The Impact of Cultural Distance Framework on Foreign Establishment Mode Decision: Hofstede vs. Schwartz vs. GLOBE

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Abstract

The most commonly used framework in empirical cultural distance analyses so far has clearly been the set of dimensions developed by Hofstede (1980, 2001). However, during recent years there has been an increasing volume of suggestions that firstly, alternative frameworks should be considered, and secondly, the impact of single dimensions should be analyzed more thoroughly (see e.g. Shenkar 2001, Harzing, 2004). Thus, the main goal of this study is to analyze the impact of the three most prominent cultural frameworks: Hofstede, Schwartz, and GLOBE on greenfield investment vs. acquisition. An additional goal is to analyze the impact of the individual dimensions of each of these frameworks. The study is based on a sample of over 3 700 foreign manufacturing investments made by firms from three Nordic countries (Denmark, Finland, and Sweden) in 39 countries between 1970 and 2007. The results show that when measured in terms of an overall index, all three cultural frameworks indicate a similar culture - establishment mode relationship. However, regardless of the chosen framework, there is evidence of substantial variations in the impact of the individual dimensions of culture on the establishment mode decision.

Keywords: acquisition, greenfield investment, cultural distance, Hofstede, Schwarz, GLOBE

1. Introduction

During the last few years, there has been increasing discussion of the impact of cultural distance on foreign direct investment (FDI) behavior. By far the most commonly used measure of cultural distance has been derived from the cultural dimensions devised by Hofstede (1980) combined with the use of the formula developed by Kogut and Singh (1988). Reviews (e.g. by Tihanyi, Griffith and Russell (2005)) have identified over 180 studies utilizing the dimensions by Hofstede to analyze the impact of cultural distance on the foreign entry strategies, performance in foreign operations, and on other management and marketing related issues of firms.

However, over the years there has increasingly been criticism leveled against the use of the Hofstede's scores in the measures of cultural distance; and several authors have called for alternative measures to be used for the analysis of the impact of cultural distance on strategic IB decisions (e.g. Schwartz 1994, Shenkar, 2001, Harzing, 2004). Two alternative cultural frameworks in particular have received attention in IB literature – the frameworks by Schwartz and GLOBE (see e.g. Leung, Bhagat, Buchan, Erez & Gibson, 2005; Magnusson, Wilson, Zdravkovic, Zhour & Westjohn, 2008) Unfortunately, the use of these other frameworks in empirical investigations of strategic FDI decisions has been extremely limited on to date. The only study analyzing the impact of cultural distance on the establishment mode that is based on a framework other than Hofstede, seems to be that by Drogendijk and Slangen (2006), where the framework devised by Schwartz (1993) is used alongside that of Hofstede (in addition to the management view). Concerning the third framework – GLOBE (see e.g. House, Javidan, Hanges, Dorfman & Gupta, 2004) – the authors have not been able to find any study of its application in the establishment mode research.

In addition to the preceding criticisms, numerous authors (e.g. Shenkar, 2001) have argued that there *should be* more analysis concerning the impact of the individual dimensions of culture. As already noted above, the number of empirical studies utilizing a summary index of the Hofstede dimensions of national culture is quite substantial; however, exceedingly few of those studies ever investigated the relative contributions of each of the dimensions. Moreover, amongst the few of these studies which have analyzed the individual dimensions (e.g. Drogendijk and Slangen, 2006), the relative contributions of the dimensions has varied dramatically.

As a result, the main goals of this study are to:
1. analyze the overall impact on establishment mode choice of the three most prominent cultural distance frameworks: Hofstede, Schwartz, and GLOBE, and
2. analyze the relative impact of the various dimensions of each of the three frameworks.

This empirical study is based on a sample of over 3 700 foreign manufacturing investments made by firms from three Nordic countries (Denmark, Finland, and Sweden) in 39 countries from 1970-2007.

As mentioned above, the only other empirical establishment mode study to employ multiple cultural distance frameworks has been Drogendijk and Slangen (2006). The study reported here differs from the Drogendijk and Slangen (2006) study in several aspects. Foremost among the differences is that this study includes the GLOBE framework, and employs a more recent version of the Schwartz (1999) framework, which allows a greater coverage of countries. In addition, this study also focuses (and reports) more heavily on the contributions of individual dimensions of culture. And last, but not least, the sample size in this study is much larger, drawing on firms from three Nordic countries, as opposed to Drogendijk and Slangen's much smaller sample exclusively Dutch firms.

The structure of the paper is as follows. The second section provides an overview of the three aforementioned cultural frameworks. In the third section the general relationship between cultural distance and establishment mode strategy is discussed. Section four includes a review of the methodology, details of the sample, and operationalization of the variables. In section five, the results of the study are presented and discussed. Section six summarizes the key results and conclusions and presents some avenues for future research.

The results of the study indicate that all three cultural frameworks have a similar (and significant) impact on establishment mode behavior. However, when examined at the level of the individual dimensions of culture, the observed relationships vary to a much greater degree, with several dimensions having no apparent impact, and others having an impact in the opposing direction.

2. Cultural frameworks

2.1. Hofstede's dimensions of national culture

Hofstede (1980, 25) has defined culture as "the collective programming of the mind which distinguishes the members of one human group from another". He conducted two large international surveys in the divisions of one multinational company – IBM – first from 1967 to 1969 and later between 1971 and 1973, related to 32 value statements. He collected more than 116 000 answers from 72 countries providing more than 50 answers from 40 countries. Based on a country-level factor analysis, he classified the original 40 countries along four country culture dimensions: power distance (PDI), individualism-collectivism (IND), uncertainty avoidance (UAI), and masculinity-feminism (MAS). All the results were presented in detail in the book "Culture's Consequences" published in 1980. Later on Hofstede expanded the database with 10 additional countries and three regions, then with a fifth dimension – time orientation (short term vs. long term) sometimes also called Confucian dynamism, and finally with further new countries (Hofstede, 2001 carries scores for 81).

So far the cultural framework by Hofstede has clearly been the most commonly used framework in studies focusing on various sectors of international business, including studies focusing on strategic foreign direct investment decisions (see e.g. Sondergaard, 1994; and Tihanyi et al., 2005). Although the Hofstede framework has been widely used, there has also been substantial criticism of it. The criticism has been directed against the lack of comprehensiveness, inattention to the conceptual equivalence of question items across cultures, the single company focus, and outdated data (see e.g. Chow, Kato & Shields, 1994; Shenkar, 2001; McSweeney 2002; Williamson, 2002; and Harzing, 2004). In defense of the Hofstede framework, it has been argued that the focus on a single company may also be a positive factor, and that cultural values are very stable, changing only slowly over time (see Hofstede, 2001),

In response to the preceding criticisms, several alternative frameworks have been developed in the 1990s and 2000s (see e.g. Hofstede, 2006; and Magnusson et al., 2008) of which we shall focus on the two most prominent.

2.2. Schwartz's dimensions of national culture

Schwartz's value types were derived from a set of items "developed to measure the content of individual values recognized across cultures" (Schwartz, 1994: 88). Between 1988 and 1992 a total of 56 values items were developed and distributed to 87 teacher and student samples from 41 cultural groups in 38 nations. Respondents were asked to rate the importance of each value as a guiding principle in their lives. Since individual values reflect an individual's unique experience as well as a normative cultural influence, they can be analyzed both at individual and cultural levels (Schwartz 1994). The results showed that only 45 of the value items had consistent meanings across cultures at the individual level and, thus, only those 45 items were used in the national level analysis. Based on multidimensional scaling procedures to examine the intercorrelations between

the values dimensions, Schwartz found seven culture level value types: conservatism, intellectual autonomy, affective autonomy, hierarchy, mastery, egalitarian commitment, and harmony. These are summarized later by Schwartz (1999) into three bipolar dimensions: 1. embeddedness versus autonomy, 2. hierarchy versus egalitarianism, and 3. mastery versus harmony.

