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Citation

CUYPERS, Ilya; ERTUG, Gokhan; and HENNART, Jean-Francois. The Effects of linguistic distance and lingua franca proficiency on the stake taken by acquirers in cross-border acquisitions. (2015). *Journal of International Business Studies*. 46, (4), 429-442.

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**THE EFFECTS OF LINGUISTIC DISTANCE AND LINGUA FRANCA
PROFICIENCY ON THE STAKE TAKEN BY ACQUIRERS IN CROSS-BORDER
ACQUISITIONS**

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Published in *Journal of International Business Studies*, May 2015, Volume 46, Issue 4, pp 429–442

<http://dx.doi.org/10.1057/jibs.2014.71>

Acknowledgements

We would like to thank for their comments Youtha Cuypers, Mike Hitt, Elizabeth Rose, Arjen Slangen, Tony Tong, Area Editor David C. Thomas, and three anonymous reviewers. We have also benefited from comments by participants at a presentation at Singapore Management University. The third author gratefully acknowledges financial support from the Cariplo Foundation international recruitment call, *The Internationalization of Italian Firms: the Role of Intangibles, Managerial Resources, and Corporate Governance*. The authors are listed in alphabetical order; they all contributed equally to the manuscript.

THE EFFECTS OF LINGUISTIC DISTANCE AND LINGUA FRANCA PROFICIENCY ON THE STAKE TAKEN BY ACQUIRERS IN CROSS-BORDER ACQUISITIONS

ABSTRACT

We study the effects of linguistic distance and lingua franca proficiency on the equity stake taken by acquirers from 67 countries in 59,092 acquisition targets in 69 host countries. We theorize and find that acquirers take lower equity stakes in foreign targets when linguistic distance and differences in lingua franca proficiency between them are high, and take higher stakes when the combined lingua franca proficiency of the parties is high. We also find that linguistic and cultural distance reduce the impact of the combined lingua franca proficiency of the parties on the level of equity taken, which shows that the effective use of a lingua franca is affected by the native tongues and cultures of the parties. Our results clearly demonstrate that governance research and international business studies can benefit from incorporating language into their explanatory models.

INTRODUCTION

International business (IB) studies economic interdependencies between individuals, teams, and firms located in different countries. The distance between these countries is therefore a crucial variable in IB (Zaheer, Schomaker and Nachum, 2012). Geographical distance was the first distance considered in IB. When it failed to fully account for European trade patterns, Beckerman (1956: 38) suggested that it should be complemented with psychic distance, which he thought was due in part to “language difficulties.” Johanson and Vahlne (1977: 24) made psychic distance the cornerstone of their Uppsala internationalization process model, and defined it as “the sum of factors preventing the flow of information to and from the market.” These factors included “differences in language, culture, political systems, level of education, level of industrial development” (Johanson & Wiedersheim-Paul, 1975: 308). Language differences were thus central to early conceptualizations of distance.

In 1988 Kogut and Singh (1988) proposed a convenient way to operationalize cultural distance that did not consider other dimensions of psychic distance such as language. Researchers started to equate psychic distance with cultural distance and used Kogut and Singh’s cultural distance index, based on the four Hofstede (2001) dimensions of culture, to measure psychic distance. Thus, while language differences were integral to early concepts of psychic distance, they are now seldom explicitly considered. Hence the claim that language has become “the forgotten factor in multinational management” (Marschan, Welch & Welch, 1997).

We aim to further reinstate language in the entry mode literature as a crucial factor in its own right by considering the effect of linguistic distance and lingua franca proficiency on the share of equity taken in international acquisitions. Much of the burgeoning literature on the impact of language has used qualitative methods and has focused on intra-firm relationships (e.g., Vaara, Tienari, Piekkari & Santti, 2005; Hinds, Neeley, & Cramton, 2014; Śliwa &

Johansson, 2014). Yet language also plays a crucial role in the inter-firm interactions that characterize a firm's international expansion. Language differences, for example, are likely to significantly impact international acquisitions, as the acquisition process (e.g., target selection, negotiations, due diligence, post-deal integration and management) is communication-intensive (e.g., Haspeslagh & Jemison, 1991). Yet despite its crucial role in inter-firm settings, we know of only four large-scale empirical studies that have looked at how language affects modes of entry, with only two of those (Lopez-Duarte & Vidal-Suarez, 2010; Demirbag, Glaister & Tatoglu 2007) modelling, as we do, the stake a parent takes in an affiliate.¹ With the exception of Slangen (2011), these studies have not considered the fact that communication in international business is increasingly done in a common language different from the parties' native language. This common language, often called *lingua franca*, is very often English (Nickerson, 2005; Boussebaa, Sinha, & Gabriel, 2014; Jeanjean, Stolowy, Erkens, & Yohn, 2014). The fact that a *lingua franca* allows for communication even when the parties' native languages are distant from each other raises the interesting question of whether linguistic distance still matters in a world in which many international business transactions are conducted in English. We therefore investigate the impact of both the linguistic distance between the home country of the acquirer and that of the target, and that of their English language proficiency. Specifically, using arguments from information economics, we hypothesize that both the linguistic distance between the native languages of the home countries of the acquirer and of the target and the level of English proficiency in the two countries will affect the ownership levels the acquirer takes in the target. In addition, we argue that linguistic distance and cultural distance also impact the effectiveness of using a *lingua franca*. This is because how well individuals communicate in the *lingua franca* is also affected

¹ The other two, Dow & Larimo (2011) and Slangen (2011), look at the choice between greenfield and acquisitions.

by the distance between their native languages and by that between their home country cultures. We test our predictions on a sample of 59,092 cross-border acquisitions. Our large number of both home and host countries makes our results less likely to be driven by any language or country-specific effects.

