (or relocation) of certain production processes or complementary resources. Conversely, firms with relatively fewer home resources are more likely to invest abroad by taking control of an existing firm; doing so provides greater opportunities (than does greenfield investment) to exploit learning opportunities, resource complementarities, and size benefits (Kogut and Chang, 1991; Cassiman and Veugelers, 2006; Slangen and Hennart, 2007). These considerations lead us to propose the following hypothesis.

> *Hypothesis 1: Cross-border acquisitions enhance the productivity of acquiring firms, relative to non-acquiring firms, in their home market.*

As mentioned previously, the relationship between multinationality and performance is a complex one (Li, 2007; Verbeke and Brugman, 2009; Hennart, 2011; Wiersema and Bowen, 2011). Foreign expansion is fraught with difficulties and also increases organizational complexity, in addition to the direct costs it entails. International business scholars have postulated that, for firms that conduct business abroad, costs arise from the unfamiliarity of the environment—that is, the cultural, geographic, and institutional distance involved—and sometimes even from a perceived lack of legitimacy; thus foreignness is a liability for the investing firm. These costs of doing business put the firm at a disadvantage vis-à-vis local competitors in the host country (Hymer, 1961; Zaheer, 1995).[2] The liability of

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[2] Previous research on the liability of foreignness has focused on the performance of the investing firm in the *host* market; however, it has paid scant attention to performance implications for the investing firm in its *home* market.

foreignness increases coordination costs for the investing firm (Kostava and Zaheer, 1999; Zahra *et al.*, 2000). Forming relationships in a distant country with acquired firms or with individuals who can advise on (and/or provide) targeted resources tends to be a complicated and resource-consuming process (Bartlett and Ghoshal, 1989; Kogut and Zander, 1992; Gupta and Govindarajan, 2000).

In order for the benefits to outweigh the costs of foreign expansion, firms must engage in cross-border acquisitions in contexts in which they can derive the most benefits. We next describe in more detail our two posited mechanisms through which cross-border acquisitions strengthen the acquirer's productivity in its home market: learning opportunities and domestic investment.

Learning and competitiveness of the target's country

The first mechanism through which we expect cross-border acquisitions to strengthen the domestic productivity gains of the acquiring firms is learning through access to new knowledge and resources from the host country environment. We argue that the exploitation of learning benefits at home through foreign acquisitions depends on (a) the existence of a knowledge gap between the host market and the home market and (b) the presence of an institutional environment conducive to knowledge transfer from host market to home market. Both conditions are necessary for the generation of positive domestic productivity feedback effects.

The existence of a knowledge gap between the target and acquirer's context gives rise to learning opportunities that would not exist otherwise. Here learning encompasses access not only to new R&D capabilities but also to diverse functional skills (e.g., marketing, commercial, R&D), organizational processes, and managerial best practices as well as learning from competitive interactions and from the ecosystem in which the foreign target is embedded (Salomon and Shaver, 2005; Salomon and Jin, 2010). For instance, Salomon and

Jin have suggested that interacting and competing in a foreign market exposes the exporting firm to knowledge that is unavailable to firms whose operations are confined to the domestic market; they have also proposed that different types of knowledge can be enhanced by interacting with local suppliers, buyers, competitors, trade associations, and/or the local labor market. Beyond exporting, recent research has emphasized the role of suppliers (Pisano and Shih, 2009; Alcacer and Oxley, 2012) and alliance partners (Oxley and Sampson, 2004; Oxley and Wada, 2009) as additional conduits for learning from interactions with foreign agents and for providing knowledge inputs not available to firms whose operations are purely domestic in scope (Almeida and Kogut, 1999).

In line with such thinking, foreign direct investment is seen as a stronger channel for accessing foreign knowledge. Having a presence in the host market *per se* aids the transfer of knowledge because the most valuable knowledge is likely to be sticky or embedded in local clusters. In measuring the information flows that drive cross-border productivity convergence, Crespi *et al.* (2008) found that 'nearby' firms (such as suppliers or competitors) were primary sources of information and that having a multinational presence aided such flows. Keller and Yeaple (2009) found that FDI-driven spillovers account for a substantial portion of productivity. In the M&A literature, Capron (1999) has documented a bidirectional redeployment of resources between acquirer and foreign target firms.

The *location* of cross-border acquisition activities is therefore essential in determining the extent to which investing firms will access new learning and resources. International business scholars have outlined the role of the technological or competitive 'gap' between the targeted host country and the home country of the investing firm: there are more opportunities to benefit from knowledge and resources that do not exist in the home country

when the acquirer invests in countries that are more advanced than its own[3] (Kogut and

Chang, 1991; Cantwell and Janne, 1999). Similarly, the literature on regional agglomeration

(e.g., Alcacer and Chung, 2002; Stuart and Sorenson, 2003) has shown that foreign

investments provide investing firms with opportunities to access not only those resources

embedded in a specific target firm but also those embedded in that firm's broader

environment and ecosystem.

In economics, several studies have likewise confirmed the role of FDI location and

knowledge flow on firm productivity. Griffith *et al.* (2006) found that U.K. firms with a

greater R&D presence in the United States had higher overall productivity, where the latter

was correlated with the growth of U.S. R&D stock in the same industry. This result is

consistent with a U.S. research 'presence' that facilitates firms' tapping into the U.S.

knowledge base (Syverson, 2011).

