The Measurement and Impact of Psychic Distance:

Testing a New Scale on FDI in Slovakia

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Abstract

The original intention of this paper was to explore how best to measure psychic distance; and more specifically, to test the criterion-related validity of a new set of scales recently made available by Dow & Karunaratna (2006). The empirical setting is inward foreign direct investment (FDI) in Slovakia from 1990 to 2006. The findings indicate that when predicting market selection and performance, a formative index of the new psychic distance scales is a significantly better predictor variable than the traditionally employed scale based on Hofstede's (1980) dimensions of national culture. However, for predicting entry mode choice, the results are more ambiguous. This leads us to an unexpected result of our analyses. The classic TCE-based entry mode model does not appear to provide significant predictive power with respect to FDI entry mode choice in Slovakia. The implications of these findings are discussed in detail.

Keywords: psychic distance, cultural distance, entry mode, joint venture, market selection, performance, FDI.

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1 Introduction

The concept of psychic distance, and the closely-related subsidiary construct of cultural distance[1], have enjoyed substantial prominence in the international business (IB) literature over several decades. After an inconspicuous start (Beckerman, 1956), psychic distance emerged in the 1970s as one of the corner stones of the Uppsala internationalization process model (Johanson & Wiedersheim-Paul, 1975). A decade later, Kogut & Singh (1988) similarly raised the profile of cultural distance by converted the four original Hofstede (1980) national culture dimensions into a formative index of cultural distance. Since that time, psychic and cultural distance have played such a prominent role as predictor or control variables in a wide range of empirical IB studies that Cho and Padmanabhan (2005, p. 309) recently commented that "almost … no international business study can be complete unless there is an explicit variable controlling for cultural distance". This is undoubtedly what motivated Tihanyi, Griffith & Russell (2005) to research and publish their meta-analysis on the topic.

Yet, until recently, very little effort had been put into developing a superior method for measuring such an important but obviously complex construct. The vast majority of researchers have chosen to employ the Hofstede index (Harzing, 2003), despite a long history of ambiguous and weak results (Harzing, 2003; Shenkar, 2001; Tihanyi et al., 2005; Zhao, Luo, & Suh, 2004). Thus, the primary objective of this paper is to explore how best to measure psychic distance; in particular, with regard to its potential impact on foreign direct investment (FDI). To do so, we employ a formative index (Diamantopoulos & Winklhofer, 2001) based on a newly published set of scales (Dow & Karunaratna, 2006) which claim to measure a wider range of dimensions of psychic distance than just Hofstede's dimensions of national culture. The criterion-related validity of this index is tested and compared with the

[1] The nexus between these two constructs is discussed later in this paper, but in most circumstances researchers and commentators have tended to use these two terms interchangeably. Indeed, even one of the doyens of the Uppsala school, Sune Carlson, used the term cultural distance in an early publication (Carlson, 1974) before Johanson & Wiedersheim-Paul's seminal article (1975) which popularized the term psychic distance.

classic Hofstede index using a recent sample of FDI ventures into Slovakia. Both indices are tested for their ability to predict market selection, entry mode choice and performance. The remainder of this paper is broken into four sections. The first section briefly reviews the concept of psychic distance, its measurement, and its application. This section concludes with a set of testable hypotheses. The next section describes the research methodology, including the collection of the sample population, the instruments used to measure the dependent and independent variables, and the analysis techniques used to test the hypotheses. The third and fourth sections, respectively, present the empirical results and discuss their implications.

2 Literature Review & Hypotheses

2.1 A Working Definition of Psychic Distance

Despite both its prominence and its intuitive appeal, psychic distance is a relatively complex construct, and is often misunderstood and misapplied. Though Beckerman (1956, p. 38) initially coined the term to describe 'unexpected patterns' in intra-European trade, he contributed relatively little to our understanding of the construct; other than to suggest it might involve "language difficulties". The first formal definition of the construct was left to Johanson & Wiedersheim-Paul (1975, p 308):

> *"factors preventing or disturbing the flow of information between firm and market. Examples of such factors are differences in language, culture, political systems, level of education, level of industrial development, etc."*

Since that time, a variety of definitions have been debated (e.g. Brewer, 2007; Evans & Mavondo, 2002; O'Grady & Lane, 1996) emphasizing issues such as 'perceptions' versus 'actual' differences, and the distinction between 'distances' and 'differences'. However, two core aspects of the construct – that it is a 'multidimensional construct', and that it is about the ability of parties in different markets to communicate and accurately 'understand each other' - appear have stood the test of time. Indeed, several commentators (Harzing, 2003; Shenkar, 2001; Tihanyi et al., 2005) have recently echoed a call to return to the multi-dimensional nature of the construct.