Schwartz has argued (1994: 117) that his value types are different to Hofstede dimensions but he has also suggested that his framework included Hofstede's dimensions: Hofstede's individualism positively correlates with Schwartz's affective autonomy, intellectual autonomy, and egalitarian dimensions, and negatively correlates with conservatism and hierarchy. Hofstede's power distance score positively correlates with conservatism and negatively correlates with his affective autonomy dimension. Further, Hofstede's uncertainty avoidance positively correlates with Schwartz' harmony dimension, and Hofstede's masculinity positively correlates with Schwartz' mastery dimension. Steenkamp (2001) subsequently analyzed the possible overlap between Hofstede's and Schwartz's frameworks, and found that three of the four factors were related to the dimensions of both frameworks. Smith et al. (2002) also found that Hofstede's individualism positively correlates with Schwartz's autonomy-embeddedness and egalitarianism-hierarchy dimensions, power distance negatively correlates with the autonomy-embeddedness, egalitarianism-hierarchy, and harmony-mastery dimensions, and uncertainty avoidance positively correlates with Schwartz's egalitarianism-hierarchy dimension.

Schwartz model has so far been applied in only a very limited fashion compared to the intense application of Hofstede's framework in international business. With regard to the establishment mode to our knowledge it is only used in the study by Drogendijk and Slangen (2006). This lack of empirical testing may be due to the non-orthogonal nature of the value dimensions, which makes it difficult to use multivariate statistical techniques (Steenkamp, 2001). Another limitation is the far more limited number of countries for which country scores were available in the first version by Schwartz (38 countries). During 1988-2004 Schwartz and his colleagues extended their data to cover 55 countries. This study uses the more recent extended data releases (published in Siegel, Licht & Schwartz, 2006).

2.3. GLOBE´s dimensions of national culture

The third cultural distance framework to be applied in this study is that developed in the GLOBE (Global Leadership and Organizational Behavior Effectiveness) project. Inspired by the work of Hofstede, the GLOBE research program was designed to conceptualize, operationalize, test, and validate relationships between culture and leadership effectiveness (House, Javidan, Hanges & Dorfman., 2002; House et al., 2004). In more detail, the theoretical base of the GLOBE research program (see House et al., 2002) is an integration of implicit leadership theory (Lord & Maher, 1991), the value/belief theory of culture (Hofstede, 1980), implicit motivation theory (McClelland, 1985), and effectiveness (Donaldson, 1983; Hickson, Hinings, McMillan & Schwitter, 1974). It is a large-scale program involving over 160 researchers from 62 different cultures. There were focus groups and individual interviews in the mid-1990s in all these cultures, and data was collected in total from 17 370 middle managers of 951 organizations in three industries (food processing, finance, and telecommunications) in 62 countries. Based on the later analysis, the Group identified nine country-level dimensions: uncertainty avoidance, power distance, collectivism I: societal collectivism, collectivism II: in-group collectivism, gender egalitarianism, assertiveness, future orientation, performance orientation, and humane orientation. In contrast to the dimensions by Hofstede and Schwartz, the GLOBE project captures both a culture's *Values*, — how members of a

society believe that it *should be*—, and current *Practices* in the society, known as the *as is* result (House et al., 2004). Interestingly, they found significant negative correlations between values and practices for seven of the nine dimensions. Gender egalitarianism is the only dimension with a significant positive correlation between values and practices.

Both Hofstede and GLOBE include the dimensions of uncertainty avoidance and power distance. Hofstede's masculinity dimension is measured in GLOBE with two dimensions – gender egalitarianism and assertiveness – and similarly Hofstede's collectivism is measured with institutional collectivism (collectivism I) and in-group collectivism (collectivism II). Furthermore, Hofstede's long-term orientation is similar to GLOBE's future orientation. The two additional dimensions by the GLOBE group – performance orientation and humane orientation – are not covered by Hofstede's dimensions. Performance orientation is derived from McClelland's (1961) work on the need for achievement and humane orientation has its roots in Kluckhohn and Strodtbeck's (1961) work on the Human Nature Is Good vs. Human Nature Is Bad dimension as well as Putnam's (1985) conceptualization of the affinitive motive (House et al. 2002).

Peterson (2004) suggests that the GLOBE framework may be best viewed as complementary to Hofstede's (1980, 2001) work, as its most closely linked predecessor. Also Hofstede (2006) has claimed that GLOBE is an expansion and replication of his five dimensions, yet this has been vigorously refuted by Javidan, House, Dorfman, Hanges and Deluquet (2006) in their re-analysis of the relationships between GLOBE and Hofstede's dimensions. They argued that the relatively weak correlation between the dimensions shows that GLOBE moves beyond Hofstede's work, with the nine dimensions showing strong construct validity (Javidan et al., 2006).

Venaik and Brewer (2008) have also analyzed the relationships between the five dimensions outlined by Hofstede and the seven dimensions of GLOBE which are related to Hofstede. The results indicated that only five of the fourteen correlations analyzed had the expected signs and were statistically significant. Hofstede's individualism had a significant negative correlation with in-group collectivism practices and institutional collectivism values; masculinity had a positive correlation with GLOBE's assertiveness practices; power distance had a positive correlation with GLOBE's power distance practices; and uncertainty avoidance shows a positive correlation with GLOBE's uncertainty values. In one case Venaik and Brewer found an unexpected sign for a significant correlation – Hofstede's uncertainty avoidance negatively correlated with GLOBE's uncertainty avoidance practices - and in the remaining eight cases the correlations were not significant. The authors offer a plausible explanation for the unexpected finding, stating that some national cultures may have changed over the 25-year period between the two studies. Their data suggested that the number of countries with lower levels of uncertainty avoidance had increased from 1970 to 2005 coinciding with rising incomes and economic prosperity worldwide. Their result does not lend support to Leung et al's. (2005) conclusion that uncertainty avoidance is conceptually the same both in Hofstede and GLOBE, but that there are significant differences in the definition, operationalization and ultimately the country scores on uncertainty avoidance between the two frameworks (Venaik & Brewer 2008).

Table 1

The three cultural frameworks and the dimensions included within them are summarized in Table 1. As discussed above and in more detail in the next section, all the studies focusing on the relationship between cultural distance and establishment mode choice published in leading international journals so far use Hofstede's cultural framework, except for that of Drogendijk and

Slangen (2006). No application of the GLOBE framework to the impact of cultural distance on the establishment mode decision was found.

3. Development of hypotheses

3.1. The impact of composite cultural distance

One of most important FDI-related decisions concerns the choice of the establishment mode – the decision of whether the investment is made in the form of a greenfield investment or an acquisition (see Slangen & Hennart, 2008). Greenfield investment means building a new subsidiary from scratch, either alone (WOS) or with a local or foreign partner (IJV), whereas an acquisition means purchasing part of, or the whole equity of, an existing firm (see e.g. Barkema & Vermeulen, 1998, Brouthers & Hennart, 2007).

There are two opposing theoretical arguments about the impact of cultural distance on the establishment mode choice (see Hartzing, 2004). The more commonly used argument claims that cultural distance makes the integration of existing management difficult (Kogut & Singh, 1988) and causes communication problems, leading to other difficulties and poor performance. This motivates the firm to make a greenfield investment to allow easier application of management practices developed and used in the home market (Cho & Padmanabhan, 1995). The alternative argument is that if the investment is made in a culturally distant country, the firm often lacks knowledge of the local political, cultural and societal norms. Establishment via acquisition provides the firm with experienced managers with local knowledge, thus reducing this initial barrier. Also firms entering culturally similar (close) countries are said (Brouthers & Brouthers, 2000) to use greenfield investments to maximize firm-specific advantages, while firms entering culturally dissimilar (distant) countries perceive high levels of country risk and will therefore use acquisitions to reduce those risks.