Although the existence of a knowledge gap between the target's and the acquirer's

countries is a key predictor of learning opportunities for the acquirer, the institutional context

is also important when it comes to transferring such knowledge back home. Learning

opportunities are more likely to be capitalized upon by the acquiring firm if that context is

conducive to knowledge transfer and redeployment. Scholars who have studied the

institutional environment's influence on firm strategy argue that the more competitive

countries are associated with stronger market-supporting institutions (Henisz, 2000), which in

turn should ease the acquisition process. Empirical research on M&As has established that a

stronger institutional environment allows for more effective resource redeployment whereas a

weaker institutional environment tends to constrain post-acquisition changes (Schneper and

Guillén, 2004; Capron and Guillén, 2009). A firm must therefore dedicate more resources to

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[3] With regard to countries that are less economically and/or technologically advanced, acquiring firms have less to gain and learn but do have more opportunities to exploit their own relative advantages and/or access cheaper labor.

the acquisition process (e.g., to integration of the target firm) when the target is located in an environment that is institutionally, politically, and/or economically weak (Guillén, 2000). In the presence of institutional hazards, the acquiring firm's diversion of resources to implement proactive political strategies will have a negative effect on its productive performance (Henisz, 2000). At the same time, recent studies in economics suggest that such learning opportunities are likely greater when the local market is more competitive (Bloom *et al*., 2011; Herrerias and Orts, 2012)—that is, in our case, when acquiring a firm in a country whose local market is more competitive than the local market of the acquirer's country. Competitiveness and the incitation to innovate (in a broad sense that includes organizational innovation) are linked to the endowment, in the target's country, of market-supporting institutions.

We thus posit that acquiring a firm located in a more competitive country than the acquirer's home country will lead to more learning opportunities and also to fewer frictions (and lower risks) associated with the redeployment of such learning back home. Formally, we have our second hypothesis.[4]

> ***Hypothesis 2:*** *The domestic productivity gains resulting from cross-border acquisitions are greater when the target firm's host country is more competitive than the acquiring firm's home country.*

Contemporaneous domestic productivity-enhancing investments

We now focus on the second mechanism through which cross-border acquisitions strengthen the domestic productivity gains of acquiring firms: investments in domestic productivity-enhancing activities made in conjunction with the acquisition.

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[4] The logic leading to our second hypothesis could also be tested at the industry level, though doing so would but imperfectly account for the benefits stemming from the target's entire ecosystem (given that the acquirer's various stakeholders are not all located in the same industry). We discuss this point in the 'Supplementary Analyses' section.

Multiple studies—in particular, on the sources of economic growth (e.g., Jorgenson, 1966; Hulten, 1992) and the role of international trade as a major vehicle of knowledge diffusion across countries (e.g., Eaton and Kortum, 2001; Saggi, 2002)—have highlighted the essential role of capital goods in the diffusion and adoption of new knowledge.[5] Most technological advances are embodied in new capital goods (e.g., through the design and operating characteristics of equipment and machinery). The benefits of new technological knowledge cannot be obtained without new investment in capital goods. For instance, to make use of the latest advances in information technology and communications, firms must invest in new computers, servers, and related infrastructure (Hall, 2003). Yet the necessity of new investment in capital goods is not limited to the transfer of technology. In order to reap the benefits of new organizational and managerial practices (e.g., of adopting Japanese flexible automation practices; Pil and MacDuffie, 1996), it is often necessary to make complementary investments in equipment, machinery, buildings, and infrastructure (European Commission, 2002; Ollo-López, Bayo-Moriones, and Larraza-Kintana, 2010).

Hence we argue that, to exploit the potential learning benefits of a foreign target and its local environment, the acquiring firm may need to make contemporaneous investments in new domestic assets.[6] Without such domestic productivity-enhancing investment, acquiring firms will be less able (perhaps unable) to exploit the managerial, organizational, and/or

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[5] The technical change embodied in new capital goods has long been viewed as an important driver of economic growth (e.g., Jorgenson, 1966; Hulten, 1992). Indeed, most technological progress must be either supported by or incorporated into new and improved capital (i.e., equipment and machinery). The international trade of capital goods (e.g., computers, machine tools) has also been identified as an important contributor to technology diffusion across countries and as a primary channel through which foreign technology and knowledge can be incorporated into the domestic production function (Eaton and Kortum, 2001; Saggi, 2002).

[6] Some investments may have been made prior to the actual implementing of an anticipated acquisition. Nevertheless, we expect such pre-acquisition investments to be limited because the acquirer cannot discover all relevant knowledge (including the exact nature of the target firm and its environment) until *after* the acquisition. We remark also that investing in new capital goods specifically for the purpose of an anticipated acquisition could be damaging to the acquiring firm if the deal is not actually made. Finally, from the empirical standpoint it is worth noting that our investment variable is lagged by one year, which should help capture such anticipatory effects.

technological knowledge advantages obtained abroad (as compared with non-acquiring firms) because those advantages must be embodied in new capital goods.

The complementarity between domestic investments and access to foreign markets is a major theme of recent research in international economics (Guadalupe *et al.*, 2012)—most notably, the literature on exporting. It has been established that exporting firms contemporaneously invest in productivity-enhancing technologies (Verhoogen, 2008; Atkeson and Burstein, 2010; Lileeva and Trefler, 2010; Aw, Roberts, and Xu, 2011; Bustos 2011) such as process innovation (Gualalupe *et al.*, 2012). In their study of Canadian manufacturing plants, Lileeva and Trefler found that new exporters who gained in productivity did so by purposefully investing in innovation. This suggests that learning from foreign markets requires substantial and deliberate effort, including investment in domestic productivity-enhancing activities. These authors also emphasized the complementarity of export decisions and productivity investment: engaging in one increases returns from the other. When a firm does not export, productivity gains from its investments increase profits on its domestic sales only; in contrast, an exporting firm will reap higher returns (from those investments) on domestic and foreign sales alike.

Along these lines, we posit that acquiring firms see a greater increase in productivity (as compared with non-acquiring firms) for a higher level than for a lower level of domestic productivity-enhancing investments. In other words, the productivity gap between acquirers and non-acquirers is increasing in the level of domestic productivity-enhancing investment. Given that the effects of cross-border acquisitions on domestic productivity are thus moderated by contemporaneous domestic productivity-enhancing investments, we propose our next hypothesis as follows.