We find that linguistic distance is an important element of psychic distance, and that it has a separate and complex influence on modes of entry. Hence language should not be subsumed, conceptually or empirically, in cultural distance, but clearly merits further investigation as a separate factor. Our findings also suggest that previous studies might have overestimated the direct effect of linguistic distance by failing to consider the role played by English as a lingua franca. Finally, they indicate that the effectiveness of using a lingua franca depends on cultural and linguistic differences between the parties.

BACKGROUND

What determines the equity share taken by an acquirer in a target?

The equity stake an acquirer takes in a target (for a recent overview see Chari & Chang, 2009) is a subset of the choice between partial ownership and full ownership of foreign affiliates (e.g., Hennart, 1991). Two prominent arguments advanced to explain that level of equity hinge on the idea that disturbances in the flow of information between acquirer and target create a situation of information asymmetry, and this in turn leads the acquirer to reduce its equity stake. As one would expect language to influence such disturbances, it is surprising that it has not been explicitly incorporated in either of these arguments.

The logic underlying the first reason why acquirers may take a smaller stake in a target is drawn from the information economics literature. There is often substantial information asymmetry between acquirers and targets. Managers and owners of targets have generally a better idea of the value of their firms than acquirers do. But they have few incentives to provide

information that would lower the value acquirers may place on their firm. Because of this, even the truthful information they provide may be discounted by potential acquirers – Akerlof’s (1970) *lemon* problem. Public sources available to potential acquirers may provide only partial, or misleading information; not the reliable, in-depth, and private information they need. To alleviate this *lemon* problem sellers need to signal their confidence in the quality of their firms (Balakrishnan & Koza, 1993; Hennart & Reddy, 1997). They do this by offering to keep a partial stake in their firm. Acquirers can then experience first-hand that the firm is valuable and can subsequently decide whether and how much of the remaining stake to buy. The greater the level of information asymmetry between acquirers and targets, the more persuasion is likely to be needed to reassure acquirers, and hence the higher the share of equity targets will offer to hold until the level of information asymmetry has been sufficiently reduced (Chari & Chang, 2009).

A second reason why acquirers may prefer to take less equity in a target is the need to preserve the post-acquisition incentives of the target’s decision makers. After an acquisition is completed comes the hard work of integrating it. Taking full equity in a target would seem to be an effective way for acquirers to guarantee that their policies are implemented in the target because it gives them the right to make unilateral decisions.² But high levels of information asymmetry between the acquirer and the target make it difficult for an acquirer to implement its decisions. High information asymmetry allows the employees of the target to obfuscate and to resist implementation. They may argue that changes in circumstances have made the acquirer’s directives infeasible or unadvisable, a claim that the acquirer may be unable to evaluate. Leaving part of the stake in the hands of the target’s decision-makers can alleviate this moral hazard problem. Giving them an equity stake assures that they will cooperate with the acquirer and that they will continue to contribute to their firm’s success, since the price they

² We thank an anonymous referee for suggesting this point.

will get from selling the remaining stake depends on their firm's performance.³ They will have incentives to make use of their tacit knowledge, such as local marketing know-how (Hennart, 1991). How crucial it is to harness the incentives of the target's decision-makers should depend on how difficult it is for acquirers to obtain the tacit information these decision-makers hold, or, in other words, on the extent of information asymmetry between the parties. .

We have reviewed two reasons why acquirers who have less information than targets would want to take a lower stake in an acquisition target. When is this likely to be the case? The IB literature has argued that acquirers are likely to be in a situation of information asymmetry when they are distant from sellers, because distance disturbs the flow of information. The literature on acquisitions has focused on geographic distance (e.g., Ragozzino, 2009) and cultural distance (e.g., Malhotra, Sivakumar & Zhu, 2011). Surprisingly, with the exception of Demirbag, Glaister and Tatoglu (2007) and Lopez-Duarte and Vidal-Suarez (2010), who make a different argument based on the level of uncertainty facing the acquirer, no study has, as far as we know, theoretically or empirically considered how linguistic distance and lingua franca proficiency affect this information asymmetry, and hence the level of equity taken by an acquirer in a target. This is surprising given that differences in languages are important reasons why information is not transferred, and hence why there is information asymmetry.

THEORY

Linguistic distance and foreign ownership levels

As we have argued, the owners and managers of acquisition targets have no incentives to provide would-be acquirers information that would lower the value of their firms. To reduce

³ This is the case when managers are owners, or when their compensation (e.g. stock options) gives them incentives that are in line with those of the owners.

this information asymmetry, potential acquirers need to access reliable, in-depth, and privileged information from a variety of sources in the target country. Such information is likely to come from individuals with whom one has a trusting relationship. Establishing a trusting relationship requires frequent and informal social contacts built over a period of time (e.g., Levin & Cross, 2004). Such close social contacts are difficult between individuals who do not speak the same language (Welch, Welch & Piekkari, 2005). As a result, one would expect language differences to impair the establishment of close relationships, and hence to reduce the quantity and quality of information transferred. There is a considerable amount of evidence on this point, most of it at the intra-firm level, but applicable to the inter-firm level as well. Buckley, Carter, Clegg, and Tan (2005: 55-57), for example, find that communication and exchange of important information between parents and foreign subsidiaries was more difficult if employees spoke different languages. Mäkelä, Kalla and Piekkari's (2007) study of knowledge sharing in three multinational companies shows that speaking a common language (a mother tongue or a lingua franca) leads to a sense of similarity that strengthens interpersonal attraction and fosters informal connections. These personal connections lead in turn to greater transfer of soft knowledge, insider information for example. Hence one would expect that the greater the language barrier between the country of the acquirer and that of the target, the less the amount of relevant information transferred, and the greater the information asymmetry between the two. This information asymmetry is also relevant in the post-acquisition stage, because language barriers will make it difficult for the acquirer to manage the target without the inside information held by its existing decision-makers. In that case it makes sense to motivate these decision-makers by leaving them an equity stake. In short, language barriers generate information asymmetries that increase the benefit of leaving an equity stake with the target.

