ADVANCES IN MERGERS AND ACQUISITIONS
ADVANCES IN MERGERS AND ACQUISITIONS

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LIST OF CONTRIBUTORS

Satu Teerikangas
Department of Management and Entrepreneurship, School of Economics, University of Turku, Turku, Finland

Noelia-Sarah Reynolds
Essex Business School
University of Essex, Colchester, UK

Joaquin Sanz Berrioategortua
Faculty of Economics and Business, Deusto Business School, Bilbao, Spain

Olga del Orden Olasagasti
Faculty of Economics and Business, Department Finance and Accounting, Deusto Business School, Bilbao, Spain

Beatriz Palacios Florencio
Faculty of Business Studies, Department of Business Organisation and Marketing, Pablo de Olavide University, Seville, Spain

Katsuhiko Shimizu
Graduate School of Business Administration, Keio University, Tokyo, Japan

Daisuke Uchida
Graduate School of Economics
Kyushu University, Fukuoka, Japan

Elisa Labbas
School of Economics and Management, Lund University, Lund, Sweden

Padma Rao Sahib
University of Groningen, Groningen, The Netherlands

Trang Thu Doan
International School, Vietnam National University, Hanoi, Vietnam

Jiichen Yang
HEC Paris, Paris, France

Michel W. Lander
HEC Paris, Paris, France
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>David R. King</td>
<td>College of Business, Department of Management, Florida State University, Tallahassee, FL, USA</td>
</tr>
<tr>
<td>Svante Schriber</td>
<td>Stockholm Business School, Stockholm University, Stockholm, Sweden</td>
</tr>
<tr>
<td>Florian Bauer</td>
<td>University of Innsbruck, Innsbruck, Austria</td>
</tr>
<tr>
<td>Sina Amiri</td>
<td>College of Business, Iowa State University, Ames, IA, USA</td>
</tr>
<tr>
<td>Ralph McKinney Jr</td>
<td>Marshall University, Huntington, WV, USA</td>
</tr>
<tr>
<td>Dale Shao</td>
<td>Marshall University, Huntington, WV, USA</td>
</tr>
<tr>
<td>Lawrence Shao</td>
<td>Slippery Rock University, PA, USA</td>
</tr>
<tr>
<td>Marjorie McInerney</td>
<td>Lewis College of Business, Marshall University, Huntington, WV, USA</td>
</tr>
<tr>
<td>Theresa Goecke</td>
<td>University of Konstanz, Konstanz, Germany</td>
</tr>
<tr>
<td>Björn Michaelis</td>
<td>Kühne Logistics University, Hamburg, Germany</td>
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<tr>
<td>Lars Schweitzer</td>
<td>Goethe University Frankfurt, Frankfurt, Germany</td>
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</table>
CHAPTER 4

CROSS-BORDER M&As IN RELATED AND TECHNOLOGY-INTENSIVE INDUSTRIES: EVIDENCE ON THE DYNAMICS OF SPATIAL DISTANCE, INDUSTRY CONTEXT, AND COMPLETION LIKELIHOOD OF INTERNATIONAL TAKEOVERS

Elisa Labbas, Padma Rao Sahib, and Trang Thu Doan

ABSTRACT

Many announced cross-border mergers and acquisitions (M&As) are never brought to completion despite potential negative consequences to acquirers and targets. This paper presents evidence on the dynamic effects of spatial distance and two industry-level characteristics, namely industry relatedness between the two firms and technological intensity, on
the completion likelihood of cross-border M&A deals. Based on a sample of 8,489 M&A transactions we found that the completion likelihood of cross-border M&As increases with spatial distance. The effect is more pronounced for deals across technology-based industries; evidence for related deals is inconclusive.