Table 2 summarizes the studies identified as focusing on the choice of establishment mode including culture as the independent variable. In most of those studies, the first argument presented above has been adopted, and so they anticipate a positive relationship between cultural distance and the use of the greenfield establishment mode. The results in Table 2 show that the results have been somewhat mixed. Eight studies report a positive relationship between a greenfield establishment mode and cultural distance (Kogut & Singh, 1988; Barkema & Vermeulen, 1998; Chang & Rosenzweig, 2001; Vermeulen & Barkema, 2001; Harzing, 2002; Larimo, 2003; Drogendijk & Slangen, 2006; Slangen & Hennart, 2008) whereas four studies find no significant relationship between cultural distance and establishment mode (Cho & Padmanabhan, 1995; Padmanabhan & Cho, 1999; Brouthers & Brouthers, 2000, and Demirbag, Tatoglu & Glaister, 2008). It is noteworthy that none of the studies reveals a statistically significant negative relationship between cultural distance and preference for a greenfield establishment mode.

Table 2

It is worth noting from amongst the results that in Drogendijk and Slangen (2006) the results indicate support for the positive relationship between cultural distance and preference for the greenfield establishment mode based both on Hofstede's and Schwartz's framework. In line with the first argument above, based on transaction cost theory and results in the majority of earlier

studies, we anticipate a positive relationship between cultural distance and preference for the greenfield establishment mode based on all three cultural frameworks used in this study.

Hypothesis 1: The larger the cultural distance between the home country of the investing firm and the target country of the investment, the more likely it is that the investment is made in the form of a greenfield investment, regardless of the cultural framework used.

3.2. The impact of individual dimensions of culture on the establishment mode choice

All three cultural frameworks used in this study comprise several dimensions. In the case of Hofstede and Schwartz there are different versions and we will use for Hofstede´s framework the original four dimension version and for Schwartz's framework the three dimension version (for the arguments see section 4.2.). In the case of GLOBE there are nine dimensions and two versions – the first one based on values and the second one based on practices which will be used. As stated by Shenkar (2001) and Harzing (2004), it is questionable to assume that all dimensions of culture have equivalent impacts on FDI decisions. Furthermore, in their review of empirical research incorporating Hofstede's cultural values framework, Kirkman, Lowe, and Gibson (2006: 303) strongly encourage researchers to avoid further use of the total cultural distance index, but to analyze the impact of single dimensions.

The impact of various single cultural dimensions on strategic FDI decisions has been analyzed even less than the impact of total cultural distance. The results have indicated that the impact of various dimensions on strategic FDI decisions and performance has not been equal (e.g. Kogut & Singh, 1988; Barkema, Shenkar, Vermeulen & Bell, 1997; Brouthers & Brouthers, 2000; and Drogendijk & Slangen, 2006). Kogut and Singh (1988) state that, based on their analysis of establishment mode choices by foreign companies in the USA, the more uncertainty avoiding a culture tends to be, the less attractive is the acquisition establishment mode. Based on Harzing and Hofstede (1996) there are two arguments for this kind of behavior: firstly, in uncertainty avoiding cultures managers are not psychologically prepared to handle these differences in an effective and efficient manner, and secondly employees in uncertainty avoiding countries are less willing to accept change, and therefore the firm incurs increased costs in managing change (Hennart & Reddy, 1997). Brouthers and Brouthers (2000) assume in their study that in order to minimize cost inefficiencies, greenfield ventures tend to be preferred in high uncertainty avoiding countries whereas acquisitions are preferred in low uncertainty avoiding countries because managers and employees in these countries are more willing to accept change. The results by Brouthers and Brouthers focusing on the establishment mode choices of Japanese firms in Western European countries also support their expectations. More recently Drogendijk and Slangen (2006) noticed that of the five dimensions used by Hofstede two – power distance and individualism – and three (of the seven reviewed) dimensions by Schwartz - conservatism, hierarchy, and egalitarian commitment – had significantly influenced the establishment mode choice of Dutch firms (all dimensions increased the probability of choosing the greenfield investment mode). As discussed earlier, to our knowledge the impact of GLOBE dimensions on the entry form choice has not been analyzed to date.

Thus, in summary the analysis of the impact of various single dimensions of culture on the establishment mode decisions has been extremely limited so far and the results have also been mixed. However, the results support the theory that effects of various dimensions on FDI decisions differ. Due to limited space, we are not able to make a detailed analysis of the expected impact of

various dimensions on establishment mode decisions. In that sense, the study is explorative in nature and we expect only that:

Hypothesis 2: The various dimensions of culture do not have an equal impact on the establishment mode decisions.

4. Sample, operationalization of variables, and methodology

4.1. Method

Since the dependent variable in the study is dichotomous, logistic regression analysis are used to analyze the impact of the selected cultural distance measures and each dimension of the measures on the establishment mode. Each measure and dimensions related to it are presented in separate models. The regression coefficients estimate the impact of independent variables on the probability that the investment will be a greenfield investment, with a positive coefficient indicating that an independent variable increases the probability of a greenfield investment. In general, the terms of the model can be expressed as $P(y_i = 1) = 1 / (1 + exp (-a - X_iB))$, where y_i is the dependent variable, X_i is the vector of the independent variables for the ith observation, a is the intercept parameter and B is the is the vector of regression coefficients (Amemiya 1981). We estimated our models with Intercooled STATA 7, using the maximum likelihood method.

4.2. Variables

Investment mode: The dependent variable is the establishment mode selected for the foreign investment: greenfield investment vs. acquisition. The dummy variable is coded 1 for greenfield investments and 0 for acquisitions. The data for the variable was gathered from the published data on the investment (stock of exchange movements, other press releases, company websites, and/or the annual report of the company).

Cultural distance: In total, eight different measures for cultural distance were used in the models: four total distances (Hofstede, Schwartz, and two versions from GLOBE (practices and values versions) plus four versions including the various dimensions related to those four measures. The first is the traditional Kogut and Singh (1988) index, which uses the differences in the scores of Hofstede's (1980, 2001) dimensions of national culture for the four original dimensions of culture (power distance, individualism-collectivism, masculinity-feminity, and uncertainty avoidance) between the foreign country entered and the home country of the investor firm. These differences are corrected for differences in the variances of each dimension and then arithmetically averaged. Algebraically, this is represented as follows:

$$\text{HCD}_j = \sum_{i=1}^{4} \left[(I_{ij} - I_{iK})^2 / V_i \right] \div 4$$

where CD_j is the cultural distance between country j and Denmark/Finland/Sweden, I_{ij} is country j's score on the ith cultural dimension, I_{iN} is the score of Denmark/Finland/Sweden on this dimension, and V_i is the variance of the score of the dimension. As Table 2 shows, virtually all previous studies testing for the effect of cultural distance on an MNE's establishment mode choice have used this measure. The fifth dimension by Hofstede – the long term orientation – was omitted because there

is a limited number of countries for which the scores are available and it therefore would have limited the number of countries in the study. [1,2]

The two other frameworks used in this study are based on the frameworks by Schwartz and GLOBE. In the case of Schwartz, the three dimensional version of his framework was used in order to have greater total target country coverage. In the case of GLOBE, there are nine dimensions included. The respective models for the analysis based on the Schwartz and GLOBE are as follows:

$$\text{SchCD}_j = \sum_{i=1}^{3} \left[(I_{ij} - I_{iK})^2 / V_i \right] \div 3 \quad \text{and} \quad \text{GCD}_j = \sum_{i=1}^{9} \left[(I_{ij} - I_{iK})^2 / V_i \right] \div 9$$

Control variables

In order to analyze in more detail the effects of the alternative cultural distance measures on the establishment mode choice we controlled for selected investing firm, investment, and target country specific variables potentially influencing the choice. The operationalizations of the variables, data sources, and examples of earlier studies where similar operationalizations have been used are presented in Table 3.

Table 3

4.3. The sample

The empirical data for the study is based on data collected by one of the authors over several decades. The data is drawn mainly the annual reports and press releases of the investing firms, but also supplemented with the data gathered in FDI surveys and direct contact with investing companies based in Denmark, Finland, and Sweden. The data for this study relates to 3 704 manufacturing investments made by 405 firms. The study is limited to manufacturing companies and their foreign manufacturing investment decisions. This provides a more homogenous sample than most previous studies, which have included both manufacturing and service investments (Drogendijk & Slangen, 2006; Demirbag et al., 2008: Slangen & Hennart, 2008)[3].