2.2 The Measurement of Psychic Distance

Despite broad agreement that psychic distance is a multidimensional construct including (or influenced by) factors such as differences in language, religion, culture, education, industrial development, and political systems (Dow & Karunaratna, 2006; Evans & Mavondo, 2002; Johanson & Wiedersheim-Paul, 1975; Shenkar, 2001), the vast majority of researchers

have defaulted to employing a single narrow metric, specifically Kogut & Singh's (1988) composite index of Hofstede's (1980) four national culture dimensions. Tihanyi et al (2005) found that 55 of the 66 samples they reviewed employed the Hofstede index as their sole indicator of psychic distance[2]. We are not disputing here whether the Hofstede dimensions are appropriate measures of some aspects of national culture, but rather that the Hofstede index is only a narrow component of psychic distance. As stated by Zhao et al (2004): "the use of Hofstede's cultural index (used by most of the studies) as a measure of uncertainty seems ineffective to capture the diversity and subtlety of cultural influences".

In response to these criticisms, a recent publication (Dow & Karunaratna, 2006) has tested and made available a much broader range of indicators of psychic distance, namely differences in language, religion, industrial development, education and political systems. So far these scales have only been tested in terms of their ability to predict bilateral trade flows. It is our intension with this paper to create a new composite index from these scales, and test its ability to predict various aspects of foreign direct investment.

2.3 The Application of Psychic Distance

As a prelude to testing this 'new' psychic distance index, it is appropriate to review the various international business issues for which psychic distance is frequently cited as a predictor variable. The first of these issues is international market selection.

Despite the high profile that psychic distance receives in the entry mode literature, the construct was first put forward by Beckerman (1956) as one possible explanation for export market selection. Factors disrupting the flow of information between specific markets reduce a firm's awareness of business opportunities in the other market, as well as raising the risk that the firm may either be mistaken about the opportunity, or unable to effectively capitalize on it. The net effect, whether the differences are real or perceived, is to reduce the likelihood that a firm will attempt to exploit opportunities in the other market. The Uppsala school (Johanson & Vahlne, 1977; Johanson & Wiedersheim-Paul, 1975) became famous for extending the application of this construct to explain both FDI market selection and entry mode choice. Since that time, psychic or cultural distance has played a consistent role as a predictor variable for bilateral FDI flows (Habib & Zurawicki, 2002; Razin, E., & Tong, 2005), the source of inward FDI (Grosse & Goldberg, 1991; Grosse & Trevino, 1996), the destination of outward FDI (Davidson, 1983; Green & Cunningham, 1975), the order of

[2] An unspecified number of the remaining 11 samples also used scales based on the Hofstede dimensions.

market entries for FDI (Benito & Gripsrud, 1992; Erramilli, 1991). In five of the eight aforementioned studies, a statistically negative relationship between psychic distance and FDI market selection was detected. These results, in combination with the earlier discussions on the definition and measurement of psychic distance, lead us to our first hypothesis:

H1. *The psychic distance between two countries will be negatively correlated with the likelihood of foreign direct investments occurring between those two countries. This relationship will hold for both:*

a. the national culture aspects of psychic distance, and

b. *other aspects of psychic distance, such as differences in language, religion, industrial development, education and political systems.*