Hypothesis 3: Contemporaneous domestic productivity-enhancing investments positively moderate the relationship between a firm's cross-border acquisition strategy and its productivity in the home market.

Furthermore, we predict that this positive moderating effect will be stronger for target firms located in a host market that is more competitive than their acquirer's home market: there will be more to learn and the level of technological and managerial knowledge transferred to the home country will be more sophisticated. Furthermore, knowledge transfers will be easier and less costly. There will therefore be a greater imperative for such knowledge to be incorporated into new capital goods. We accordingly have our final hypothesis.

Hypothesis 4: The positive moderating effect of contemporaneous domestic productivity-enhancing investments is stronger when the target firm's host country is more competitive than the acquiring firm's home country.

DATA AND METHODS

Sample

Our initial data sample includes acquiring and non-acquiring companies located in France, where acquisitions occurred during the period 1993–2001. We study the impact of these foreign acquisitions by comparing the productivity of acquiring and non-acquiring firms in our sample for the period 1993–2004.

The period of acquisitions that we study corresponds to the fifth wave of M&As, which was characterized by a large number of cross-border acquisitions—accounting for more than 25 percent (in number *and* value) of all M&A deals and for 80 percent of FDI (UNCTAD, 2000). During this phase, France was especially active in the international market for corporate control; in terms of M&A deal value, it was the third largest acquiring country (Brakman *et al.*, 2006).

We built our sample using the Thomson One Banker – Deals database, which covers all M&A transactions valued at \$1 million (USD) or more. Then we identified French firms that acquired one or several target firms abroad; we included only majority acquisitions to ensure that the acquirer could subsequently influence the target firm's strategic decisions (note that mergers were excluded from our sample). We then collected firm-level survey data, for both acquiring and non-acquiring firms, from the annual EAE (Enquête Annuelle d'Entreprises) survey conducted by the SESSI (Service des Études et des Statistiques Industrielles) unit of the French Ministry of Industry. Data are available from 1990 through 2004. This survey compiles information on the balance sheet and income statement of every firm located in France in the manufacturing, retailing, or services sector. These accounting data are not consolidated and reflect only domestic business activity in France.[7]

From the initial sample we removed all sectors (defined at a 4-digit level) for which no acquisitions were detected. We also removed small acquiring firms—that is, those with less than €10 million in annual turnover (following the EU-adopted definition)—because all the acquirers in our data set are medium- or large-sized firms. We included only those acquisitions with regard to which the EAE database reported exhaustive information for at least three years before (so that we could lag our explanatory variables) and after the acquisition date; this procedure yielded a sufficient span of time for observing post-acquisition changes in the acquiring firm's performance.

Our final sample included 183 cross-border acquisitions (of which more than half are 'horizontal'). In total, 96 companies acquired only one such target firm and 36 companies acquired more than one.[8] The number of acquiring firms is 99, 8, and 25 in (respectively) the

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[7] Although consolidated data are not available, using unconsolidated data is actually an advantage for our research purpose because we focus on changes in the productivity of *acquirers* in their *home* market. Unconsolidated data makes it easier to separate acquiring firm effects from target firm effects and to distinguish effects between firms from different countries (like in the case of international acquisitions).

[8] The majority (103, or about 56%) of target firms were privately held at the time of the transaction. Most others were subsidiary firms, but there were also a few public and state-owned targets.

manufacturing, retailing, and services industries. Most of the target firms are located in developed countries, with a dominant share in the United States, Germany, the United Kingdom, Italy, and Belgium.[9]

Measures

Our main dependent variable is firm-level labor productivity, a commonly used productivity metric (Hill and Snell, 1989) that measures the internal efficiency with which an organization transforms inputs into outputs (MacDuffie, Sethuraman, and Fisher, 1996). Recent research in management has paid more attention to productivity as an indicator of firm performance (see, e.g., Rawley, 2010; Siegel and Simons, 2010). Such productivity has been used as a measure of competitiveness (Causa and Cohen, 2004), sustained competitive advantage (Lieberman and Dhawan, 2005), and general resource efficiency (Koch and McGrath, 1996; Konrad and Mangel, 2000; Datta, Guthrie, and Wright, 2005). It more directly represents the operational consequences of an acquisition than do such relatively more consolidated measures as share price and accounting profits, which also reflect 'value capture' benefits arising from financial policy and tax advantages (Lieberman and Dhawan 2005; Siegel and Simons, 2010).

In this study's context, productivity enables us to isolate changes in resource and organizational efficiency—given that acquisitions may also be driven by financial or fiscal motives. Furthermore, productivity reflects the full value created within the firm; it is not focused solely on maximizing shareholder wealth. The value so created is then distributed

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[9] French firms invested in the following countries (the number of deals is indicated in parentheses): United States (27), Germany (26), United Kingdom (24), Italy (21), Belgium (19), Spain (9), Switzerland (6), Brazil (5), Sweden (5), Finland (4), Netherlands (4), Argentina (3), Austria (3), Czech Republic (3), Poland (3), South Korea (3), Australia (2), Denmark (2), Hong Kong (2), South Africa (2), Venezuela (2), Colombia (1), Malaysia (1), Mexico(1), Morocco (1), Romania (1), Senegal (1), Tunisia (1), Zaire (1).

among the firm's stakeholders, which include not only shareholders but also employees or for instance the government (Lieberman and Dhawan, 2005; Lieberman and Kang, 2008). Finally, the productivity metric can be used to make comparisons across industries and across countries because this measure of performance is affected neither by the firm's accounting and financing decisions nor by the industry- or country-level fiscal environment (Hill and Snell, 1989). Labor productivity is less likely than more consolidated measures to be influenced by heterogeneity in accounting practices or by earnings manipulation (Li, 2007).