A considerable number of people are likely to be involved in this search for information which will impact the acquirer's ownership decision, both from the acquirer's side (e.g., managers from different levels and functional areas, due diligence and legal teams, top management teams) and from the target's side (managers from different levels and functional areas, legal teams, top management teams) as well as other relevant parties in the host country that can provide information about the target and its environment. Likewise, managing the firm after the acquisition will involve many managers from both sides of the deal, gathering and exchanging extensive information about the host country and the target firm. While the linguistic distance between the acquirer and the target and their lingua franca fluency are best measured at the level of the individual, the large numbers involved at various stages of the process makes this nearly impossible in a large sample such as ours. Therefore, it makes sense in our case to measure these variables by taking the average values of the country of the acquirer and of the target.

How does one measure the height of the language barrier between countries? Some studies have introduced the concept of *linguistic distance* and have measured it by a dummy variable equal to one if the interacting parties are based in countries with the same official language and zero otherwise (e.g., Davidson & McFetridge, 1985). This measure may discard valuable systematic variance. First, in some countries (for example Switzerland, the United States, Finland, and Belgium) a significant number of residents speak as first language a language also spoken in another country. Second, residents of a country may, besides their mother tongue, also speak a learned second language. Most Dutch have learned and speak German, reducing the linguistic distance between the Netherlands and Germany. Linguists have also shown that the difficulty of learning a foreign language varies in predictable ways. Hart-Gonzalez and Lindemann (1993) report language scores for English-speaking Americans of average ability after 16 and 24 weeks of language training. These scores show that the

fluency attained depends on whether the language they are trying to learn belongs to a different or to the same language family, and, in this latter case, to the same or different branches of the same family. Languages belong to the same family if they share a common origin, and languages that share a common origin tend to have similar syntaxes, and hence are closer and generally easier to understand and learn than languages that belong to different families, with languages that belong to the same sub-branch of the same family being in some cases mutually understandable. One can therefore meaningfully talk of *distance* between two languages and go beyond the simple distinction of two languages being the same or different. Accordingly, and following Dow and Karunaratna (2006), we define *linguistic distance* as made up of three elements: (1) the syntactic distance between the official languages spoken in two countries, i.e. whether they belong to the same family, to the same branch of the same family, to different branches of the same family, or to different families; (2) the proportion of home country residents who speak the target country's language; (3) the proportion of target country residents who speak the home country's language.

We suggest that the greater the linguistic distance between the home country of the acquirer and that of the target, the greater the level of information asymmetry between the parties, and hence the greater the benefit of taking a lower stake to reduce the risk of overvaluing the target and to preserve incentives for the managers of the acquired firm. Consequently:

Hypothesis 1: The greater the linguistic distance between the home countries of an acquirer and a target, the lower the equity taken by the acquirer in the target.

Lingua franca and its impact on foreign equity levels

Two parties with linguistically distant native tongues, and hence who have difficulty understanding each other, can opt to use a lingua franca. While Latin and French were used in earlier times, “the dominance of English used as a lingua franca in international business contexts is now seemingly beyond dispute” (Nickerson, 2005: 367). We expect therefore that both the *difference between the parties in their English proficiency* and their *combined English proficiency* will affect how effectively they can communicate. Each of these factors, holding the other constant, should affect communication effectiveness, and hence information asymmetry reduction.⁴

To understand this, consider the following examples. Assume that partners A and B are in countries with English proficiency levels of 1 and 9 while partners C and D reside in countries with proficiency levels of 4 and 6. Both pairs have the same combined English proficiency score of 10, but the difference in proficiency is 8 for the first pair and 2 for the second. We would expect the second pair to communicate better. In other words, the more parties differ in their level of English proficiency, keeping their combined English proficiency constant, the less effective their communication (e.g., Neeley, 2013; Hinds et al., 2014), and the higher the level of information asymmetry, and hence the lower the equity taken by an acquirer in a target. Hence,

Hypothesis 2: The greater the difference in English language proficiency between the home countries of an acquirer and a target, the lower the equity taken by an acquirer in a target.

Assume now that partners E and F are in countries with English proficiency levels of 2 and 3 and partners G and H are in countries with English proficiency levels of 8 and 9. Both

⁴ Separating the impact of differences in the attributes of the parties from that of their combined attributes is common in dyadic research (e.g., Ahuja, Polidoro, & Mitchell, 2009).

pairs have the same difference in English proficiency, i.e., a difference of 1. But their combined proficiency is 5 for the first pair and 17 for the second. It is reasonable to think that the second pair will find it easier to communicate, because, in spite of possible differences between their fluency levels, the overall higher combined level of fluency means that a greater percentage of what is being meant by one of the parties will be in sufficiently good English to be understood by the other. In other words, the absolute volume of shared meanings will be higher. Hence the greater the combined level of English proficiency of the parties, keeping differences in proficiency constant, the more effective communication, and the lower the level of information asymmetry between them. In such a case the need for letting the target keep a significant equity stake should be lower. Hence our second hypothesis:

Hypothesis 3: The greater the combined English language proficiency in the home countries of an acquirer and a target, the higher the equity taken by an acquirer in a target.