The sample was limited to the investments made in countries which are included in all three of the aforementioned cultural frameworks. For the Hofstede framework, the extended country list (see Hofstede 2001) is utilized. In the case of Schwartz framework, the 2005 three dimension version (Siegel et al., 2006) is employed, and for GLOBE, the values published in 2004 (House et al., 2004) are adopted. Using these versions enables the greatest coverage of target countries - a total of 39 countries (see Appendix 1).

The average number of investments by a single company in the sample was around nine. There was a great variation in the firm size, the degree of diversification of the firms, in their FDI experience, and their target country experience (see Appendix 2). A clear majority of FDIs were related types of investments; approximately two-thirds were WOSs, and made in developed countries. The number of investments in single countries varies from 5 to 606 investments made in the USA. The other countries including more than 100 investments in the sample were Sweden, Germany, the UK, China, Denmark, Finland, the Netherlands, Poland, Russia, and France.

5. Results of the study

5.1. General remarks

The sample consists of 3 704 foreign investments, of which 1 007 (27.19 %) are greenfield investments and 2 697 (72.81%) are acquisitions. There are mild variations in proportions of each mode across the three home countries: the proportion of greenfields is lowest in the Swedish subsample (24.87%) and highest in the Finnish subsample (29.27%). However, acquisitions clearly dominate all three subsamples.

Pairwise correlations amongst the dependent variable, the total cultural distances indices, and control variables are presented in Appendix 2. The results show that all four cultural distance indices are significantly correlated at p<0.001. Hofstede has the lowest correlation with Schwartz at 0.473, a moderate correlation with the GLOBE *Values* dimensions (0.517), and highest with the GLOBE P*ractices* dimensions (0.682). The correlation between Schwartz and GLOBE *Values* is relatively high (0.494), but very low against GLOBE *Practices* dimensions, at only 0.180. In addition, the correlation between the two GLOBE based dimensions is relatively low, at only 0.241. Thus, Hofstede and both versions of GLOBE dimensions overlap more than Hofstede does with Schwartz, or Schwartz does with GLOBE, especially the GLOBE *Practices* dimensions. When considering the findings for Schwartz, it should be remembered that this study uses the three bipolar dimensions rather than the seven dimension version so as to have more common countries in the sample. However, the correlation between Hofstede's and Schwartz's dimensions was very similar to the correlation found by Drogendijk and Slangen (2006) in their study focusing on Dutch FDIs (0.48). As discussed earlier, the results by Magnusson et al. (2008) indicated an extremely low positive correlation between Hofstede and Schwartz from the US perspective, and Ng et al. (2007) found a negative correlation from the Australian perspective. The results lend additional support to the idea of large differences between constructs depending on which country is used as a reference. Furthermore, Magnussson et al. (2008) found higher correlations between Hofstede and GLOBE than between Hofstede and Schwartz, and as also in this study, the correlations were higher between Hofstede and GLOBE P*ractices* dimensions (0.43) than with GLOBE *Values* dimensions (0.35). The above results indicate that Hofstede's, Schwartz's and GLOBE's cultural dimensions overlap only partly and thus reflect both similar and different aspects of national cultures.

In general, the correlations in Appendix 2 indicated relatively low levels of multicollinearity. The only exception is the correlation between firm size and general FDI experience. There is no formal cutoff value to use with VIF for determining the presence of multicollinearity; however, values over 10 are often regarded as indicating multicollinearity. However, in a weaker model, as is often the case in logistic regression, values above 2.5 may be cause for concern (Hair, 1998). The VIF value for general FDI experience is 4.32. When the general FDI experience is excluded, the VIF values were clearly lower (2.0 and lower).

The logit models of this study clearly have a higher correct classification rate than the chance rate of 60.4 % (i.e. the baseline rate, equal to $a^2 + (1-a)^2$, where a is a proportion of greenfield investments (27.2 %) in the sample. Although there are no general guidelines on how high the classification accuracy should be relative to chance, the rule of thumb is at least a 25% improvement (Hair et al., 1998; Harzing, 2002). In earlier establishment mode studies e.g. Brouthers and Brouthers (2000), Harzing (2002), Drogendijk and Slangen (2006), Slangen and Hennart (2008) the models have shown between 75.20 % and 80.99 % rates of correctly classified cases. In some cases the 25 % improvement has been reached, but not in all. In this study the

baseline rate was 60.4 % and various models indicate a correct classification rate of 77.0 – 78.4 %, thus 16.4-18.0 % better than the baseline rate. The improvement does not reach the 25 % rate and the correctly classified ratios are very comparable to those in earlier studies. The explanatory power of all models is good, as their chi-squared values are all significant (p=0.000).

Model 1 in Table 3 presents the results of the logistic regression including the impact of control variables on the establishment mode. Of the nine control variables, six had a significant impact on the establishment mode choice (see model 1). Four of the variables have a positive sign, so indicate an increased probability of choosing the greenfield establishment mode. The variables concerned are R&D intensity of the field, relatedness of investment, economic growth, and timing of the investment (the greenfield solution being preferred in older investments). Two of the variables have a negative sign, so indicate an increased preference for the acquisition establishment mode. These are host country experience, and economic level of the target country (DC). The most significant single variable seems to be the economic level of the target country which is significant at the 0.001 level in all models (Models 1 to 9). In the case of the other variables, there is variation between the models. Furthermore, in some models two additional variables – MNE size and MNE level of diversification are statistically significant, but only mildly. The only reviewed variable which is not statistically significant in any of the models is the shared subsidiary ownership variable.

Table 4

5.2. The impact of total cultural distance

Models 2 to 5 in Table 3 include the analysis of the total cultural distance on the establishment mode decision. The impact of culture is statistically significant for the models utilizing the Hofstede and Schwartz indices; however, the significance level is higher in the latter (p<0.001). For the analyses utilizing the GLOBE indices, the results depend on which version is used – *Practices* or *Values*. The latter (Model 5) indicates that cultural distance has a similar degree of impact as in the case of the Schwartz based model, whereas the former one (Model 4) indicate a non-significant impact of culture on establishment mode. Thus, based on the Hofstede, Schwartz and the GLOBE *Values* dimensions, the results are consistent with the previous results found by Barkema and Vermeulen (1998), Chang and Rosenzweig (2001), Vermeulen and Barkema (2001), Harzing (2002), Larimo (2003), Drogendijk and Slangen (2006), and Slangen and Hennart (2008). On the other hand, when utilizing an index based on the GLOBE *Practices* dimensions, the results indicating non-significant impact are in line with earlier findings by Brouthers and Brouthers (2000). In summary, three of the four models support our first hypothesis anticipating that the total cultural distance has a positive relationship with the preference for the greenfield establishment mode, and that amongst those three models, there are only mild variations in culture-establishment mode relationship.

Models 2 to 5 also indicate that adding the GLOBE *Practices* and Hofstede variables to the control variables leads only to a very small decrease in the log likelihood and only to a marginal increase in the Nagelkerke R^2 , whereas in the Schwartz and GLOBE *Values*-based models the changes are somewhat greater (and greatest in the Schwartz-based models). It is noteworthy that the share of correctly classified cases is lowest in the model based on Hofstede and highest in the model based on Schwartz, but the differences are very small. Thus in total, adding the cultural distance variables to the control variables produces only a marginal change in the explanatory power of the models.

5.3. The impact of various dimensions

In addition to the analysis of total cultural distance, different models have been investigated using the individual dimensions put forward by Hofstede, Schwartz, and GLOBE. The results are presented in Models 6 to 9. They show there are substantial differences in the impact and direction of the individual dimensions of culture on the establishment mode. Based on Hofstede's framework (Model 6) three of the four dimensions have a statistically significant impact on the establishment mode decisions. Power distance and individualism dimensions both had positive signs and are significant at the 0.001 level. The third significant variable – uncertainty avoidance – had a negative sign and is significant at the 0.01 level. The fourth dimension – masculinity /femininity – has a positive sign, but it is non-significant. Thus, based on the Hofstede framework, three of the four dimensions seem to be important predictors of establishment mode but they are not all in the same direction!