**Keywords:** Cross-border mergers and acquisitions; completion likelihood; industry relatedness; technology-based industries; geographic distance

1. INTRODUCTION

After the global financial crisis in the late 2000s, cross-border mergers and acquisitions (M&As) have become the principal driver of recovery for foreign direct investment flows. The global value of M&A transactions reached US$ 721 billion in 2015 (UNCTAD, 2016) with mega transactions such as the takeover of American Monsanto Co. by German Bayer AG, which was valued at US$ 66 billion (Bloomberg, 2017). This dramatic growth has attracted significant interest from scholars investigating cross-border M&As, particularly on the pre-integration process of an M&A transaction and factors determining the completion likelihood of this process (e.g.: Dikova, Rao Sahib, & van Witteloostuijn, 2010; Kim & Song, 2017; Li, Xian, & Lin, 2017; Zhou, Xie, & Wang, 2016).

When a firm initiates a takeover, it incurs the opportunity costs of time and resources spent on evaluating potential targets, and once having selected one, engaging in negotiations with managers of the target. If the deal is abandoned, a significant amount of time and effort will be lost. Added consequences of M&A abandonment can include negative market responses, reputation damages, increased managerial turnover and asset restructuring for the target and even substantial financial penalties (Dikova et al., 2010; Lim & Lee, 2016; Mischfeld, Rao Sahib, & Van Witteloostuijn, 2012). Yet, a significant portion of deals are not completed, with press reports suggesting the number of undone deals is approaching the record numbers experienced during the global financial crisis (The New York Times, 2016). Clarifying determinants of deal failure is, therefore, useful not only for managers, but also shareholders interested in firm reputation and the strategic aspects of engaging in international M&As.

The international business and strategy literature in the last few years has demonstrated a number of reasons behind M&A deal abandonment. Factors that have been shown to influence the completion likelihood of cross-border deals include both firm- and transaction-level characteristics, such as distance in country law, regulation and country-risk (Zhou et al., 2016), capital market development and business group affiliation (Kim & Song, 2017), legitimacy concerns (Li et al., 2017), cultural and institutional differences between acquirers and targets (Dikova et al., 2010) and experience on prior acquisitions (Mischfeld et al., 2012). Given that the pre-integration phase of M&As is under-researched compared to post-acquisition developments at the merging firms, there are still ample opportunities to expand our knowledge on the determinants of M&A abandonment.

First, Chakrabarti and Mitchell (2016) indicate that spatial distance has a significant and negative impact on M&A completion likelihood among the domestic M&As in the USA. We build upon these results and ask whether similar effects can be found in the context of cross-border M&As. The query is based on two assumptions: (1) information requirements for a successfully executed takeover differ depending on industry context and (2) spatial distance deters information flows.

Second, we suggest that the industry context is an under-studied aspect regarding the determinants of cross-border M&As. Hence, we attempt to contribute to the research stream by examining the effects of two industry-level characteristics, namely relatedness and technological intensity, on the likelihood of an individual cross-border M&A deal being completed. We expand findings from Lim and Lee (2016), which suggest a significant relationship between industry relatedness and M&A completion by drawing on data on industry classifications. In addition, we derive a measure of technological intensity and explore its role in determining M&A completion.

The paper is organised as follows: Section 2 outlines the theoretical relationships of distance, industry relatedness, technological intensity and M&A completion likelihood. Section 3 presents methodology and data. Section 4 shows results from econometric analyses. Section 5 discusses possible explanations for the findings and concludes.

2. THEORY AND HYPOTHESES

2.1. Neoclassical Views on Expansion, Information Flows, and Spatial Distance

The two main schools of thought in the literature regarding M&As are the managerial theory, in which M&As are seen as a means to increase managerial
power, and the neoclassical theory of the firm, where they are seen as channeling assets to productive uses (Wong & O’Sullivan, 2001). While the former motive may lead to value destruction, the latter proposes that expansion yields economic benefits, for example in the form of synergies, replacement of inefficient managers, or tax benefits (Wong & O’Sullivan, 2001). We assume that M&As are driven primarily by value creation motives. Following the logic of the theory of the firm, we take the completion of an acquisition deal to be a rational act determined by the trade-off between the benefits of expansion and the transaction costs involved (Holmstrom & Tirole, 1989). The definition of M&A completion is then the formalization of a publicly announced takeover.