Factors Moderating the Relationship between English proficiency and level of Equity Taken

We predict in Hypothesis 3 that the partners' combined English proficiency contributes to more effective communication, and thus reduces information asymmetry. We now hypothesize that two factors moderate this relationship. The first one is the linguistic distance between the native tongues of the lingua franca speakers, while the second is the cultural distance between their countries of origin. We discuss these two factors in turn.

De Saussure (1983) has argued that the meaning of words in a language can be understood only in their context. Because different languages correspond to different contexts, speakers using English as a lingua franca may use the same English word to mean different

things. For example, Flory (1988, quoted in Chen, Geluykens, & Choi, 2006) relates how the English word *commitment* had different meanings to members of a multilingual research team. Similarly, while *control* means in English the ex-ante direction of behavior, to a French speaker it means ex-post verification of results, which is quite different. Furthermore, the grammatical structure of a language may also influence the way information comes out in English. Dutch and German speakers often sound rude in English because of the less common use of *may* and *should* in their native tongues (Chen et al, 2006: 683). In other words, the English spoken by non-native speakers of English is likely to be influenced by their native tongue, making the information transferred potentially ambiguous, with sometimes dramatic consequences. As an illustration, the transposition of Dutch grammar into English is one of the causes of the deadliest aviation disaster to date, the collision between two 747s on the runway of Tenerife airport in 1977. The Dutch pilot radioed “we are now at takeoff”, a direct translation from Dutch in which “at takeoff” refers to an action rather than a position. In other words, by “at takeoff” the Dutch pilot meant “in the process of taking off.” The controller heard that the Dutch pilot was *positioned and ready* to take off but would await further instructions, and replied “OK.” The Dutch pilot then rolled down the runway and collided with a Pan Am plane which was sitting on the same runway (Wierzbicka, 2006: 304). More generally, the extent to which non-native speakers of English will carry over mother tongue meanings and syntax into English, and hence the potential for miscommunication between speakers of English as a lingua franca, may depend on the linguistic distance between the mother tongues of the parties. Consequently, the higher that linguistic distance, the less their English proficiency will help alleviate information asymmetry, and the lower the level of equity taken in a target. In other words,

Hypothesis 4: The positive relationship between English language proficiency in the home countries of an acquirer and a target and the level of equity taken by an acquirer in a target is weaker when the linguistic distance between them is larger.

The second moderating factor we consider arises from differences in the home country cultures of the two parties. Language conventions reflect culture, and hence the way non-native speakers articulate their thoughts in English is likely to be influenced by their native culture. As Hofstede (2001: 21) puts it, “In some cultures and subcultures, being polite to the other person is more important than supplying objectively correct information; in some, respondents will never use *no*. In a comparative experiment conducted in Iran and England, one out of five passersby in Iran pointed a foreigner the way to a place even if that place did not exist; in England nobody did this (Collett & O’Shea, 1976: 453).” International aviation, which uses English as a lingua franca, offers many examples suggesting that the cultural background of the parties leads to miscommunication. In January 1990, Avianca flight 052 ran out of fuel and crashed near New York’s Kennedy airport, killing 73 of its 158 passengers. One of the causes of the crash was the unwillingness or inability of the Colombian pilots to declare a fuel emergency to the air traffic controllers and to request a direct routing to the airport rather than the holding pattern they had been ordered to follow. Commenting on this incident, Helmreich (1994: 281) notes that “behaviors that may seem inexplicable to US aviators, such as the failure [of the co-pilot] to suggest alternative courses of action to the captain or to question ATC [Air Traffic Control] instructions, could reflect characteristics of the crew national culture.” He suggests that Colombia’s high score in collectivism and power distance may have accounted for the unwillingness of the crew to ask ATC for special treatment and to question its instructions. This suggests that instances of miscommunications are likely to be more common the greater the differences in the national cultures of users of English as a lingua franca.

Consequently, cultural distance is expected to weaken the positive relationship between English language proficiency and the ability to reduce information asymmetries, and therefore the level of equity taken in a target.

Hypothesis 5: The positive relationship between English language proficiency in the home countries of an acquirer and a target and the level of equity taken by an acquirer in a target is weaker when the cultural distance between them is larger.

RESEARCH DESIGN

Sample

Our data are drawn from the Thomson Financial Security Data Corporation (SDC) database, which has been frequently used in both domestic and cross-border acquisition research. We selected completed cross-border deals and excluded acquisitions of remaining stakes, leveraged buyouts, spin-offs, recapitalizations, self-tenders, repurchases, and privatizations since we are interested in explaining initial stakes taken by acquirers. We also excluded deals which involved acquirers or targets from countries for which we were not able to calculate linguistic distance and host country uncertainty. Our final sample consists of 59,092 cross-border acquisitions completed between 1995 and 2012 where the acquirer had no prior stake in the target. Our acquirers are in 67 countries and the targets in 69 countries, yielding 1,165 unique country-pairs, thus reducing the chance that our results are driven by country specific effects.⁵

Dependent Variable and Model Specification

⁵ The usual measure of concentration is the Herfindahl index (HHI) which ranges from 0 (perfectly equal distribution) to 1 (a single category accounts for all observations). All HHIs were low: the HHI for acquirer countries was 0.12, that for target countries was 0.07 and that for acquirer country-target country pairs was 0.01.