Based on the Schwartz dimensions (Model 7), the results again indicate large differences amongst the various dimensions. The embeddedness-autonomy and hierarchy-egalitarianism dimensions have a positive sign and both are statistically significant at the 0.001 level. The third variable – mastery-harmony – instead has a negative sign, but it does not have a significant impact. Thus, the two first dimensions seem to be clearly the most important in establishment mode decisions.

The results for both versions of the GLOBE framework (Models 8 and 9) indicated that six dimensions are significant predictors of establishment mode, and five of these dimensions are significant in both versions – power distance, uncertainty avoidance, in-group collectivism, assertiveness, and performance orientation. However, amongst these five dimensions, only two - uncertainty avoidance and performance orientation, have the same sign for both *Practices* and *Values*! In the three other cases, the signs for *Practices* and *Values* are in opposing directions. The sixth statistically significant variable in the *Practices* version is societal collectivism and in the *Values* version, the future orientation dimension. Both dimensions have a negative sign. Two of the nine dimensions in the GLOBE framework are statistically insignificant in both *Practices* and *Values* versions: humane orientation and gender egalitarianism. Based on the *Practices* version the most significant dimensions seem to be in-group collectivism, performance orientation, and power distance from which the two first ones had a positive sign and the last one a negative sign. Based on the *Values* version, the two most important dimensions were in-group collectivism, but with a negative sign, and assertiveness with a positive sign. Thus, the results based on the GLOBE framework also indicate dramatic differences in the impact of individual dimensions. A noteworthy result is also that both in the *Practices* and *Values* versions, one of the two variables which did not have links to the dimensions of Hofstede had a significant impact on the establishment mode decisions.

In summary, the results for all three cultural frameworks indicate clearly that the individual dimensions of culture included into those frameworks do not have an equal impact on the establishment mode decision. Furthermore, the results also indicate that there are differences in the direction of impact. Thus, our second hypothesis is supported and, therefore, the analysis of the impact of individual dimensions is important in addition to the analysis of total cultural distance.

In the study by Drogendijk and Slangen (2006) two of the dimensions – power distance and individualism significantly influence the establishment mode choices by Dutch companies. Both dimensions have a positive impact on the probability of choosing the greenfield investment form. Thus, the results of this study and the former study coincide as regards those dimensions. However,

in this study a third dimension – uncertainty avoidance – was also significant and with a negative sign. Drogendijk and Slangen (2006) in their study use the seven-dimension version of the Schwartz framework, and find that conservatism, hierarchy, and egalitarian commitment significantly influence the establishment mode decisions and all those dimensions had increased the probability of a greenfield investment. Thus, in relation to the two latter dimensions, the results of their study and this study coincide.

5.4. Additional tests

As the Kogut and Singh (1988) index has limitations (Shenkar, 2001), the tests related to the impact of total cultural distance based on Hofstede, Schwartz, and GLOBE were replicated using a Euclidean distance version of the index. In earlier studies by Chang and Rosenzweig (2001), Vermeulen and Barkema (2001), Drogendijk and Slangen (2006), and Slangen and Hennart (2008) the authors also compared their results with the results based on the Euclidean distance version, but no significant differences were found. The results of this study confirmed the earlier results - similar results were received when the alternative measures were used (no differences in the statistically significant variables and levels of significance). [5]

6. Summary and discussion

The main goal of this study is to analyze the impact on the establishment modes of investing firms of both total cultural distance and the individual dimensions of culture, for each of the three most prominent cultural frameworks: Hofstede, Schwartz, and GLOBE. The study is based on a sample of over 3 700 foreign manufacturing investments made by 405 firms from three Nordic countries (Denmark, Finland, and Sweden) in 39 countries from 1970-2007. To our knowledge, this is the first study covering all three cultural frameworks and their impact on the establishment mode decision.

The results of this study indicate that in general all three of the cultural frameworks appear to have a positive impact on a firm's preference for greenfield investments. The Hofstede, Schwartz, and GLOBE *Values* frameworks all indicate a statistically significant positive relationship. The GLOBE *Practices* framework is the sole exception and does not indicate any significant relationship; however, this anomaly is not surprising considering the controversial negative correlations found between the GLOBE *Values* and *Practices* scales (Maseland & Van Hoorn, 2008; Venaik & Brewer, 2008). These generally positive correlations parallel the results of previous research where eight out of 12 prior studies supported a positive relationship between cultural distance and a preference for greenfield investments. The strength of the overall relationship only appears to vary mildly amongst the three significant frameworks, with the Schwartz and GLOBE *Practices* frameworks yielding slightly more significant coefficients than the Hofstede framework (p<.01 versus p<.001). In contrast, Drogendijk and Slangen (2006) found that the Hofstede framework mildly outperforms the Schwartz framework in terms of explaining establishment mode behavior; however, it is noteworthy that in the Drogendijk and Slangen study, the sample sizes are different for their Hofstede and Schwartz based models (246 vs. 142); whereas in this study the samples are the same in all models (3 704). Culturally the Netherlands and Nordic countries are relatively close to each other based on the dimensions cited by Hofstede. Ronen and Shenkar (1985) included the Netherlands in the German cluster in their country cluster analysis in the mid-1980s, and formed a separate Nordic countries cluster. However, more recently they include the

Netherlands in the same Nordic countries cluster (see Shenkar & Luo, 2008). This increases the relevance of a comparison of the results of their study and this study. In summary, the results indicate that when using an overall index of cultural distance, the increased criticism of Hofstede's framework may not be entirely justified, and that calls for other frameworks to replace it might be premature. While the coefficients for the Schwartz and GLOBE *Values* indices are statistically significant, they do not dramatically improve the prediction of establishment mode choice relative to the more commonly used Hofstede index.

In stark contrast, our results clearly support the view that the impact of the individual dimensions of culture is not equal. There is substantial variation in their relative importance, and more importantly, frequent differences in the direction of the impact. Based on Hofstede, three of the four dimensions – power distance, individualism, and uncertainty avoidance - have a statistically significant impact; whereas the fourth dimension, the masculinity/femininity dimension, does not significantly influence the establishment mode decision. It is noteworthy that the two first significant variables have a positive sign whereas the third one has a negative sign. Based on Schwartz framework, two of the three dimensions significantly influence the establishment mode decisions – embeddedness/autonomy and hierarchy/egalitarianism both having a positive impact on the probability of choosing a greenfield establishment mode. In the case of the GLOBE framework, six dimensions were significant both in the *Practices* and *Values* versions. Five of those dimensions were the same in both versions, but only two of them - uncertainty avoidance and performance orientation - had the same sign in both versions. In the case of *Practices* version the most significant variables were in-group collectivism, performance orientation, and power distance, the first two having a positive sign and the last one a negative sign. In contrast, based on the *Values* version, the two most important dimensions were in-group collectivism, but with a negative sign, and assertiveness with a positive sign.

The results by Drogendijk and Slangen (2006) supported the significant impact of power distance and individualism, but not the significant impact of uncertainty avoidance, and in both studies the masculinity-femininity dimension did not have any significant impact. Concerning Schwartz's framework, Drogendijk and Slangen use the seven dimension version, whereas this study adopts the three dimensional version. However, the results in both studies supported the significant impact of the hierarchy and egalitarianism dimensions.

In summary, this study answers some of the challenges raised Shenkar (2001) and Harzing (2004). To our knowledge, apart from Drogendijk and Slangen (2006), there are no studies which have analyzed the impact of cultural distance on the establishment mode behavior using any framework other than the Hofstede framework; and this was the first study to incorporate the GLOBE framework into such an analysis. The results show that when used as an aggregate index, there are minimal differences amongst the three main cultural frameworks; however, regardless of the framework employed, there are substantial differences amongst the individual dimensions. Thus, it is critical that one should analyze the impact of each individual dimension of culture. It is also noteworthy that in terms of the various cultural frameworks, Drogendijk and Slangen (2006) find a positive correlation (0.48) between Hofstede and Schwartz from a Dutch perspective whereas Ng et al. (2007) found a negative correlation from an Australian perspective (-0.34) in their study. Recently Magnusson et al. (2008) found that from a US perspective, Schwartz does not correlate with any of the other cultural frameworks (its correlation is highest with GLOBE *Values* at 0.19), GLOBE *Practices* and *Values* versions also correlate to only a very limited extent and the Hofstede and GLOBE frameworks correlate somewhat more (with *Practices* at 0.43 and *Values* at 0.35). From the Nordic (Denmark/Finland/Sweden) perspective, the results indicate additional support for

the concept that the GLOBE versions are not significantly related (a correlation of 0.241), whereas the other correlations were much higher than from the US perspective – between Hofstede and Schwartz at 0.473 (thus at the same level as from the Dutch perspective), between Schwartz and the GLOBE values at 0.494, between Hofstede and the GLOBE values at 0.517, and between Hofstede and the GLOBE practices as high as 0.682. These differences in the correlations between cultural frameworks are important to note.