If acquisition decisions are simply products of weighing costs and benefits, the main threat can be thought to be the information asymmetries that inevitably surround takeovers in foreign countries. New information may emerge at any time during the pre-integration phase of the acquisition, challenging firms to complete the process. Spatial distance increases this uncertainty because it deteriorates information flows that govern the takeover process, as intensive communication between the acquirer and the target has been found to be essential for both identifying an optimal target and the successful sharing of strategic capabilities (Friedman et al., 2016). In fact, the higher risk associated with targets in distant countries or targets that are dissimilar to the acquirer reduces the incidence of such acquisitions (Schildt & Laamanen, 2006). Compared to domestic deals, cross-border M&As involve an added level of complexity because of differences in the institutional and regulatory environment, as well as cultural and language of the home and host countries of the firms (Muehfeld et al., 2012). While technological advances have made it more efficient to transfer information that is easily quantifiable, spatial proximity still matters for takeovers because the successful execution of negotiations requires having access to unquantifiable information or tacit knowledge (Chakraborti & Mitchell, 2016). This leads to our first hypothesis.

H1. Spatial distance reduces the completion likelihood of cross-border M&A deals.

2.2. M&As Across Related Industries

A firm that initiates a takeover chooses to either expand within its own industry, for example aiming to benefit from economies of scale and scope, or in the case of international deals, access to new markets. Takeovers of this type are said to be horizontal or related. The acquirer may also choose to expand vertically by bidding on suppliers, or diversify into other industries in order to gain access to, for example, financial economies (Hitt, Harrison, & Ireland, 2001). We consider both these types of transactions to be unrelated.

From the perspective of the theory of the firm, there are two main arguments as to why related deals should be more likely to go through than other deals. First, related deals may involve higher expectations of economic gains due to the good strategic fit between the parties resulting in similar approaches to suppliers, competitors and customers, work and sales methods and workers and assets (Friedman et al., 2016). In addition, related deals may benefit from a wider scope for knowledge transfer and resource sharing (Chakraborti & Mitchell, 2013). Second, structural similarities have the potential to reduce uncertainties associated with international expansion. Moreover, sharing structural features and technological capabilities can facilitate the evaluation of potential target firms and due diligence for horizontal deals (Boschma, Marrocu, & Paoli, 2016; Schildt & Laamanen, 2006).

We also examine the question of whether spatial distance matters more for certain industries than others. Technological similarities associated with related deals may mitigate the negative effects of distance compared to unrelated deals (Schildt & Laamanen, 2006). Unrelated deals may in turn suffer from an amplified negative effect of distance; as distance reduces information flows, coordination costs rise, reducing the expected gains from expansion (Hüzen, Gögörg, & Manchin, 2008) and therefore also the incentive to complete the deal. In sum, relatedness may increase deal completion likelihood and mitigate the negative effects of spatial distance by being associated with higher potential for value creation and by reducing information asymmetries during the M&A pre-integration process. These arguments lead us to our second hypothesis.

H2a. The completion likelihood of cross-border M&A deals is higher when the acquirer and target operate in related industries.

H2b. The negative effect of spatial distance on the completion likelihood of cross-border M&A deals is lower when the acquirer and target operate in related industries.

2.3. M&As Across Technology-based Industries

Firms in technology-based industries may face stronger internal and external incentives to expand compared to firms in other industries. Benefits of expansion include gaining access to technological assets, expansion of knowledge
base, improved production processes and increased efficiency through exploiting economies of scale and scope. In addition, firms in technology-based industries often engage in acquisitions to substitute for costly research and development (R&D) investment. Empirical evidence from Europe shows that firms engage in M&As to enhance their technological competencies, and that such deals feature expectations of high value creation (Huygebaert & Luyypaert, 2013). Moreover, competition forces and pressures to increase efficiency drive companies from countries with both smaller and larger domestic markets to source technology-intensive activities globally (Gassmann & von Zedtwitz, 1999). When takeover motives involve the acquisition of superior technological assets, first-mover advantages matter, which in turn should result in more aggressive M&A strategies (Bower, 2001). Based on these arguments, we expect the combination of high expected value creation and external pressures for rapid expansion to lead to the completion likelihood of technology-based deals being higher compared to other deals, and that these factors also counteract the negative effect of spatial distance. Therefore, we propose the following hypothesis:

H3a. The completion likelihood of cross-border M&A deals is higher when the acquirer and target operate in technology-based industries.