Our dependent variable is the percentage of ownership an acquirer takes in a target. This measure is bounded between 1 percent (where the acquirer takes the minimum level of equity for the deal to classify as an acquisition) and 100 percent (where the acquirer fully acquires the target). Consequently we used Tobit regression models to test our hypotheses.

Independent Variables

Linguistic Distance (H1 and H4): To capture the distance between the language of the home country of the acquirer and that of the target we used Dow and Karunaratna's (2006) composite linguistic distance scale, which is composed of three items: (1) a five-point scale based on the Grimes and Grimes (1996) classification of 6609 languages that captures the syntactic distance between the languages of the home countries of the acquirer and the target; (2) the incidence of the language of the acquirer's country in the target's country; (3) the incidence of the language of the target's country in the acquirer's country.

Combined English Proficiency (H3, H4, and H5) and the Difference in English Proficiency between the Acquirer and Target (H2): To measure the English proficiency of the acquirer and of the target, and the difference in English proficiency between them, we followed Slangen (2011) and used scores from the Test of English as a Foreign Language (TOEFL) published by Educational Testing Services (ETS). TOEFL is the most commonly used English-language test in the world and measures the examinee's ability to understand and use spoken and written English. TOEFL scores have been used to capture differences in English language proficiency (e.g. Dahlin, Weingart & Hinds, 2005; Slangen, 2011), and have been shown to correspond closely to English language skills in a business environment (e.g., Wilson, 1989), making them a sound measure for our purpose.

We used the sum of the average TOEFL scores obtained by all examinees in the home country of the acquirer and the target to measure the acquirer's and the target's *combined level of English proficiency*. The *difference in English proficiency* between the two parties is the

absolute value of the difference between the average TOEFL score obtained by examinees in the home country of the acquirer and in that of the target. For countries whose native language is English, we used the average test score of native English speakers in calculating these measures.

Cultural Distance (H5): We measured *cultural distance* using Kogut and Singh's (1988) cultural distance measure, which is based on Hofstede's (2001) four cultural dimensions.⁶

Control Variables

We controlled for several factors that may influence the level of ownership an acquirer takes in the target: (1) geodesic *geographic distance*, in kilometers, between the capitals of the countries of both parties; (2) *psychic distance without language*, a composite index of other aspects of psychic distance based on Dow and Karunaratna's (2006) dimensions of psychic distance, excluding language (i.e., differences in education, industrial development, democracy, religion, and political ideology); (3) *host country uncertainty* using the reverse-coded International Country Risk Guide's (ICRG) composite index, which captures a host country's economic, financial, and political uncertainty (higher values indicate higher levels of uncertainty); (4) the *acquirer level of diversification* and (5) the *target level of diversification*, using count measures of the number of industries (measured at the 4-digit SIC industry code level) in which each firm operated; (6) the *acquirer industry R&D intensity* and (7) the *target industry R&D intensity*, with dummy variables set to one if they operated in industries classified as high-tech in previous studies (e.g., Chari & Chang, 2009); (8) the *acquirer industry*

⁶ While Kogut and Singh's index is one of the most commonly used measures of cultural distance in IB, distance measures like theirs have been criticized for assuming that the effect of distance is symmetric (e.g., Shenkar, 2001; Ambos and Håkanson, 2014). We believe that this simplification is reasonable in our context. Namely, in our particular setting we are theoretically focusing on how cultural distance (as a moderator) affects two-way communication and information exchange between the acquirer and the target ex ante (during the due diligence and negotiation stage) and ex post (during the post-acquisition management stage). In this scenario we do not have a priori reasons for the moderating effect of distance to be asymmetric (i.e., that distance A-B \neq distance B-A).

marketing intensity and (9) the *target industry marketing intensity* using dummy variables equalling one if the industries of the acquirer and target have high marketing expenditures; (10) the *number of bidders* for the focal target firm; (11) the acquirer's *experience in the target's host country* using a count of its previously completed acquisitions and equity joint ventures in the host country up to the year preceding the focal deal; (12) the *unrelatedness* between the industries of the acquirer and the target, with a variable equal to one minus the ratio of the number of industries in which both firms operate to the total number of distinct industries in which they operate; (13) and (14) a dummy variable for whether the acquirer and target are *service firms*. Finally, to control for heterogeneity across years and host countries, we included year fixed effects for the year in which the acquisition was announced, and host country fixed effects. The latter allows us to control for country-specific factors, such as limits on the stake a foreign firm is allowed to take in local firms.

RESULTS

Table 1 provides the descriptive statistics and correlation matrix. The average equity stake foreign acquirers take in targets is 87 percent (vs. 89% in Chari and Chang, 2009). The correlations do not suggest problems with collinearity. In contrast to studies which have focused on a single host or home country (e.g., Dow & Ferencikova, 2010), we do not observe problematic levels of correlation between our different distance measures. This is confirmed by the variance inflation factors (VIFs) which are well below 10 (Neter, Wasserman & Kutner, 1985). The interactions are added individually in separate models and not together because adding all three interaction terms with the same independent variable together results in severe multicollinearity (i.e., individual VIFs above 100, and the average VIF for the model above 60).