As alluded to above, the second, and more common application of psychic distance has been as an explanatory variable in predicting foreign market entry mode, specifically the use of joint ventures versus wholly-owned subsidiaries. This application of psychic distance has its origins in two seminal articles (Gatignon & Anderson, 1988; Kogut & Singh, 1988). Gatignon & Anderson (1988) included 'sociocultural distance' (i.e. psychic distance) as an indicator of internal uncertainty within the transaction cost economics (TCE) framework. They predicted that large psychic distances would increase internal uncertainty; which in turn would encourage managers to seek lower control entry modes, such as joint ventures. Kogut & Singh (1988) based their hypotheses on the Uppsala internationalisation process model but arrived at essentially the same prediction that large psychic distances would encourage managers to select joint ventures over wholly-owned subsidiaries. This hypothesis has been tested numerous times over the subsequent two decades with a recent meta-analysis (Tihanyi et al., 2005) citing 66 prior studies. Yet, despite the plethora of attention, Tihanyi et al's (2005, p 524) "regression results [have] failed to provide statistical evidence of significant relationships between cultural distance and entry mode choice". However, in a more modest[3] meta-analysis, Zhao et al (2004) found a very small but statistically significant effect. Nevertheless, both sets of authors subsequently suggested that the traditional measurement instrument, based on Hofstede' dimensions of national culture may be too narrow to capture

[3] Modest in terms of the number of studies included – 38 versus Tihanyi, et al's (2005) 66.

the full impact of psychic distance. This, combined with our earlier discussions of the definition and measurement of psychic distance, leads us to our second hypothesis:

H2. *The psychic distance between host and home countries will be positively correlated with a preference for entry via joint venture, as opposed to entry via a wholly-owned subsidiary. This relationship will hold for both:*

a. the national culture aspects of psychic distance, and

b. *other aspects of psychic distance, such as differences in language, religion, industrial development, education and political systems.*

The third major application of the psychic distance construct concerns its impact on subsidiary performance. Possibly the most infamous article in this literature stream is 'The Psychic Distance Paradox' (O'Grady & Lane, 1996); however, earlier researchers (e.g. Li & Guisinger, 1991) had already empirically explored the linkages between psychic distance and subsidiary performance. The most common hypothesis follows the simple logic that psychic distance causes communication problems, which in turn increases costs and the risks of making a mistake. Thus, one would expect a lower level of performance in more psychically distant markets. However, several authors (Evans & Mavondo, 2002; O'Grady & Lane, 1996) have argued that low levels of psychic distance may cause overconfidence, which may also adversely affect performance. In their meta-analysis on the issue, Tihanyi et al (2005) found a negative but not statistically significant correlation between subsidiary performance and psychic distance. Once again, the narrow nature of the instrument traditionally used to measure psychic distance was raised as one possible explanation of these ambiguous results. These results, combined with our earlier discussions of the definition and measurement of psychic distance lead us to our third and final hypothesis. We have adopted here the more 'traditional' performance hypothesis, but are cognisant an argument for the reverse direction could also be made.

H3. *The psychic distance between the host and home countries will be negatively correlated with the performance of foreign investment in the host country. This relationship will hold for both:*

a. the national culture aspects of psychic distance, and

b. other aspects of psychic distance, such as differences in language, religion, industrial development, education and political systems.

3 Research Methodology

The following section outlines the methodology used to test our three hypotheses. In effect we are conducting three separate analyses on the same data, but with a common thread – comparing two different indices for measuring psychic distance. For that reason, the first and most important issue is how we operationalise psychic distance. We next describe our sample population and the process used to collect it. We then describe each of the three analyses in turn.

3.1 Measuring Psychic Distance

In order to provide a consistent benchmark with past research, our measure of the national culture aspect of psychic distance is the traditional index based of the four original Hofstede (1980) dimensions (**Hof**), although we have also used a more recent publication (Hofstede, 2001) to expand our coverage of countries.

For our second instrument, which we claim incorporates additional aspects of psychic distance (**PD_{DK}**), we have created a formative index based on five of the major dimensions included in Dow & Karunaratna (2006): differences in language, religion, industrial development, education and degree of democracy. The specific scores for the five variables are publicly available (Dow, 2007) and have been converted in to a single composite index using the same methodology as for the Hofstede index:

$$PD_{DK} = \sum_{K=1}^{5} (I_{ijk})^2 / V_k / 5$$

Where

I_{ijk} is the distance between countries i and j for the k^{th} dimension of psychic distance, and

V_k is the variance of the k^{th} dimension of psychic distance across 120 countries.

The actual psychic distance from 82 countries to the host country for this study, Slovakia, are listed in Table 1 for both instruments.