H3b. The negative effect of spatial distance on the completion likelihood of cross-border M&A deals is lower when the acquirer and target operate in technology-based industries.

3. METHODOLOGY

3.1. Data and Sample

The sample includes 8,496 cross-border M&A deals with the acquirer and target being from different countries. The countries covered are the 24 countries that hosted the most cross-border M&A activity between 2004 and 2015 (Xie et al., 2017); this way, the number of possible country pairs is 576. The transactions were initiated between 1 January 2003, the year marking the start of the sixth merger wave, and 31 December 2015, which is the latest year in which data on the country-level variables were available. In order to be included in the sample, the transactions had to be marked as either 'merger' or 'acquisition'. In addition, they had to be either completed or withdrawn by the 31 December 2016 and could not have any missing values for key variables.

3.2. Measurement

3.2.1. Dependent Variable

We use data from the Zephyr database (Bureau van Dijk, 2017), which collects data on M&As worldwide with an emphasis on European deals. The date of announcement marks the beginning of the public stage of the transaction, and the date of completion or withdrawal marks its resolution. The sample, therefore, does not include deals that were either completed in private or abandoned before being announced to the public. Based on this, we define Completed – an indicator for whether an announced transaction was completed (1) or not (0).

3.2.2. Independent Variables

Industry relatedness (Related) is defined based on the primary NAICS 2012 code so that an acquisition is related if the acquirer and target operate at least in the same 4-digit industry. Since horizontal deals and related diversification deals form the group of related takeovers, the reference group includes both vertical and conglomerate takeovers. In some cases, the primary NAICS code of the acquirer or the target consists of less than 4 digits, we treat these deals as unrelated.

The definition of technologically intensive industries is used very broadly in academic literature (Hecker, 1999). We focus on R&D intensity of the workforce of each industry, a method originally developed by the United States Bureau of Labor Statistics. The method can be used to identify both manufacturing and non-manufacturing industries that rely heavily on science and technology. Service-related M&A activity has become more important after the global financial crisis (Rao & Reddy, 2015), which is why this definition is preferred.

Data on industry-level R&D employment come from the Survey of Industrial Research and Development (National Science Foundation, 2006, 2008, 2009, 2011) and the Business R&D and Innovation Survey (National Science Foundation, 2013, 2014–2016), both conducted by the United States Census Bureau. The data are on worldwide employment for companies employing at least five people in the USA, and therefore should be interpreted as an approximation of industry employment trends worldwide. We set the criterion for technology-based industries as having had an R&D employment share of at least twice the average of all industries for at least five years over the period for which data are available. Technology-based is a dummy variable, coded with 1 if the acquirer and the target of the focal deal operate in any of the industries fulfilling the above criterion. This leaves transactions between firms of which at least one operates in a non-technology-based industry as the reference group, with the dummy taking value 0.
Bilateral spatial distances are drawn from the GeoDist database (Mayer & Zignago, 2011) of the Centre d’Etudes Prospectives et d’Informations Internationales. The distances are defined so that the influence of within-country population distributions is taken into account. The calculated Spatial distance between two countries is based on the bilateral distance in kilometres between the two biggest cities of the countries, with inter-city distances weighted by the share of the city in the overall population.

3.2.3. Control Variables

We expect institutional and cultural differences to influence M&A outcomes. Conventional wisdom suggests acquirers from countries like the USA and the UK prefer host countries with similar levels of institutional development and good regulatory quality (Xie et al., 2017). The effectiveness of regulatory scrutiny on behalf of the host country government is an important determinant of deal completion likelihood, with greater distance between national institutions being associated with longer approval times for announced deals (Xie et al., 2017). We measure formal Institutional distance based on institutional quality data from the World Bank Governance Indicator database (World Bank, 2017). The dimensions that we consider most relevant for M&A deals are rule of law, regulatory quality and government effectiveness. We average the yearly values for each dimension of each country over the period 2003–2015, and follow Huang, Zhu, and Brass (2017) in constructing an index of institutional distance by applying Kogut and Singh’s (1988) formula to combine the effect of each dimension.