Insert Table 1 here

Table 2 presents the results of the Tobit regression models. Model 1 is the baseline model with the control variables. In Models 2 through 4, we add our primary explanatory variables one at a time, and in Model 5 we add all three together. In Model 6 we test the interaction between the combined English proficiency in the countries of the acquirer and of the target and the linguistic distance between them. Finally, in Model 7 we introduce the interaction term between the combined English proficiency in the countries of the acquirer and the target and the cultural distance between them. The likelihood-ratio tests comparing the model with only control variables (Model 1) to the models including the independent variables of interest separately and simultaneously (Models 2 through 5) are significant ($p < 0.001$), suggesting that their inclusion increases the explanatory power of our models.

Insert Table 2 here

Model 5 shows a negative and significant ($p < 0.001$) relationship between linguistic distance and the acquirer's equity stake. This is consistent with Hypothesis 1. Model 5 also shows a negative and significant relationship ($p < 0.001$) between the difference in the English proficiency of speakers in the home countries of the acquirer and the target and an acquirer's equity stake, which is consistent with Hypothesis 2. We also find that the combined English proficiency in the countries of the acquirer and the target has a significant and positive relationship ($p < 0.001$) with the stake acquirers take in targets, as predicted by Hypothesis 3. By calculating the effects of a one standard deviation change in their coefficients (in Model 5), we can compare the magnitudes of the effects of linguistic distance, combined English proficiency, and the difference in English proficiency with each other, and with several other

variables that have received attention in the literature. Linguistic distance has an effect that is twice as large as that of cultural distance and three times as large as that of geographic distance. Compared to Model 2, the addition in Model 5 of our lingua franca variables, i.e., combined English proficiency and difference in English proficiency, reduce the effect of linguistic distance to 40% of its original magnitude. This suggests that prior research might have overestimated the effect of linguistic distance by not taking into account the English proficiency of the parties. The effect of combined English proficiency is more than 3.5 times larger than that of the effect of linguistic distance, while the effect of difference in English proficiency is 0.85 times that of linguistic distance. The effect of combined English proficiency is also 7.8 times larger than that of cultural distance, three times larger than that of unrelatedness, and almost twice as large as that of the level of diversification of the target.

In Hypothesis 4, we predicted that the positive effect of the combined level of English proficiency in the home countries of acquirers and targets will be negatively moderated by the linguistic distance between their home countries. Model 6 shows that the interaction term is negative and significant ($p < 0.01$), as predicted in Hypothesis 4.

Finally, we also proposed that the positive effect of the combined English proficiency of both parties on the stake taken in a target would be weaker if their home countries were more culturally distant. Indeed we find a statistically significant negative interaction term ($p < 0.05$) in Model 7, offering support for Hypothesis 5.⁷ Graphical representations of our interaction effects, which are available upon request, display patterns consistent with our statistical inference and provide further support for Hypotheses 4 and 5.

CONCLUSIONS

⁷ A one-standard deviation increase in *Linguistic Distance* reduces the effect of *Combined English Proficiency* on equity acquired by 17.5 percent, and a one-standard deviation increase in *Cultural Distance* reduces the effect of *Combined English Proficiency* on equity acquired by 7.5 percent.

What is the impact of language and language barriers on international business? Can one still speak of language barriers when actors increasingly communicate through a lingua franca like English? While these questions have been investigated in an intra-firm context (e.g., Frederiksson et al., 2006; Vaara et al., 2005; Neeley, 2013; Hinds et al., 2014), we look at the impact of language in inter-firm relationships. Specifically we look at the equity stake taken by acquirers in foreign targets. Most previous quantitative studies that have investigated the effects of language on governance choices have focused on either a single home country (e.g., Spanish firms entering foreign markets for Lopez-Duarte & Vidal-Suarez, 2010) or a single host country (e.g., foreign firms entering Turkey for Demirbag, Glaister & Tatoglu, 2007). Although they offer valuable insights, looking at language differences from and to a single country may lead to results that capture country-specific effects, thus potentially limiting the generalizability of the findings. In contrast, our sample includes a wide range of home and host countries. More specifically, we look at acquirers based in 67 home countries acquiring targets in 69 host countries.

We argue that linguistic distance between the countries of the acquirers and those of the targets creates information asymmetries, and that leaving a stake to the target is an effective response to such asymmetries. As hypothesized, we find that linguistic distance has a negative impact on the equity taken by acquirers in targets. This effect is at least as important as that of many of the other factors that have received attention in the acquisition literature, and persists even when we control for geographic, cultural, and other elements of psychic distance, such as differences in education, economic development, political systems and religion. This is consistent with other studies that have shown that language has an impact on managerial decisions that is separate from that of culture and from that of other dimensions of psychic distance (e.g., Dow & Kurunaratna, 2006; Dow & Larimo, 2011).

In contrast to previous studies, we take into account the fact that parties in inter-firm relationships can use a lingua franca to overcome the problems of dissimilar native tongues. We hypothesize that to be able to effectively communicate, parties should have both high and similar levels of English fluency, but make no prediction as to which of the two has the larger impact. Interestingly, we find that the effect of combined English fluency is greater than that of differences in such fluency. Future research may want to investigate whether this is a generalizable finding. In any case, entering both the combined English fluency of the parties and the difference in their fluency reduces, but does not fully eliminate, the impact of linguistic distance. This suggests that while the impact of linguistic distance may have been overestimated in prior research, it still remains relevant, even as business transactions are increasingly conducted in English.