3.2 Sample Population

The sample population for this study is FDI into the central eastern European country of Slovakia between 1990 and 2006, Despite the abundance of empirical research on FDI, the majority of studies have focussed on China (e.g. Pan, 2002), the USA (e.g. Herrmann & Datta, 2006) and Japan (e.g. Delois & Henisz, 2000). Thus, the rapid 'opening up' of Eastern

Europe over the past few decades provides a perfect opportunity to study FDI in a different setting.

The survey instrument was developed and then pre-tested on a selection of Slovak managers. Firms were identified from a government administered database on FDI in Slovakia, and a total of 500 companies were approached in two waves. There was no statistically significant difference between the two waves. A final useable sample of 154 ventures implies an effective response rate of 31%. The surveys were completed either via in-person or telephone interviews by a selection of Slovakian PhD students fluent in both English and Slovak. A key respondent, typically the senior executive or a director of the firm, was interviewed in each case as the nature of the questions required detailed knowledge of the original investment and the parent companies.

3.3 Analysis Techniques and Control Variables for Predicting Market Selection

In order to test the market selection hypotheses (**H1a** & **H1b**), the basic unit of analysis is each potential 'home' nation. Given the limited coverage of the Hofstede variables, only 82 countries (listed in Table 1) could be considered. From the 154 ventures surveyed, only 24 nations are represented (i.e. 58 of the original 82 nations do not have a single FDI venture in our sample). We have chosen to retain in our market selection analyses the 58 nations with no entries because the lack of any entries is important information in itself. However, the analyses have also been repeated with those 58 nations withheld. Except for a substantial reduction in sample size and statistical power, the results are essentially the same.

The dependent variable for the market selection analyses is the natural logarithm of number of Slovakian FDI ventures originating from each of the home countries (**Entries_ln**). This follows the methodology of Anand & Kogut (1997). An alternative approach might have been to use the US dollar value of investment (e.g. Habib & Zurawicki, 2002); however the two variables are highly correlated (Pearson $r = 0.875$) and the dollar value approach only appears to introduce extra variance without substantially changing the results.

For control variables, a gravity model (e.g. Green & Cunningham, 1975; Grosse & Trevino, 1996; Razin et al., 2005) has been adopted with the natural logarithm of the home nation population, the GDP per capita and the geographic distance between the markets. The descriptive statistics and the correlation matrix for all these variables are in Tables 2 & 3.

The market selection hypotheses are tested using a multiple regression of the aforementioned variables.

3.4 Analysis Techniques and Control Variables for Predicting Entry Mode Choice

In order to test the entry mode choice hypotheses (**H2a** & **H2b**), the basic unit of analysis is each FDI venture (i.e. n = 154). For this analysis, logistic regression is employed with the mode of entry (**JV**) as the dependent variable. Businesses where the foreign parents represent less than 95% of the equity are classified as joint ventures and are coded as 1. Ventures where the foreign parents represent 95% or more of the equity are coded as 0. A 95% cut off for defining joint ventures is a common threshold within the entry mode literature (Arregle, Hebert, & Beamish, 2006; Brouthers & Brouthers, 2001; Lu, 2002). The count of joint ventures versus wholly-owned subsidiaries by home country is summarized in Table 4.

A total of eight control variables, commonly found in entry mode choice studies have been incorporated in this analysis, in addition to our two measures of psychic distance. The first two control variables are 4 point scale indicators of the R&D intensity (**R&D**) and advertising intensity (**Adv**) of the foreign parent. Both scales reflect the intensity as a percentage of sales revenues. These two are amongst the most commonly employed variables (Zhao et al., 2004) in entry mode studies and are justified in the TCE literature as indicators of asset specificity and free-riding potential.

A third control variable is an indicator of the size of the foreign parent (**PSize_f**), and is based on a factor score of the number of worldwide employees and the worldwide revenues of the firm. These two measures are highly correlated (r = 0.879) and when combined produce a Cronbach alpha of 0.706. Firm size is typically included in such studies (e.g. Arregle et al., 2006; Delois & Henisz, 2000; Hennart & Larimo, 1998) to control for differences in the parent firm's 'resource-abundance'.