Second, we construct an index measuring Cultural distance in a similar manner. Cultural distance is suggested to affect firm interaction and integration through influencing management style and organisational structures, such as reward and evaluation systems, and personnel matters like recruitment and compensation policies (Friedman et al., 2016). While these characteristics are in part specific to each firm, it can be argued that firms are to some extent always rooted in the culture of their home country (Dikova et al., 2010). Empirical evidence offers support for the claim that cultural differences reduce the incidence of M&As (DiGuardo, Marrocu, & Paci, 2016), and such disparities may also influence deal completion likelihood. We apply again the index of Kogut and Singh (1988), this time based on six dimensions of national culture (Hofstede, 2001, 2010; Hofstede, Hofstede, & Minkov, 2010): power distance, individualism vs collectivism, uncertainty avoidance, masculinity vs femininity, long-term vs short-term orientation and indulgence vs restraint. The appeal of using these measures comes from not only the wide coverage of countries, but also their simplicity and the fact that they capture attitudes in the workplace.

Cross-border M&As in Related and Technology-intensive Industries

On the firm level, relevant acquisition experience has been found to increase the likelihood of cross-border deal completion when the parties are from advanced economies (Dikova et al., 2010). We control for Completion experience, defining it as the number of successfully completed cross-border takeovers during the three years preceding the focal acquisition (Muehfeld et al., 2012). State ownership may decrease deal completion likelihood as these deals automatically attract more regulatory scrutiny, which can cause delays in the process (Dikova et al., 2010). Hence, we include two dummy variables, Public acquirer and Public target, both coded as 1 if the firm is publicly owned and 0 otherwise.

On the transaction level characteristics, payment by cash is associated with less uncertainty about the deal value compared to stock-financed deals, and foreign targets are therefore more likely to accept cash offers (Dikova et al., 2010; Huang, Officer, & Powell, 2016). The dummy variable Cash payment takes the value 1 if the primary method of payment was cash and 0 otherwise. Second, Deal value may be correlated with factors that influence deal outcomes, such as defence tactics (Wong & O’Sullivan, 2001), uncertainty over the target’s intrinsic value (Huang et al., 2016) or increased regulatory scrutiny (Muehfeld et al., 2007), and is therefore controlled for. Third, a toehold in the target may positively influence deal outcomes, as it may reduce resistance and correlate with smaller deal values (Wong & O’Sullivan, 2001). The variable Toehold takes the value 1 if the bidder owns stake in the target prior to the focal acquisition, and 0 otherwise. Fourth, the percentage of shares sought (Percentage sought) is also controlled for. The higher the percentage, the more is at stake for shareholders, which may influence the likelihood of approval of the deal (Dikova et al., 2010). Finally, year dummies control for cyclical variation, with 2003 being the base year.

Our model is a binary logistic regression model (Dikova et al., 2010; Muehfeld et al., 2012; Chakrabarti & Mitchell, 2016) with clustered standard errors to control for within-firm correlation in acquisition outcomes.

4. RESULTS

The 8,489 sampled transactions were attempted by 5,833 firms. A total of 424 (5%) are abandoned deals, 3,137 (37%) are between related firms and 1,982 (23%) are between technology-based firms. Table 1 shows descriptive statistics and pairwise correlations for all variables except year dummies. An examination of the correlations and the associated variance inflation factors do not show evidence of multicollinearity.