We also hypothesize that the effectiveness with which two parties communicate in a lingua franca is affected by how much their native tongues and their native cultures differ. Our results confirm this intuition: while the combined English proficiency of the acquirer and the target tends to reduce information asymmetry, and hence the stake an acquirer takes in a target, that effect is weaker when the distance between the languages and the cultures of their home countries is greater. These moderating effects suggest that the use of English as a lingua franca does not fully abolish the problems caused by speaking different languages, since differences in the languages and in the cultures of the parties reduce the effectiveness with which they communicate through that lingua franca. These are tentative results, and future research may want to delve deeper into this issue, for example by investigating which specific aspects of culture impair the effectiveness of communicating through a lingua franca. Nevertheless our results suggest that adopting a lingua franca may not significantly improve communication if the firm operates in linguistically and culturally distant countries. Future research could examine yet other factors that hamper or facilitate the effective use of a lingua franca. While

we focus on country-pair factors by looking at two important underlying differences between the acquirer's and the target's countries, it would be interesting to explore how country-level, firm-level, or deal-level factors could also influence the effective use of a lingua franca.

There are other contexts where information asymmetry is a crucial driver of governance choices, and hence where we would expect linguistic distance to have a significant impact. One important benefit of joint venturing with local partners is access to tacit country-specific information (Hennart, 1991). Since we have shown that language distance makes it more difficult for acquirers to access such information, language distance should also be an important driver of the choice between greenfield joint ventures and wholly-owned greenfield affiliates. Likewise, accessing tacit local knowledge is an important reason for franchising foreign operations so one would expect linguistic distance and lingua franca fluency to be important drivers of that choice as well. Situations of information asymmetry also arise in the context of investing and financing, so the ability to access international sources of capital should be negatively affected by linguistic distance and low lingua franca fluency.

Our findings also have implications for practitioners. In particular, they suggest that proficiency in a lingua franca such as English can help overcome the information asymmetry that is often present in foreign acquisitions. However they also show that this is not a panacea, since cultural and linguistic differences between the parties hinder the effectiveness of using a lingua franca.

Our results are robust to alternative specifications and methodologies but, like any study, have limitations. First, our assumption is that linguistic distance is symmetrical, i.e. that the ability of a Japanese acquirer to obtain information on a Danish target is the same as that of a Danish acquirer vis-à-vis a Japanese target. This may not be the case, and future research should address this point. Second, we do not take into account the potential role played by external advisors in helping acquirers evaluate targets, although they are less likely to be of

help in managing the target post-acquisition. Because SDC does not provide complete data on the use by acquirers of external advisors, except for a few major markets such as the US and the UK, we were unable to investigate whether they reduce the level of information asymmetry between acquirers and targets, allowing acquirers to take a higher equity stake. This is an interesting topic for future research. Third, given the large scale of our study, we measured language distance and lingua franca fluency at the national level. In research designs that make it possible to identify all the relevant parties involved, it would be preferable to use information on the language skills of the individuals themselves.

Our findings clearly show that language plays an important role in international acquisitions, and suggest that its impact on international modes of entry, and in international business studies in general, deserves further investigation. We hope to have shown that language plays an important role in the governance of inter-firm relationships, and that this role deserves further study.

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TABLE 1: Descriptive Statistics and Correlations

Variables	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Percentage Equity Acquired	86.71	26.96																		
2 Linguistic Distance	-1.38	1.72	-.14																	
3 Combined English Proficiency	467.55	20.29	.18	-.20																
4 Difference English Proficiency Acquirer & Target	10.49	13.67	-.17	.59	-.41															
5 Acquirer Diversification	3.65	3.30	.00	.06	-.06	.09														
6 Target Diversification	2.18	1.73	-.07	.03	-.05	.00	.14													
7 Acquirer Industry R&D Intensity	0.44	0.50	.16	-.04	.04	-.02	.07	.00												
8 Target Industry R&D Intensity	0.45	0.50	.09	-.05	.03	-.03	.01	.02	.64											
9 Acquirer Industry Marketing Intensity	0.40	0.49	.10	-.04	.06	-.04	.02	.00	.29	.20										
10 Target Industry Marketing Intensity	0.43	0.50	.07	-.04	.06	-.03	-.01	.02	.19	.27	.55									
11 Acquirer Service Firm	0.48	0.50	-.05	-.06	.03	-.04	-.24	-.03	-.03	.06	.13	.12								
12 Target Service Firm	0.47	0.50	.04	-.08	.06	-.06	-.12	-.12	.10	.07	.16	.20	.59							
13 Acquirer Country-specific Experience	0.71	2.30	.02	-.10	.00	-.05	.18	.02	.01	.02	.01	.01	-.03	.02						
14 Number of bidders	1.00	0.04	.00	-.02	.01	-.01	.01	.01	-.01	-.01	-.01	-.01	-.01	-.01	.01					
15 Host Country Uncertainty	21.14	6.35	-.14	.10	-.36	.07	.02	.06	-.08	-.06	-.05	-.04	-.03	-.06	.01	-.01				
16 Unrelatedness	0.73	0.35	-.06	.01	.00	.04	.18	-.03	-.05	-.02	-.09	-.04	.01	-.02	.07	.01	-.04			
17 Psychic Distance without Language	1.32	1.49	-.18	.19	-.32	.14	.02	.04	-.05	-.04	-.04	-.04	-.03	-.06	-.08	.00	.41	-.01		
18 Geographical Distance	5004.38	4595.62	-.08	-.07	-.23	.06	.06	.01	.05	.05	.01	-.01	-.01	-.02	-.01	.01	.17	.04	.28	
19 Cultural Distance	1.50	1.47	-.15	.64	-.21	.47	.05	.02	-.04	-.04	-.05	-.05	-.05	-.07	-.07	-.01	.17	.02	.36	.09

N = 59092. All correlations are significant at $p < .01$.