In terms of managerial implications, it is noteworthy that the cultural distance has a significant impact on the establishment mode decision except in the case of GLOBE *Practices* version. Thus, the total cultural distance between the country of origin of the investing firm and the target country of the investment is important. Furthermore, the analysis based on the single dimensions of culture, reveals significant differences in the direction and level of impact. These differences are important to note in the establishment mode decision making. Furthermore, the results provide grounds for the requirement to analyze the stability and longevity impacts of various cultural frameworks.

This study has several limitations that could be used as the basis of future research. The first limitation was that this study covered only those 39 target countries which are included in all three reviewed frameworks - Hofstede, Schwartz, and GLOBE. Thus, one avenue for further analysis will be an extension covering all target countries included in these cultural frameworks. Furthermore, in relation to Hofstede's framework, only the four dimensions originally developed by Hofstede were included in the analysis, not the later fifth dimension. Thus, a second potential extension would be to include the fifth dimension – long term orientation – in an analysis. The results of the study indicated clear differences in the impact of various dimensions of culture. Thus, a more detailed analysis related to the impact of single dimensions could also be one avenue to explore. Concerning variables included and the analysis made, clear limitations were the missing information from the potential limitations for making acquisitions, limited analysis of the experience variables, and that related to the economic growth, national GNP and R&D intensity industry level data were used because the great coverage of target countries and industries in the sample. Additional analysis of the effect of these limitations on the results should also be conducted. Other interesting potential research avenues include the expansion of the analysis either into the realm of other strategic FDI decisions, namely entry mode (joint venture vs. wholly-owned subsidiary) or analysis of the impact of cultural distance on performance (e.g. longevity and/or probability of divestment). Finally, an interesting avenue could also be a detailed comparison between impacts of cultural distance and psychic distance (see e.g. Dow & Karunaratna, 2006).

Endnotes

1   Drogendijk and Slangen (2006) used the four-dimension version of Hofstede's framework in their study. The fifth dimension – LTO - was added by Hofstede mainly for the analysis of Asian countries. The score values for the LTO are available for a limited number of countries, in our case for 27 of the 39 target countries of this study. Because Magnusson et al. (2008a:192) also found that "there may only be a limited statistical gain by creating the conceptually richer five-dimension CD construct", the fifth dimension was left out of this study.

2   In the case of Hofstede's cultural dimensions the values for Arab countries in the case of Egypt.

3   In some studies, as in Drogendijk and Slangen (2006), the sample includes both manufacturing and service sector FDIs. In this study only manufacturing sector FDIs were

included. Furthermore, the FDIs had to meet two conditions: the number of employees related to the investment had to be 20 or more and the size of the investment five million Euros or more (in acquisitions the total sales of the target firm had to be at least five million).

4 A better measure for R&D intensity would be firm level R&D intensity. However, this information was missing in several cases. Furthermore, there may be problems with firm level R&D in cases of multi-industry companies. For industry growth, a better gauge would be industry level growth rates, but because of the great number of industries, target countries, and years included in the study these figures were not available in several cases.

5 The Euclidean distance index does not assume that the differences in the scores on each dimension are equally important in determining the cultural distance between countries. Instead, in line with the concept of Euclidean distance, it computes the distance (for example the Hofstede's framework) in a four-dimensional space as the square root of the sum of the squared differences in the scores on each cultural dimension. This can be formally represented as:

$$\text{HCD}_{Rj} = \sum_{1}^{4}\left[\left\{\left\langle I_{ij} - I_{ik}\right\rangle \Big/ \left\langle \left(I_{ij} + I_{ik}\right) \div 2\right\rangle\right\}^{2} \Big/ V_i\right] \div 4$$

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Table 1. Cultural Dimensions by Hofstede, Schwartz and Globe.

Hofstede's dimensions
Power Distance   Accepting an unequal distribution of power in institutions as legitimate or illegitimate.   *Individualism/Collectivism*   Valuing loosely knit social relations in which individuals are expected to care only for themselves and their immediate families versus tightly knit relations in which they can expect their wider in-group (e.g. extended family, clan) to look after them in exchange for unquestioning loyalty.   *Masculinity/Feminity*   Valuing achievement, heroism, assertiveness, and material success versus relationships, modesty, caring for the weak and interpersonal harmony.   *Uncertainty Avoidance*   Feeling uncomfortable or comfortable with uncertainty and ambiguity, and therefore, valuing or devaluing beliefs and institutions that provide certainty and conformity.
Schwartz's dimensions
Embeddedness/Autonomy   Concerns the desirable relationship between the individual and the group. Embeddedness represents a cultural emphasis on maintenance of the status quo, propriety, and restraint of actions or inclinations that might disrupt group solidarity or the traditional order. Autonomy describes cultures in which the person is viewed as an autonomous, bounded entity who finds meaning in his or her own uniqueness. Intellectual Autonomy refers to a cultural emphasis on the desirability of individuals independently pursuing their own ideas and intellectual directions; Affective Autonomy to a cultural emphasis on the desirability of individuals independently pursuing affectively positive experience.   *Hierarchy/Egalitarianism*   Concerns guaranteeing responsible behavior that will preserve the social fabric. Hierarchy refers to a cultural emphasis on obeying role obligations within a legitimately unequal distribution of power, roles, and resources. Egalitarianism refers to an emphasis on transcendence of selfish interests in favor of voluntary commitment to promoting the welfare of others.   *Mastery/Harmony*   Concerns the relation of humankind to the natural and social world. Mastery refers to a cultural emphasis on getting ahead through active self-assertion. Harmony refers to an emphasis on fitting harmoniously into the social and natural environment.
GLOBE dimensions
Power Distance is defined as the degree to which members of an organization or society expect and agree that power should be unequally shared.   *Uncertainty Avoidance* is defined as the extent to which members of an organization or society strive to avoid uncertainty by reliance on social norms, rituals, and bureaucratic practices to alleviate the unpredictability of future events.   *Humane Orientation* is the degree to which individuals in organizations and societies encourage and rewards individuals for being fair, altruistic, friendly, generous, caring, and kind to others. This dimension is similar to the dimension labeled Kind Heartedness by Hofstede and Bond (1988).   *Collectivism I*: *Societal Collectivism* reflects the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action.   *Collectivism II*: *In-Group Collectivism* reflects the degree to which individuals express pride, loyalty and cohesiveness in their organizations and families.   *Assertiveness* is the degree to which individuals in organizations or societies are assertive, confrontational, and aggressive in social relationships.   *Gender Egalitarianism* is the extent to which an organization or a society minimizes gender role differences and gender discrimination.   *Future Orientation* is the degree to which individuals in organizations and societies engage in future-oriented behaviors such as planning, investing in the future, and delaying gratification.   *Performance Orientation* refers to the extent to which an organization or a society encourages and rewards group members for performance improvement and excellence. This dimension includes the future oriented component of the dimension called Confucian Dynamism by Hofstede and Bond (1988).

Table 2. Empirical studies on the Impact of cultural distance on an MNE's establishment mode choice (Greenfield or acquisitions).