Results from Wald chi-square tests reported at the bottom of Table 2 suggest that for all six models, the null hypothesis that all of the regressors
### Table 1. Descriptive Statistics and Pairwise Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean (SD)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<th>(6)</th>
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<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
<th>(12)</th>
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</thead>
<tbody>
<tr>
<td>(1) Completion</td>
<td>0.95 (0.22)</td>
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<td>(2) Related</td>
<td>0.37 (0.48)</td>
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<td>(3) Technology-based</td>
<td>0.23 (0.42)</td>
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<td>(4) Spatial distance</td>
<td>0.56 (0.48)</td>
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<td>(5) Institutional distance</td>
<td>0.95 (1.95)</td>
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<td>(6) Cultural distance</td>
<td>1.25 (1.25)</td>
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<td>(7) Completion experience</td>
<td>0.65 (1.55)</td>
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<td>(8) Public target</td>
<td>0.01 (0.10)</td>
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<tr>
<td>(9) Public acquirer</td>
<td>0.01 (0.11)</td>
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<td>(10) Deal value</td>
<td>0.40 (2.66)</td>
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<td>(11) Tocheld</td>
<td>0.06 (0.23)</td>
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<tr>
<td>(12) Percentage sought</td>
<td>94.31 (15.09)</td>
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<tr>
<td>(13) Cash payment</td>
<td>0.64 (0.48)</td>
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</table>

*Notes: N = 8,480.*

*Correlation is significant at the 0.05 level (two-tailed).*

### Table 2. Regression Results for Cross-border M&As.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 (H1)</th>
<th>Model 2 (H2a)</th>
<th>Model 3 (H2b)</th>
<th>Model 4 (H3a)</th>
<th>Model 5 (H3b)</th>
<th>Model 6 (H4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial distance</td>
<td>1.022***</td>
<td>1.019***</td>
<td>0.819***</td>
<td>1.018***</td>
<td>0.791**</td>
<td>0.653*</td>
</tr>
<tr>
<td>Spatial distance squared</td>
<td>-0.717**</td>
<td>-0.713***</td>
<td>-0.703***</td>
<td>-0.714***</td>
<td>-0.660***</td>
<td>-0.655***</td>
</tr>
<tr>
<td>Institutional distance</td>
<td>0.046</td>
<td>0.047</td>
<td>0.049</td>
<td>0.047</td>
<td>0.030</td>
<td>0.042</td>
</tr>
<tr>
<td>Institutional distance sqrt</td>
<td>-0.004</td>
<td>-0.004</td>
<td>-0.005</td>
<td>-0.004</td>
<td>-0.004</td>
<td>-0.004</td>
</tr>
<tr>
<td>Cultural distance</td>
<td>0.407***</td>
<td>0.406***</td>
<td>0.414***</td>
<td>0.408***</td>
<td>0.393***</td>
<td>0.402***</td>
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<tr>
<td>Cultural distance squared</td>
<td>-0.101***</td>
<td>-0.101***</td>
<td>-0.102***</td>
<td>-0.101***</td>
<td>-0.097***</td>
<td>-0.098***</td>
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<tr>
<td>Completion experience</td>
<td>0.193***</td>
<td>0.195***</td>
<td>0.198***</td>
<td>0.199***</td>
<td>0.197***</td>
<td>0.199***</td>
</tr>
<tr>
<td>Public target</td>
<td>0.359</td>
<td>0.361</td>
<td>0.588</td>
<td>0.559</td>
<td>0.555</td>
<td>0.579</td>
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<tr>
<td>Public acquirer</td>
<td>0.053</td>
<td>0.057</td>
<td>0.603</td>
<td>0.603</td>
<td>0.599</td>
<td>0.600</td>
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<tr>
<td>Deal value</td>
<td>-0.976**</td>
<td>-0.979**</td>
<td>-0.970**</td>
<td>-0.973**</td>
<td>-0.956**</td>
<td>-0.956**</td>
</tr>
<tr>
<td>(13) Cash payment</td>
<td>-0.118***</td>
<td>-0.118***</td>
<td>-0.118***</td>
<td>-0.118***</td>
<td>-0.123***</td>
<td>-0.123***</td>
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</table>
### Table 2. (Continued)