TABLE 2: Results of Tobit Models Predicting Percentage of Equity Acquired

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
Constant	110.936	***	103.910	***	116.836	***	-189.375	***	-146.138	***	-138.238	***	-176.377	***
	(11.665)		(11.656)		(11.586)		(17.561)		(18.269)		(18.456)		(23.468)	
Acquirer Diversification	-0.010		0.074		0.178		0.218		0.307	*	0.292	*	0.300	*
	(0.133)		(0.134)		(0.134)		(0.134)		(0.134)		(0.134)		(0.134)	
Target Diversification	-3.340	***	-3.355	***	-3.349	***	-3.381	***	-3.385	***	-3.380	***	-3.385	***
	(0.231)		(0.231)		(0.230)		(0.229)		(0.229)		(0.229)		(0.229)	
Acquirer Industry R&D Intensity	27.608	***	27.698	***	27.604	***	27.637	***	27.671	***	27.665	***	27.663	***
	(1.172)		(1.171)		(1.168)		(1.164)		(1.163)		(1.164)		(1.164)	
Target Industry R&D Intensity	-1.601		-1.668		-1.687		-1.632		-1.698		-1.705		-1.703	
	(1.122)		(1.121)		(1.118)		(1.114)		(1.113)		(1.113)		(1.113)	
Acquirer Industry Marketing Intensity	11.186	***	11.115	***	10.859	***	10.664	***	10.555	***	10.553	***	10.541	***
	(1.067)		(1.066)		(1.063)		(1.059)		(1.058)		(1.058)		(1.058)	
Target Industry Marketing Intensity	2.136	*	2.211	*	2.229	*	2.067	*	2.146	*	2.152	*	2.163	*
	(1.040)		(1.040)		(1.037)		(1.033)		(1.032)		(1.032)		(1.032)	
Acquirer Service Firm	-14.947	***	-15.134	***	-14.419	***	-14.550	***	-14.435	***	-14.472	***	-14.459	***
	(1.076)		(1.075)		(1.073)		(1.068)		(1.068)		(1.068)		(1.068)	
Target Service Firm	8.221	***	7.921	***	7.832	***	7.427	***	7.235	***	7.280	***	7.239	***
	(1.064)		(1.064)		(1.061)		(1.056)		(1.056)		(1.056)		(1.056)	
Acquirer Country-specific Experience	-0.726	***	-0.787	***	-0.707	***	-0.649	**	-0.677	**	-0.695	***	-0.690	***
	(0.197)		(0.197)		(0.197)		(0.196)		(0.197)		(0.196)		(0.197)	
Number of bidders	9.628		8.711		8.040		7.694		6.882		6.895		6.900	
	(10.274)		(10.247)		(10.186)		(10.127)		(10.098)		(10.102)		(10.100)	
Host Country Uncertainty	-0.241	†	-0.265	†	-0.199		-0.030		-0.054		-0.003		-0.034	
	(0.136)		(0.136)		(0.136)		(0.136)		(0.136)		(0.137)		(0.136)	
Unrelatedness	-10.641	***	-10.636	***	-10.594	***	-10.539	***	-10.527	***	-10.597	***	-10.580	***
	(1.270)		(1.268)		(1.265)		(1.258)		(1.257)		(1.258)		(1.258)	
Psychic Distance without Language	-1.961	***	-2.142	***	-2.593	***	-1.967	***	-2.330	***	-2.445	***	-2.457	***
	(0.474)		(0.473)		(0.474)		(0.467)		(0.469)		(0.470)		(0.472)	
Geographical Distance	-4.2E-04	***	-4.1E-04	***	-2.9E-04	*	-2.5E-04	*	-2.1E-04	†	-2.2E-04	†	-2.0E-04	†
	(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
Cultural Distance	-3.423	***	-0.980	*	-1.372	***	-2.812	***	-0.953	*	-0.966	*	13.322	†
	(0.359)		(0.430)		(0.382)		(0.356)		(0.431)		(0.431)		(6.961)	

<i>(continued)</i>		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Linguistic Distance	H1		-4.420 *** (0.430)			-1.785 *** (0.459)	22.857 ** (8.225)	-1.757 *** (0.459)
Difference English Proficiency Acquirer and Target	H2			-0.569 *** (0.037)		-0.262 *** (0.042)	-0.263 *** (0.042)	-0.274 *** (0.042)
Combined English Proficiency (sum)	H3				0.634 *** (0.028)	0.543 *** (0.030)	0.523 *** (0.031)	0.607 *** (0.044)
Combined English Proficiency x Linguistic Distance	H4						-0.053 ** (0.018)	
Combined English Proficiency x Cultural Distance	H5							-0.031 * (0.015)
Year Effects		Included	Included	Included	Included	Included	Included	Included
Target Country Effects		Included	Included	Included	Included	Included	Included	Included
Number of Observations		59092	59092	59092	59092	59092	59092	59092
Log-Likelihood		-95563.4	-95510.6	-95448.4	-95307.9	-95268.6	-95264.1	-95266.5
Chi-squared		8593.0 ***	8698.7 ***	8823.0 ***	9104.1 ***	9182.6 ***	9191.6 ***	9186.8 ***
Chi-squared change relative to Model 1			105.6 ***	229.9 ***	511.0 ***	589.6 ***	598.6 ***	593.8 ***

All tests are two-tailed: † $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.