The labor productivity of a firm (our *Productivity* variable) is constructed as value added divided by the number of employees, where 'value added' is defined as the firm's total revenue minus its costs of non-labor inputs. The figures for value added and for number of employees are provided by the EAE database, so they require no additional computation.

Our independent variable is *Foreign acquisition*. It is an indicator set equal to 1 at the date of a foreign acquisition and at one, two, and three years later (and set equal to 0 otherwise). The particular construction of these variables makes it easier to handle firms that make multiple acquisitions (see, e.g., Ahuja and Katila, 2001).[10]

Our sample includes both acquiring and non-acquiring firms, so the variable *Foreign acquisition* assesses the average effect of acquisitions on acquiring firms relative to non-acquiring firms. Including both types of firms in our sample allows us to control for outcome variations (i.e., in labor productivity) that are not caused by acquisitions and also to assess whether acquirers are advantaged (or disadvantaged) competitively with respect to non-acquiring firms in the home market.

We investigate the role of the target's country by dividing the target countries into two categories: those with a higher level of competitiveness than France (variable *Foreign acquisition MCC,* more competitive countries) and those with a lower level (variable *Foreign*

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[10] Omitting the firms that made several acquisitions might have biased our results.

acquisition LCC, less competitive countries).[11] The level of country competitiveness is based on the overall rankings in the *World Competitiveness Yearbook* (hereafter WCY) published by the International Institute for Management Development (IIMD). This ranking is determined by four different factors: economic performance, government efficiency, business efficiency, and infrastructure. The WCY uses two main types of data: secondary data from international, national, and regional organizations and institutions; and qualitative data collected through an annual executive opinion survey, which helps to quantify management practices, labor relations, and views on such topics as corruption. The four competitiveness factors are each subdivided into five components that account for different aspects of competitiveness. We employ the overall WCY rankings. As stated in the report (IIMD, 2010: 474): 'An economy's competitiveness cannot be reduced only to GDP and productivity because enterprises must also cope with political, social and cultural dimensions. Therefore nations need to provide an environment that has the most efficient structure, institutions and policies that encourage the competitiveness of enterprises.'

We also examine the interplay between cross-border acquisitions and domestic internal investments. For this we use the variable *Investment rate*, which is the investment rate as measured by the firm's investments in tangible fixed assets divided by the sum of all tangible fixed assets. The variable *Investment rate* is interacted with the acquisition variables.

We incorporate several control variables that could affect relative competitiveness. At the firm level we control for *Capital intensity* (Koch and McGrath, 1996; Datta *et al.*, 2005), calculated as the ratio of the firm's tangible fixed assets to the number of its employees.[12] High values are expected to have a positive effect on firm productivity. We account for the

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[11] We cannot use standard interactive variables—for instance, a binary dummy variable reflecting more versus less competitive countries. By construction, such a dummy variable is not specified (and thus would take a missing value) for non-acquiring firms.

[12] We do not include intangible fixed assets because this information is not available for retailing and service industries prior to 1996. However, including them in our calculations of capital intensity and investment rate from 1996 onward does not change the results.

firm's export rate via the *Export intensity* variable. Research has shown that international trade is conducive to the bilateral exchange of technological and market information between countries. For example, Salomon and Shaver (2005) and Salomon and Jin (2008) found that firms learn by exporting and that doing so enhances their efficiency. We also control for *Employment* (i.e., number of employees) because changes in measured productivity may be related to variation in the employment level; this variable also accounts for company size and thus for potential scale or resource effects (Huselid, 1995; Koch and McGrath, 1996; Datta *et al.*, 2005). Also at the firm level, we use *Debt intensity* to proxy for financial constraint; this variable is calculated as the ratio of interest payments to total sales. We employ that particular ratio because our data do not provide information on the debt-equity structure of our sample firms.

We also add industry- and regional-level control variables. All industry-level variables used in this paper are measured at the 4-digit level (source: EAE database). At the industry level, we include the Herfindahl–Hirschman industry concentration index (see Huselid, 1995; Huselid, Jackson, and Schuler, 1997). The resulting (and time-varying) *Industry concentration* variable is equal to the sum of the squares of the market shares of firms in a given sector. When competition is strong, firms have more incentive to adopt proactive strategies that will increase their efficiency and enhance their capabilities (Porter, 1990). At the regional level, the variable *Regional GDP* is the focal region's share in French gross domestic product (source: INSEE). This variable gives a good indication of the region's economic activity and of the presence of local suppliers, employees, and customers. Table 1 gives a statistical summary of all our variables.

*** INSERT Table 1 about Here ***

Finally, we introduce fixed industry dummies and year dummies to control for unobserved heterogeneity. Industry fixed effects include permanent unobserved differences

across industries that may reflect industry characteristics (e.g., industry regulation, technological spillovers) influencing productivity. Time dummies account for external shocks that also could affect productivity.

Statistical methods

We estimate the effects of foreign acquisitions (variable *Foreign acquisition*) on domestic productivity by comparing the productivity of acquiring and non-acquiring firms for the period 1993–2004. Based on pooled cross-section data, we employ an ordinary least squares (OLS) model with robust standard errors (Huber–White–Sandwich estimator of variance). The labor productivity of a firm *i* in industry *j* and region *k* at time *t* is modeled as follows:

$$Productivity_{ijkt} = \beta_1 X_{ijkt} + \beta_2 X_{jt} + \beta_3 X_{kt} + \beta_4 (Foreign\ acquisitions)_{ijkt} + \vartheta_{ijkt}; \quad (1)$$

here X_{ijkt}, X_{jt}, and X_{kt} correspond to firm-, industry- and region-specific control variables (respectively) and ϑ_{ijkt} is the error term.