<table>
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<tr>
<th>Variables</th>
<th>Model 1 (H1)</th>
<th>Model 2 (H2a)</th>
<th>Model 3 (H2b)</th>
<th>Model 4 (H3a)</th>
<th>Model 5 (H3b)</th>
<th>Model 6 (H4*)</th>
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</thead>
<tbody>
<tr>
<td>Toehold</td>
<td>-2.130***</td>
<td>-2.130***</td>
<td>-2.141***</td>
<td>-2.130***</td>
<td>-2.128***</td>
<td>-2.128***</td>
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<tr>
<td></td>
<td>(0.240)</td>
<td>(0.240)</td>
<td>(0.240)</td>
<td>(0.240)</td>
<td>(0.240)</td>
<td>(0.240)</td>
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<tr>
<td>Percentage sought</td>
<td>-0.022***</td>
<td>-0.022***</td>
<td>-0.022***</td>
<td>-0.022***</td>
<td>-0.022***</td>
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<tr>
<td></td>
<td>(0.006)</td>
<td>(0.006)</td>
<td>(0.006)</td>
<td>(0.006)</td>
<td>(0.006)</td>
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<tr>
<td>Cash payment</td>
<td>0.262**</td>
<td>0.262**</td>
<td>0.266**</td>
<td>0.261**</td>
<td>0.260**</td>
<td>0.262**</td>
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<tr>
<td></td>
<td>(0.104)</td>
<td>(0.104)</td>
<td>(0.104)</td>
<td>(0.104)</td>
<td>(0.104)</td>
<td>(0.104)</td>
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<tr>
<td>Related</td>
<td>-0.017</td>
<td>-0.280*</td>
<td>-0.107</td>
<td>(0.155)</td>
<td>(0.107)</td>
<td></td>
</tr>
<tr>
<td>Technology based</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Related x spatial distance</td>
<td></td>
<td>0.022</td>
<td>-0.404**</td>
<td>(0.126)</td>
<td>(0.185)</td>
<td>(0.188)</td>
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<tr>
<td>Technology based x spatial distance</td>
<td></td>
<td>0.812***</td>
<td>0.739***</td>
<td>(0.207)</td>
<td>(0.375)*</td>
<td>(0.209)</td>
</tr>
<tr>
<td>LR χ²</td>
<td>224.94***</td>
<td>225.38***</td>
<td>225.61***</td>
<td>224.95***</td>
<td>237.00***</td>
<td>237.48***</td>
</tr>
<tr>
<td>Pseudo-R²</td>
<td>0.078</td>
<td>0.078</td>
<td>0.080</td>
<td>0.078</td>
<td>0.080</td>
<td>0.081</td>
</tr>
</tbody>
</table>

*Notes: N = 8,480; clustered standard errors in parentheses; year dummies not shown.*

*p < 0.10,*

**p < 0.05,*

***p < 0.01.
that these deals are, in fact, more likely to be completed in distant locations than other deals.

5. DISCUSSION AND CONCLUSION

Our empirical results do not support the idea that the relationship of spatial distance and cross-border M&A completion likelihood is negative. In fact, deals in geographically distant locations were found to have higher completion odds than more proximate deals. It should be kept in mind that the results concern only deals between the countries that have hosted the most M&A activity, so that unpopular host countries have been omitted from the analysis. Because extreme country-level differences may reduce the willingness of firms to even consider engaging in M&A deals (DiGuardo et al., 2016), this may have led to self-selection among firms, as it is possible only firms that are able to effectively reduce uncertainty stemming from distance initiate such transactions. It seems likely that some moderating factors driving M&As in distant countries remain uncontrolled, for example acquirers relying on local consultants or the effect of gaining access to high gains through production factors, such as labour and natural resources. The positive relationship of distance and completion odds may reflect the attractiveness of distant markets as host countries especially for technology-based deals. For example, research has shown that MNEs engaging in R&D activity abroad tend to concentrate on a few leading geographical areas that have both high technological capabilities and attractive markets, in other words the USA, Western Europe, and Japan (Gassmann & von Zedtwitz, 1999). In addition, we know that many firms engaging in M&As operate in R&D-intensive manufacturing. Hjizen et al. (2008) suggest the strong presence of manufacturing firms among both acquirers and targets to be at least partially caused by increased competition and technological change in these industries. The acquisition of technology assets is reported to have become a more important strategic driver of takeovers (Deloitte, 2016), a trend which combined with research evidence associating strategic motives rather than financial ones with higher deal completion likelihood (Lim & Lee, 2016) may also add to the outcome. If technology-based deals across these locations are driven by high expected gains and competitive pressures, this may in part explain the positive effect of distance on completion likelihood.