Study	Settings Home Country	Settings Host Country	Sample Size	Time Period	Operationalization of cultural distance	Establishment Mode Greenfield (G)/ Acquisition (A)	Research Method	Observed impact of Cultural distance
Kogut and Singh (1988)	Various	US	228 FDIs by x no. of firms*	1981-1985	Hofstede & Kogut and Singh index	n.a/n.a	Multinomial Logistic regression	+
Cho and Padmanabhan (1995)	Japan	Various (OECD, LDC)	756 FDIs by x no. of firms*	1969-1991	Hofstede & Kogut and Singh index	78.4% (G)/ 21.6% (A)	Binomial logistic regression	n.s.
Barkema and Vermeulen (1998)	The Netherlands	Various	829 FDIs by 25 firms	1966-1994	Hofstede & Kogut and Singh index	28.2% (G) / 71.8% (A)	Binomial logistic regression	+
Padmanabhan and Cho (1999)	Japan	Various (OECD)	752 FDIs	1969-1991	Hofstede & Kogut and Singh index	77.9% (G)/ 22.1% (A)	Binomial logistic regression	n.s.
Brouthers and Brouthers (2000)	Japan	The U.K., France, the Netherlands, Germany, Belgium and various	136 FDIs by n.a. firms	1980-1992	Hofstede & Kogut and Singh index	n.a / n.a	Binomial logistic regression	n.s.
Chang and Rozenweig (2001)	Various (OECD)	USA	950 FDIs by 119 firms (455 by European & 361 by Japanese	1975-1992	Ronen & Shenkar's cluster	European: 48% (G), 48% (A) and 5% (JV). Japanese: 58%(G), 29% (A), 13 %)JV)	Multinomial logistic model	+
Vermeulen and Barkema (2001)	The Netherlands	Various	1349 FDIs by n.a. firms	1966-1994	Hofstede & Euclidean distance index	n.a/ n.a	n.a/ n.a	+
Harzing (2002)	Various	Various	287 FDIs by 104 firms	n.a	Hofstede & Kogut and Singh index	66.2% (G)/ 33.8% (A)	Binomial logistic regression	+
Larimo (2003)	Various (NordicCountries)	Various	3524 FDIs by 382 firms	1960-1999	Hofstede & Kogut and Singh index	27.6% (G)/ 72.4% (A)	Binomial logistic regression	+
Drogendick and Slangen (2006)	The Netherlands	Various (52/26 countries **)	246/142 FDIs by 157 MNEs	1995-2003	Hofstede, Schwartz & Kogut and Singh index managerial perception	51.6 % (G)/ 48.4% (A)	Binomial logistic regression	+/+/+***
Slangen and Hennart (2008)	The Netherlands	Various (35 Countries)	171 Wholly owned FDIs	1980-1994	Hofstede	53,8% (G) (46,2% (A)	Binominal logistic regression	+
Demirbag, Tatoglu and Glaister (2008)	Various (15 countries)	Turkey	145 FDIs by n.a. firms	Mainly prior to 1980s and post 1990	Hofstede	63,8 % (G)/ 31.7 % (A)	Binomial regression	n.s.

+= increased probability of a greenfield; n.s.= not significant, na = no information available

** First figures concern Hofstede and managerial perception based samples, latter Schwartz based samples. *** Positive based on all three measures of cultural distance

Table 3. Control Variables Used in the Study

CONTROL VARIABLE	OPERATIONALIZATION	REFERENCE(S)
1. Size of the investing company	Worldwide annual sales of the company (in million euros) in the year preceding the investment.	Hennart and Larimo (1998); Vermeulen and Barkema (2001); Larimo (2003)
2. Degree of diversification of the investing company	The number of 4-digit SIC codes in which the company was operating based on the annual reports and websites of the companies.	Hennart and Larimo (1998); Vermeulen and Barkema (2001); Harzing (2002); Larimo (2003)
3. Research and development intensity	A classification of various 4-digit SIC industries into three categories based on their value added figures. [1]	Hennart and Larimo (1998); Larimo (2003)
4. International investment experience of the investing firm	The number of foreign manufacturing investments made by the company before the reviewed investment.	Gatignon and Andersson (1998); Andersson and Svensson (1994);
5. Target country experience of the investing company	The experience in years from the first manufacturing investment of the firm in the target country.	Hennart and Larimo (1998); Larimo (2003)
6. Level of development of the target country	Target countries are divided into two groups based on their level of development: developed and developing based on the categorization by United Nations. [1]	Padmanabhan and Cho (1995); Vermeulen and Barkema (2001); Larimo (2003)
7. Economic growth in the target country	The GNP growth (%) in the target country in the year preceding the investment. The United Nations' data for the variable were used.	Barkema and Vermeulen (1998); Larimo (2003)
8. Degree of relatedness of the investment (related)	A dummy variable where 1 means that the investment is made in a related industry (the 4-digit SIC code of the investment is the same as the industry where the firm already operates) and 0 which means that the investment was made in an industry that is new for the firm (=unrelated).	Barkema and Vermeulen (1998); Hennart and Larimo (1998)
9. Ownership structure	A dummy variable where 0 stands for wholly owned subsidiaries and 1 for joint ventures. A limit of 95 per cent ownership applied (wholly owned = 95-100 per cent foreign ownership).	Hennart and Larimo (1998); Chen and Hennart (2002); Larimo (2003); Demirbag et al. (2008)
10. Timing of the investment	Based on the year of the investment deducting the year of investment from 2008.	Harzing (2002) [2]

1 See endnote 4

2 The year of investment

Table 4. Logistic regression estimates of establishment mode choice (Greenfield=1)

Variable	**Model 1**: Control variables	**Model 2**: Hofstede	**Model 3**: Schwartz	**Model 4**: GLOBE practices (as is)	**Model 5**: GLOBE values (should be)	**Model 6**: Hofstede	**Model 7**: Schwartz	**Model 8**: GLOBE practices (as is)	**Model 9**: GLOBE values (should be)
MNE size	0,036	0,018	0,033	0,045	0,030	0,027	0,043	0,039	0,048
MNE's level of diversification	-0,004	-0,001	-0,004	-0,005	-0,004	-0,004	-0,005	-0,006	-0,007
MNE's host-country experience	-0,008*	-0,009*	-0,009*	-0,008*	-0,008*	-0,009*	-0,008*	-0,005	-0,006
Related expansion	0,641**	0,611**	0,670**	0,655**	0,635**	0,616**	0,650**	0,666**	0,636**
Shared subsidiary ownership	0,123	0,121	0,102	0,117	0,092	0,076	0,106	0,044	0,038
Economic level	-1,885***	-1,754***	-1,569***	-1,956***	-1,602***	-1,211***	-1,651***	-1,177***	-1,292***
Economic growth	0,025*	0,023*	0,008	0,023*	0,013	0,001	0,002	0,011	-0,004
R&D intensity	0,169**	0,154**	0,142*	0,172**	0,152**	0,147**	0,141*	0,154**	0,151**
Timing	0,019**	0,017*	0,021**	0,020**	0,018**	0,021**	0,026***	0,024**	0,029***
Cultural distance		0,085**	0,235***	-0,051	0,244***				
Cultural dimensions[a]:									
- PDI / E-A / PDI						0,014***	1,102***	-0,339**	0,401[†]
- IDV / H-E / UAI						0,018***	0,753***	0,277*	0,449*
- MAS / M-H / HUM						0,004	-0,244	0,114	0,286
- UAI / INSTColl						-0,008**		-0,438*	-0,045
- INGROUPColl								0,477***	-0,536**
- Assertiveness								-0,394[†]	0,732***
- Gender Egalitarianism								0,213	0,056
- Future Orientation								-0,227	-0,318*
- Performance Orientation								0,759***	0,432[†]
Constant	-1,123**	-1,238***	-1,604***	-1,024**	-1,564***	-1,982***	-1,784***	-1,974***	-2,266***
N (greenfield)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)	3704 (1007)
Model x^2	616,815***	624,222***	648,635***	618,860***	632,531***	679,507***	669,709***	684,008***	713,861***
–2 Log likelihood	3717,666	3710,260	3685,847	3715,622	3701,951	3654,975	3664,773	3650,474	3620,620
Nagelkerke R^2	0,222	0,225	0,233	0,223	0,228	0,243	0,240	0,244	0,254
Correctly classified (%)	77,2	77,0	77,3	77,2	77,1	78,2	77,1	77,9	78,4

Standard errors; [†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (one-tailed).