However, it may be a concern that the strategic choice of foreign acquisition is endogenous and self-selected (Shaver, 1998). If the decision to make a cross-border acquisition is not a random process and instead is determined by non-observable firm characteristics that also influence productivity outcomes, then our estimates could be biased. To address this possibility, we employ a standard two-stage selection model (Shaver, 1998). In the first stage, we estimate the likelihood that the focal firm will acquire a target firm abroad; in the second stage, we compute—and include as a control variable in our main estimation (1)—the inverse Mills ratio or *Lambda term*.

The probit model includes the following variables: in addition to *Capital intensity*, *Export intensity*, *Employment*, *Debt intensity*, *Industry concentration*, *Regional GDP*, and the industry and year dummies described previously, several explanatory variables appear only in

the first stage and so can serve as an exclusion restriction.[13] At the firm level, we first

consider *Wages per employee* (i.e., total wages paid divided by number of employees) as a

proxy for the skill intensity of a firm's labor force. We also control for the experience of

firms in cross-border acquisitions (variable *Foreign acquisition experience*, calculated as the

number of cross-border acquisitions made over the past five years) and for the return on sales

(variable *Return on sales*, calculated as the value of EBITDA divided by sales). At the

industry level, we add the variable *Industry growth* (the industry-level growth rate of sales)

and the number of inward cross-border acquisitions by industry (variable *Industry inward*

acquisitions; Source: Thomson One Banker – Deals database) to account for increased

foreign competition in the French market. Finally, at the regional level we include the dummy

variable *Border*, set equal to 1 only if the French region in which the firm is located directly

neighbors another country. Being near a country border may increase the firm's exposure to

and awareness of the international environment.

In both the selection and the main estimation (1), all variables that take strictly positive

values are expressed in logarithms and the monetary variables are expressed in French

currency (thousands of francs).[14] All time-varying explanatory variables are lagged by one

year.

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[13] We acknowledge that finding a good instrument is never straightforward (Hamilton and Nickerson, 2003; Gujarati, 2004). This problem arises in most empirical work because the model's first- and second-stage outcomes are often due to the same underlying causal influences (Singh and Mitchell, 2005). Given the variables available in our data set, several explanatory variables are employed in the first but not in the second stage of our model. We have sought to select the best possible instrumental variable in light of theoretical and empirical considerations. From a theoretical standpoint, for instance, the variable *Border* or *Industry inward acquisitions* are each more likely to affect acquisition behavior than the level of firm productivity. Being close to the border reduces the costs of searching for target firms in the neighboring country (Chakrabarti and Mitchell, 2013), whereas the existence of interfirm knowledge spillovers across countries is less certain. Similarly, the variable *Industry inward acquisitions* captures the possibility of strategic reactions and exchanges of threats among firms from different countries (Hennart and Park, 1994); this strategic interaction should not directly affect firm productivity. From an empirical standpoint, most of these variables have a significant effect on the decision to acquire a target firm abroad but a less significant effect or—as e.g. with *Border*, *Industry growth*, or *Industry inward acquisitions*—no significant effect on firm productivity. Hence these variables can be viewed as providing us with an appropriate instrument (Miller, 2006).

[14] In the EAE database, monetary variables have been expressed in euros since 2001; we convert these into francs at the exchange rate of 6.55657 francs per euro.

RESULTS

We investigate whether cross-border acquisitions increase the acquirer's domestic productivity with respect to non-acquiring firms. Results are reported in Table 2. We observe that the sign of the *Foreign acquisition* variable is positive and that its coefficient is significantly different from zero (0.117; $p < 0.01$) in the estimation of labor productivity (model 2). This finding is evidence of resource efficiency gains associated with cross-border acquisitions, which supports Hypothesis 1. In fact, such acquisitions increased the productivity of acquiring firms by more than 12 percent.[15]

<div align="center">

*** **INSERT Table 2 about Here** ***

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Second, we examine the variables *Foreign acquisition LCC* (less competitive countries) and *Foreign acquisition MCC* (more competitive countries). As predicted in Hypothesis 2, productivity gains from foreign acquisitions are greater for firms investing in countries that are more competitive than the acquirer's country (model 4 in Table 2). The variable *Foreign acquisition MCC* is significantly positive (0.152; $p < 0.01$); in contrast, the variable *Foreign acquisition LCC* is not significant.

Third, our results indicate that the effects of cross-border acquisitions on labor productivity are moderated positively by the investment rate (model 3). The interaction variable *Investment rate × Foreign acquisition* is significant and positive (0.0332; $p < 0.05$), which provides some support for Hypothesis 3. Yet these moderating effects are more pronounced for targets in more competitive countries (model 5), which confirms Hypothesis 4. Only *Investment rate × Foreign acquisition MCC* is significant and positive (0.0657; $p < 0.01$).

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[15] We obtain the value of 12.5 percent for this productivity difference via the following calculation: exp{coefficient of the variable} − 1; that is, exp{0.117} − 1 = 0.125. The calculation is complicated because the independent variable is a dummy and the dependent variable is expressed in logarithmic form.

Finally, examining the antecedents of foreign acquisitions (see Table 3) reveals that the level of industry concentration tends to reduce significantly (−0.126; $p < 0.01$) the likelihood that a firm will make a foreign acquisition. In other words, increased domestic competition encourages firms to acquire targets abroad. This observation is confirmed by the variable *Industry inward acquisitions*, which has a positive and significant sign (0.0671; $p < 0.1$). Similarly, we observe the existence of resource constraints that restrict the ability of firms to expand overseas; this observation confirms that the benefits from foreign acquisitions are not freely obtained. The variables *Debt intensity* and *Return on sales* have, respectively, a significantly negative (−0.115; $p < 0.01$) and a significantly positive (1.353; $p < 0.01$) effect on acquisition behavior.