The results for relatedness contradict the previous research on the topic (see Lim & Lee, 2016), suggesting related deals are only more likely to be completed when taking place in distant countries. This may have to do with how relatedness is defined, and how accurate the firm-level data on the core areas of operation are. There may also be factors causing relatedness to decrease completion odds of international takeovers. Related deals may require more information in order to successfully integrate the target (Chakrabarti & Mitchell, 2015), predicting lower incentives for deal completion. In addition, expected gains from related deals may be lower due to the lack of possibility to benefit from factor price differences and spatial diversification (Hjizen et al., 2008), discouraging deal finalisation. A third aspect is that vertical integration, which is a form of unrelated expansion, may offer firms higher expected gains in the form of competitive advantage, economies of scope, or eliminating bargaining costs when production involves specialised assets (Balakrishnan & Wernerfelt, 1986). Gains from spatial diversification and the possibility of exploiting differences in factor prices also raise the economic gains for unrelated deals (Hjizen et al., 2008). These factors combined may explain the inconclusive result.

Some inaccuracy may have been introduced in the estimations due to the fact that we have only considered the primary industry classifications of the sampled firms. In the case that some of the firms already operate in more than one core industries, the precision of the estimations would benefit from taking them all into account. Only considering one primary area of operation in this case leads to biased estimates of the effect of both relatedness and technological intensity, because the breadth of the operations of acquirers is ignored. Given that diversification is common, with easy-to-find examples such as General Electric, which operates in power and water, transportation, oil and gas and healthcare among others, and the automaker Tesla that recently crossed over to batteries, it seems the results may suffer from misspecification.

Practical implications following from the notion that technological intensity is related to deal completion likelihood may be interesting to researchers, managers, and regulatory bodies. First, attention should be paid to the reasons behind deals in technology-based industries being more likely to be completed; is the due to a more aggressive expansion strategy driven by competitive pressures, higher expected value creation or a combination of the two? A promising variable for future research is industry lifecycle, which may be related to M&A outcomes as it influences uncertainty levels, coordination costs and the optimal degree of integration (Bauer et al., 2016). In any case, technology-based industries have experienced rapid growth over the past several decades and are expected to continue to do so, and will therefore continue to offer interesting subject material for scholars.
While the focus of this paper has been on the factors affecting M&A success at the pre-completion stage, an important follow-up question is whether technology-based deals are also more likely to succeed in creating value post-acquisition. In other words, if deals in technology-based industries are completed at a greater likelihood than takeovers in other industries, all else equal, is this because they are more often ‘good’ deals with larger potential for value creation, or because competition or some other external pressures drive multinational enterprises to expand fast, leading them to ignore uncertainties about the value-creation potential of certain acquisitions? While managers are arguably aware of the underlying motives of expansion, shareholders may be less informed. The separation of the drivers of expansion should therefore attract more attention in future research. In addition, policymakers and regulators may find it interesting that the speed of concentration is high in technologically intensive industries. In any case, the topic merits more attention, as the discussion is still relatively new in the international business literature despite being increasingly relevant to many parties.

NOTES

1. Some of the reported deals involve multiple bids, meaning an acquirer has attempted a takeover of the same target more than once. Each bid appears as a separate transaction in the data, and including the observations as they are would lead to double counting. For the sake of preserving as much information as possible, multiple bids are not omitted, but instead limited in the sample so that for each takeover involving the same acquirer and target, only one failed bid is taken into account. Based on information on deal type descriptions, 74 of the completed deals were preceded by at least one failed takeover attempt for these cases, one randomly chosen failed bid is taken into account. Of the withdrawn multiple bids, some were not succeeded by completed bids – only one randomly chosen bid is taken into account for these cases. With these selection criteria, 2.6% of the remaining observations involve multiple bidding.

2. ‘Horizontal’ and ‘related diversification’ in this context refer to intra-industry takeovers, ‘vertical’ to expansion through buyer–supplier linkages and ‘conglomerate takeovers’ to diversification to business activities that are unrelated to the acquirer’s core area of operation.

REFERENCES