[a] Hofstede: PDI (Power Distance), IDV (Individualism), MAS (Masculinity), UAI (Uncertainty Avoidance).
Schwartz: E-A (Embeddedness/Autonomy), H-E (Hierarchy/Egalitarianism), M-H (Mastery/Harmony).
GLOBE: PDI (Power Distance), UAI (Uncertainty Avoidance), HUM (Humane Orientation), INSTColl (Societal Institutional Collectivism), INGROUPColl (Societal In-Group Collectivism).

Appendix 1. Target countries of the investment

COUNTRY	TOTAL		SUBSAMPLE					
			DENMARK		FINLAND		SWEDEN	
	N	%	N	%	N	%	N	%
Argentina	9	0,24	2	0,36	3	0,17	4	0,29
Australia	36	0,97	10	1,80	8	0,45	18	1,31
Austria	46	1,24	6	1,08	20	1,13	20	1,45
Brazil	88	2,38	19	3,42	32	1,81	37	2,68
Canada	98	2,65	10	1,80	59	3,33	29	2,10
China	232	6,26	42	7,57	91	5,14	99	7,18
Denmark	168	4,54	0	0,00	69	3,90	99	7,18
Egypt	8	0,22	1	0,18	3	0,17	4	0,29
Finland	146	3,94	23	4,14	0	0,00	123	8,92
France	226	6,10	26	4,68	101	5,71	99	7,18
Germany	331	8,94	46	8,29	153	8,64	132	9,57
Greece	6	0,16	0	0,00	4	0,23	2	0,15
Hong Kong	6	0,16	0	0,00	6	0,34	0	0,00
Hungary	50	1,35	5	0,90	31	1,75	14	1,02
India	65	1,75	13	2,34	23	1,30	29	2,10
Indonesia	23	0,62	3	0,54	8	0,45	12	0,87
Ireland	21	0,57	3	0,54	13	0,73	5	0,36
Israel	5	0,13	2	0,36	0	0,00	3	0,22
Italy	117	3,16	14	2,52	52	2,94	51	3,70
Japan	25	0,67	4	0,72	6	0,34	15	1,09
Malaysia	43	1,16	8	1,44	24	1,36	11	0,80
Mexico	41	1,11	3	0,54	20	1,13	18	1,31
Netherlands	134	3,62	17	3,06	76	4,29	41	2,97
New Zealand	7	0,19	0	0,00	2	0,11	5	0,36
Philippines	10	0,27	4	0,72	2	0,11	4	0,29
Poland	132	3,56	31	5,59	61	3,45	40	2,90
Portugal	37	1,00	6	1,08	15	0,85	16	1,16
Russia	126	3,40	9	1,62	91	5,14	26	1,89
Singapore	16	0,43	1	0,18	12	0,68	3	0,22
Slovenia	7	0,19	3	0,54	2	0,11	2	0,15
South Korea	21	0,57	4	0,72	6	0,34	11	0,80
Spain	88	2,38	14	2,52	33	1,86	41	2,97
Sweden	335	9,04	36	6,49	299	16,89	0	0,00
Switzerland	50	1,35	11	1,98	21	1,19	18	1,31
Taiwan	8	0,22	1	0,18	3	0,17	4	0,29
Turkey	16	0,43	1	0,18	7	0,40	8	0,58
UK	316	8,53	82	14,77	131	7,40	103	7,47
USA	606	16,36	93	16,76	281	15,88	232	16,82
Venezuela	5	0,13	2	0,36	2	0,11	1	0,07
	3704	100,00	555	100,0	1770	100,00	1379	100,00

Appendix 2. Correlations

		Mean	Std.dev.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Establish-ment mode	Pearson Correlation	0,27	0,445	1																
	Sig. (2-tailed)																			
2. Firm size log	Pearson Correlation	6,561	1,7906	0,037	1															
	Sig. (2-tailed)			0,025																
3. Firm size	Pearson Correlation	2298,53	4377,92	0,093	0,616	1														
	Sig. (2-tailed)			0,000	0,000															
4. Diver-sification	Pearson Correlation	10,87	7,640	-0,022	0,458	0,285	1													
	Sig. (2-tailed)			0,184	0,000	0,000														
5. Host country exp.	Pearson Correlation	8,34	13,955	-0,108	0,242	0,144	0,175	1												
	Sig. (2-tailed)			0,000	0,000	0,000	0,000													
6. Related expansion	Pearson Correlation	0,95	0,222	0,072	0,070	0,046	-0,018	0,014	1											
	Sig. (2-tailed)			0,000	0,000	0,005	0,286	0,383												
7. Shared subsidiary ownership	Pearson Correlation	0,34	0,473	0,139	-0,003	0,026	0,034	-0,121	-0,021	1										
	Sig. (2-tailed)			0,000	0,840	0,108	0,037	0,000	0,204											
8. Economic level	Pearson Correlation	0,76	0,425	-0,410	-0,112	-0,138	0,049	0,167	-0,096	-0,272	1									
	Sig. (2-tailed)			0,000	0,000	0,000	0,003	0,000	0,000	0,000										
9. Economic growth	Pearson Correlation	3,33	3,675	0,162	0,042	0,065	-0,018	-0,055	0,015	0,096	-0,293	1								
	Sig. (2-tailed)			0,000	0,011	0,000	0,262	0,001	0,360	0,000	0,000									
10. Timing	Pearson Correlation	14,09	7,687	-0,041	-0,462	-0,247	0,098	-0,143	-0,138	0,097	0,203	-0,065	1							
	Sig. (2-tailed)			0,013	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000								
11. R&D	Pearson Correlation	1,79	0,745	0,055	0,037	0,123	-0,028	-0,030	-0,056	-0,030	-0,020	0,048	-0,022	1						
	Sig. (2-tailed)			0,001	0,025	0,000	0,088	0,072	0,001	0,069	0,225	0,004	0,176							
12. General FDI exp.	Pearson Correlation	34,31	36,373	0,056	0,611	0,510	0,504	0,458	0,048	-0,008	-0,131	0,070	-0,330	0,028	1					
	Sig. (2-tailed)			0,001	0,000	0,000	0,000	0,000	0,004	0,644	0,000	0,000	0,000	0,088						
13. General FDI exp. log	Pearson Correlation	2,868	1,3180	0,038	0,747	0,430	0,571	0,421	0,074	-0,024	-0,097	0,041	-0,306	0,032	0,828	1				
	Sig. (2-tailed)			0,021	0,000	0,000	0,000	0,000	0,000	0,141	0,000	0,013	0,000	0,052	0,000					
14. Hofstede	Pearson Correlation	2,398	1,5134	0,242	0,203	0,188	-0,049	0,000	0,091	0,131	-0,480	0,212	-0,130	0,100	0,206	0,206	1			
	Sig. (2-tailed)			0,000	0,000	0,000	0,003	0,997	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000				
15.Schwartz	Pearson Correlation	1,327	1,2126	0,320	0,121	0,125	-0,012	-0,057	0,041	0,168	-0,589	0,377	-0,172	0,090	0,153	0,139	0,473	1		
	Sig. (2-tailed)			0,000	0,000	0,000	0,472	0,001	0,014	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000			
16. GLOBE A	Pearson Correlation	2,066	1,2894	0,139	0,194	0,138	-0,056	0,045	0,093	0,062	-0,402	-0,007	-0,153	0,052	0,185	0,199	0,682	0,180	1	
	Sig. (2-tailed)			0,000	0,000	0,000	0,001	0,007	0,000	0,000	0,000	0,665	0,000	0,002	0,000	0,000	0,000	0,000		
17. GLOBE B	Pearson Correlation	1,446	0,8628	0,341	0,101	0,129	-0,016	-0,171	0,063	0,256	-0,680	0,379	-0,123	0,067	0,109	0,086	0,517	0,494	0,241	1
	Sig. (2-tailed)			0,000	0,000	0,000	0,316	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000