*** INSERT Table 3 about Here ***

SUPPLEMENTARY ANALYSES

To confirm the robustness of our main findings and their interpretation, we conducted several sensibility checks and further empirical investigations—whose results are available upon request—regarding (a) an alternative measure of our dependent and independent variables, (b) the issue of endogeneity, (c) the effect of domestic acquisitions, and (d) the existence of learning versus restructuring effects.

When using an alternative measure of firm-level productivity, we obtained results that were qualitatively similar to those reported previously. We computed firms' total factor productivity (TFP) using the index number approach (Caves, Christensen, and Diewert, 1982). Yet calculating the TFP requires detailed information (on the structure of inputs) that is available in the EAE database for manufacturing firms only (see Bertrand and Zitouna,

2008);[16] moreover, there is no consensus on how best to measure the TFP variable (Van Biesebroeck, 2003). We also investigated the robustness of our results that address the second hypothesis. First, we used a subset of factors from the WYC capturing R&D intensity or GDP per employee—a proxy for country productivity. This change had no effect on our main conclusions. Second, because there could be some heterogeneity in domestic competitiveness across industries, we evaluated and compared average labor productivity at the industry level using the United Nations Industrial Development Organization (UNIDO) manufacturing database. Our principal results remain substantially unchanged when we compare labor productivity in the home and host country at the industry level. However, the industry approach has the disadvantage of two limitations: numerous values are missing from the UNIDO database, which obliges us to reduce drastically the number of acquisitions in our sample; the various stakeholders from which a firm can learn are not all located in the acquirer's industry.

Several additional checks were carried out to address the issue of endogeneity.[17] First, in the absence of a convincing instrument, endogeneity can be alleviated by controlling—to the extent possible—for observable firm characteristics when estimating productivity (Wooldridge, 2002; Hamilton and Nickerson, 2003). Employing more observable control variables in the estimation of firm productivity did not affect our results. Second, we applied the generalized method of moments (GMM) estimation technique for dynamic panel data

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[16] We include four kinds of inputs in our computation: labor, intermediate goods, subcontracting, and capital. The first three of these are measured by, respectively, the number of employees, the purchases of intermediate goods (deflated by the intermediate goods price index), and the amount spent on subcontracting (deflated by the production price index). Capital is measured by the sum of companies' fixed assets (deflated by the gross fixed capital formation price index).

[17] We tested alternative instruments (those possible given our available data set); our results were robust to all such changes. For instance, the firm-level variable *Advertising intensity* could be considered as a possible instrument because there is little reason to expect that firm-level marketing characteristics affect firm-level productivity whereas they could influence the decision to acquire abroad (see, e.g., Anand and Delios, 2002). Empirically, *Advertising intensity* was significant in the first stage (the decision to acquire) but not in the second (the estimation of firm productivity). However, we did not include this variable because it is available only for manufacturing firms. When assessing the role of target country competitiveness, we calculated and included in our main estimation two distinct Mills ratios as control variables: one for the decision to acquire a target located in a relatively more competitive country and another for the decision to acquire a target located in a relatively less competitive country. Again, our results were not affected.

(Arellano and Bover, 1995; Blundell and Bond, 1998).[18] Estimation via GMM is another way to control for the endogeneity of explanatory variables (see, e.g., Gugler and Yurtoglu, 2004; Bertrand and Zuniga, 2006; Liu and Zou, 2008). This method assumes that good instruments are not available outside the immediate data set and so uses lags of the instrumented variables. The GMM technique also allows us to include a lagged dependent variable as a regressor in our estimation, thus yielding a dynamic specification of the model. Even in this case, the results were qualitatively similar.

Third, we also took into account the possibility of domestic acquisitions. We found that their effect was not significant and did not change our main results. Empirically, this finding echoes the ambiguous conclusions reported in the literature that compares empirical outcomes of domestic and cross-border acquisitions (see, e.g., Anand, Capron, and Mitchell, 2005). Such inconclusive results may be due, in part, to the sheer number of competing forces at play in comparisons of domestic versus cross-border acquisitions.[19] In our case, the absence of significant positive effects from domestic acquisitions supports the view that cross-border acquisitions generate stronger learning effects than do domestic ones. From a learning and resource-based standpoint, crossing borders brings more diverse resources and access to a different ecosystem; the result is greater opportunities for learning and resource recombination (Almeida, 1996; Anand and Kogut, 1997; Alcacer and Chung, 2002; Salomon and Shaver, 2005).

Finally, we explore alternative sources of domestic productivity enhancement—in particular, those that stem from gains due to downsizing. Indeed, an alternative view (Desai,

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[18] More precisely, we employed the *system* GMM estimation procedure (including the Windmeijer correction).
[19] Although we expect that learning opportunities will be less prevalent in domestic acquisitions, other value-creation mechanisms associated with such acquisitions might drive up the acquiring firm's productivity in its home market. On the one hand, domestic acquisitions are often viewed as a way to obtain scale economies because the two firms' assets are likely to be similar; scale benefits might arise also from the market broadening that typically follows a cross-border acquisition. On the other hand, domestic acquisitions are more likely to be of a defensive nature, seeking to neutralize the competition even at the cost of home market efficiency; yet cross-border acquisitions can also be undertaken for multimarket competition reasons. It is therefore difficult to predict—based on the traditional arguments of efficiency and market power—which types of acquisitions will ultimately produce more efficiency gains.

Foley, and Hines, 2009) suggests that cross-border acquisitions made in order to relocate value chain activities, especially those that are labor intensive, may yield domestic productivity gains resulting from downsizing and reduced domestic input costs (Berry, 2010). Under such a 'divestment' scenario we might still have observed domestic productivity gains in the firm's home market following a foreign acquisition, but this would be accompanied by a contraction in its domestic workforce[20] (Blonigen, 2001; Head and Ries, 2008). In fact, we found that firms employed more people at home following cross-border acquisitions than did non-acquiring firms, which seems to confirm that the productivity effects of cross-border acquisitions in our sample were mainly driven by learning and resource complementarity and not by downsizing and restructuring.

CONCLUSION

We have investigated the effect of foreign acquisitions on the labor productivity of acquiring firms (compared to non-acquiring firms) in their home market. We have outlined the gains from foreign acquisitions and the context required for firms to leverage these gains. Domestic productivity gains accruing to acquiring firms are greater (i) when the target is located in a more competitive country than the acquirer's home country (because the former will offer the latter more learning opportunities) and (ii) when the acquirer contemporaneously invests in productivity-enhancing activities at home (because to reap the benefits of learning requires substantial and purposive effort). Analysis of the data confirms our main theoretical predictions.

This study contributes to the strategic management field by exploring cross-border acquisitions as an important means for firms to build their resource advantage. In line with a resource-based view of the firm and with the 'reverse internalization' posited by the

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[20] If we assume that the acquirer is likely to retain the most productive workers, then reducing the labor force might actually increase productivity because, at the margin, the firm is shedding its less productive workers.

international business literature, we find that cross-border acquisitions enable acquiring firms to exploit complementary gains while generating *positive* domestic productivity feedback effects in their home markets.

Strategy scholars who focus on resource and business reconfiguration have documented the existence of bilateral resource redeployment following cross-border acquisitions but have not explored the performance implications of such redeployment for the acquirer's home market competitiveness. Our study provides a more integrative view of how acquisitions can be apprehended within the broader context of the firm's corporate development portfolio. Our results suggest that an acquisition cannot be considered in isolation because its resource requirements, effectiveness, and ultimate use all interact with their counterparts under alternative modes of corporate development. We have thus contributed to an emerging body of literature (Cassiman and Veugelers; 2006; Rothaermel and Alexandre, 2009; Stettner and Lavie, 2013) that analyzes the complementarities and trade-offs among multiple modes of corporate development rather than examining those modes in isolation.

Our findings are also relevant to the literature on international business. Studies in this field have underscored the role of foreign direct investment, especially cross-border acquisitions, in augmenting resources (Shimizu, Vaidyanath, and Pisano, 2004). Yet FDI is usually regarded as a way for acquiring firms to access the complementary local resources needed to operate successfully in the host—rather than the home—environment (Anand and Delios, 2002; Meyer, Wright, and Pruthi, 2009). Previous studies on the performance effects of M&As or of the investing firm's foreign expansion have used consolidated data or have examined the performance of the foreign target (or affiliate) in the *host* market only (Delios

and Beamish, 2001; Fang *et al.*, 2007; Slangen and Hennart, 2008); in contrast, our study investigates the effects on *domestic* resource efficiency.[21]

The data set we use has two principal limitations that point to avenues for future research. First, it does not allow us to examine the impact of cross-border acquisitions across different countries. Hence our results should be further tested by replicating this study in different institutional and economic contexts. Additional research could also enable the identification of other mitigating factors likely to affect the impact of foreign acquisitions on the firm's home market. Second, the data do not allow us to control rigorously for the characteristics of target firms. More complete data on foreign target firms would facilitate a closer examination of which resources are redeployed (and to what extent) within the acquiring firm and would also help to disentangle scale economies from learning effects by observing outcomes across domestic and foreign activities. Collecting harmonized firm-level data for a large sample of countries remains a major challenge for all researchers. Yet we believe that this constraint is less important for our study, whose main objective is to compare the competitive position of acquiring firms relative to non-acquiring firms. Finally, another promising avenue for future research is to explore and clarify the efficiency drivers at play in domestic versus cross-border acquisitions.

This research has a number of implications for managers. Acquiring new resources abroad enables firms to reinforce their position at home, a strategy that offers two clear advantages. First, the internal development of new capabilities may take too long in the context of fast-moving markets and may even be impossible for firms characterized by core rigidities. Second, accessing external resources (in order to regenerate the home firm's capabilities) may be vital for long-term success; the international market for resources offers more opportunities and choices and therefore increases the possibility of greater resource and

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[21] At the aggregate country level, those few studies that have examined the domestic effects of FDI have not distinguished between its different forms (for a summary, see Desai *et al.*, 2009).

knowledge complementarities. Firms should nonetheless be mindful of the additional investment required to exploit the benefits of cross-border acquisitions in their home market.

Our findings also have direct implications for public policy. Governments in many countries share the (mis)perception that foreign investment diverts resources from domestic activities, thereby reducing the domestic productivity and/or investment levels of acquiring firms. Such a view fails to account for the full domestic impact of FDI. Our study suggests that international acquisitions actually *increase* the domestic capabilities of acquiring firms and thus the overall efficiency of home industries as well as the global competitiveness of the investing firm's country. Moreover, these positive effects are stronger when accompanied by higher levels of domestic investment.

Further investigation of this topic is sorely needed and strongly encouraged. In particular, we would like to know whether cross-border acquisitions generate economic spillovers for the rest of the acquiring firm's home economy—and, if so, what externalities arise. An additional area of interest is the extent of differences in assumptions made by strategy scholars and public policy makers. Strategy scholars, who espouse a resource-based view, see foreign expansion not as a zero-sum game but rather as a mechanism that yields complementary gains in resources and knowledge. In contrast, traditional public policy takes the view that firm resources are fixed and so every dollar invested abroad means a dollar less that can be invested domestically. Each set of assumptions is likely to hold under specific economic contexts; since these contexts vary from one form of FDI to another, further investigation is needed.

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Table 1. Summary statistics and correlation matrix

	Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Labor productivity	5.88	0.50	1.00													
2	Capital intensity	5.89	0.88	0.50	1.00												
3	Export intensity	0.27	0.24	0.16	0.24	1.00											
4	Employment	5.67	0.98	-0.01	0.14	0.15	1.00										
5	Industry concentration	5.81	1.08	0.11	0.17	0.14	0.28	1.00									
6	Wages per employee	5.50	0.30	0.70	0.40	0.17	0.06	0.08	1.00								
7	Debt intensity	-4.77	1.28	-0.18	0.04	0.06	0.07	-0.04	-0.14	1.00							
8	Investment rate	0.08	0.56	0.02	-0.09	-0.02	-0.04	-0.01	0.01	0.01	1.00						
9	Return on sales	0.08	0.13	0.56	0.20	0.04	0.04	0.07	0.02	-0.10	0.03	1.00					
10	Industry growth	0.02	0.05	0.06	0.07	0.01	0.06	0.08	0.07	-0.12	0.03	0.04	1.00				
11	Industry inward acquisitions	0.50	0.84	0.07	0.01	0.01	-0.01	-0.14	0.14	-0.09	-0.01	-0.03	0.06	1.00			
12	Foreign acquisition experience	0.05	0.31	0.04	0.05	0.09	0.19	0.06	0.08	0.10	0.01	-0.01	0.06	0.01	1.00		
13	Regional GDP	-2.05	1.06	0.25	0.05	0.03	0.17	0.08	0.36	-0.01	0.01	-0.01	0.00	0.02	0.06	1.00	
14	Border	0.31	0.43	-0.10	0.05	0.09	-0.10	0.04	-0.17	0.01	-0.01	0.01	-0.01	-0.03	-0.03	-0.39	1.00
15	Foreign acquisition	0.04	0.19	0.07	0.06	0.14	0.18	0.10	0.07	0.05	0.01	0.03	0.04	0.01	0.53	0.06	-0.01
16	Foreign acquisition LCC	0.01	0.11	0.01	0.02	0.05	0.10	0.06	0.03	0.04	0.04	-0.02	0.06	0.01	0.47	0.04	0.01
17	Foreign acquisition MCC	0.02	0.15	0.06	0.04	0.13	0.16	0.07	0.07	0.03	0.02	0.03	0.05	0.01	0.41	0.03	-0.01

Notes: All variables are expressed in logarithms except for Export intensity, Investment rate, Return on sales, Industry growth, Border, and the acquisition-based variables; monetary variables are expressed in French currency (thousands of francs). 'LCC' = less competitive country; 'MCC' = more competitive country.
Sources: Thomson, EAE (Enquête Annuelle d'Entreprises, French Ministry of Industry).

Table 2. Effects of cross-border acquisitions on the acquirer's domestic labor productivity

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Capital intensity	0.269***	0.270***	0.279***	0.270***	0.279***
	(0.00711)	(0.00710)	(0.00737)	(0.00710)	(0.00737)
Export intensity	0.192***	0.184***	0.186***	0.183***	0.186***
	(0.0152)	(0.0152)	(0.0153)	(0.0152)	(0.0153)
Employment	0.0430***	0.0426***	0.0496***	0.0424***	0.0494***
	(0.00509)	(0.00532)	(0.00539)	(0.00531)	(0.00539)
Debt intensity	-0.0740***	-0.0748***	-0.0733***	-0.0746***	-0.0732***
	(0.00311)	(0.00312)	(0.00320)	(0.00312)	(0.00320)
Industry concentration	-0.0193***	-0.0182***	-0.0178***	-0.0181***	-0.0177***
	(0.00346)	(0.00346)	(0.00346)	(0.00346)	(0.00346)
Regional GDP	0.109***	0.109***	0.108***	0.109***	0.108***
	(0.00306)	(0.00305)	(0.00306)	(0.00305)	(0.00306)
Foreign acquisition		0.117***	0.132***		
		(0.0196)	(0.0192)		
Investment rate			0.0344***		0.0343***
			(0.00811)		(0.00805)
Investment rate × Foreign acquisition			0.0332**		
			(0.0149)		
Foreign acquisition LCC				0.0201	0.0388
				(0.0327)	(0.0300)
Foreign acquisition MCC				0.152***	0.159***
				(0.0228)	(0.0237)
Investment rate × Foreign acquisition LCC					0.0232
					(0.0731)
Investment rate × Foreign acquisition MCC					0.0657***
					(0.0152)
Lambda term		0.00821***	0.00741***	0.00811***	0.00723***
		(0.00228)	(0.00234)	(0.00228)	(0.00234)
Constant	4.105***	4.183***	4.269***	4.182***	4.269***
	(0.0403)	(0.0453)	(0.0361)	(0.0453)	(0.0362)
Observations	17633	17633	16146	17633	16146
R-squared	0.371	0.372	0.394	0.373	0.394

Notes: The sample comprises both acquiring and non-acquiring firms. Each regression includes industry and year fixed effects, and robust standard errors are given in parentheses. 'LCC' = less competitive country; 'MCC' = more competitive country.
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 3. Antecedents of cross-border acquisitions

Variables	Model 1
Wages per employee	0.219
	(0.160)
Capital intensity	0.0849*
	(0.0446)
Export intensity	0.769***
	(0.143)
Employment	0.189***
	(0.0380)
Debt intensity	-0.115***
	(0.0292)
Return on sales	1.353***
	(0.383)
Foreign acquisition experience	0.207***
	(0.0609)
Industry concentration	-0.126***
	(0.0379)
Industry growth	2.359***
	(0.646)
Industry inward acquisitions	0.0671*
	(0.0375)
Regional GDP	0.0956**
	(0.0456)
Border	0.0967*
	(0.0515)
Constant	-4.938***
	(0.805)
Observations	17633
Log likelihood	-620.3

Notes: The sample comprises both acquiring and non-acquiring firms. Each regression includes industry and year fixed effects, and robust standard errors are given in parentheses.
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

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