Two single item variables are included in the analysis to take in consideration diversified firms (**Diversified**) and ventures which are in an industry unrelated to the parent firm's normal line of business (**Unrelated**). In both of these situations, the foreign parent may be looking to a joint venture partner for industry specific knowledge, in addition to country specific knowledge (Chang & Rosenzweig, 2001; Hennart & Larimo, 1998).

The final three control variables (**GExp_f**, **RExp_f** and **Exp_Slo**) reflect different aspects of prior international experience: specifically, overall international experience (e.g. Arregle et al., 2006), experience in the local region (e.g. Brouthers & Brouthers, 2003), and experience in that specific country (e.g. Lu, 2002). In each case, prior experience is expected to reduce internal uncertainty; thus increasing the likelihood a firm will select a higher control entry mode (Zhao et al., 2004). Both regional and global experience are measured as the factor

score of the number of markets entered and the number of years of experience. The reliabilities of both scales are within acceptable limits with Cronbach alphas of 0.618 and 0.867 respectively. Prior experience within Slovakia is measured as a single dummy variable.

Descriptive statistics and a correlation matrix for these variables are available in Tables 5 and 6.

3.5 Analysis Techniques and Control Variables for Predicting Performance

As with the entry mode analysis, in order to test the performance hypotheses (**H3a** & **H3b**), the basic unit of analysis is each FDI venture (i.e. n = 154). Multiple regression analysis is used with the dependent variable being a factor score based on 11 five-point perceptual scales measuring various aspects of subsidiary performance. These 11 scales are drawn from Geringer & Hebert (1991) and Brouthers (2002). The individual items have loadings between 0.563 and 0.840, with an overall Cronbach alpha of 0.910, indicating a very reliable construct. Further more, Geringer & Hebert's (1991) analyses indicate that these perceptual scales are strongly correlated with objective measures of performance.

A total of seven control variables are included in the analyses, in addition to our two measures of psychic distance. Five of those control variables are identical to ones used in the entry mode analyses: size of the parent firm (**PSize_f**), whether the venture is in an industry unrelated to the parent firm's normal line of business (**Unrelated**), and the three measures of international experiences (**GExp_f**, **RExp_f** and **Exp_Slo**). Size of the parent firm and its degree of international experience are frequently included in such analyses (Brouthers, 2002; Goerzen & Beamish, 2003; Shaver, 1998) with the expectation that larger and more experienced parent firms, with their greater abundance of tangible and intangible assets are able to confer performance advantages onto their subsidiaries. Conversely, if the venture is in an industry unrelated to the parent firm's normal line of business, the parent firm will not have any industry-specific assets and experience; and thus, the subsidiary may be disadvantaged in terms of performance (Shaver, 1998).

The age of the subsidiary (**Age_subsid**), measured in the number of years the venture has been operating, is a commonly included to control for the "liability of newness" (Li & Guisinger, 1991, p 211). In essence, it recognises that there may be a positive relationship between the age of a business and its performance. In this particular instance, it will also control for a potential sample bias. Poor performing ventures founded early in our sampling time frame (1990 to 2006) may have already withdrawn from Slovakia; and thus, will be missing from our survey.

The final control variable for our performance analyses is the entry mode. While there is no a priori expectation that one entry mode will yield a higher level of performance, it is considered prudent to include the mode of entry, in this case our variable indicating whether it is a joint venture (**JV**), as a potential predictor of performance (Brouthers, 2002; Li, 1995; Li & Guisinger, 1991; Shaver, 1998).

Tables 5 & 6 provide detailed descriptive statistics and a correlation matrix for the variables in the performance analyses.

4 Results

Before conducting the analyses, the data was screened to address issues such as influential outliers and missing variables. For several variables, specifically the size of the parent firm (**PSize_f**) and two of the three measures of international experience (**GExp_f** and **RExp_f**), natural logarithm transformations were considered. However, after conducting the analyses both with and without transforming these variables, the results are effectively the same. As a result, we have reported the results here with the variables untransformed.

In cases where multiple indicators are employed, missing data has been estimated using the remaining indicators. In instances, where data is missing for single indicator variables, the population mean has been imputed. This substitution has been limited to small number of instances and for control variables only.

4.1 Predicting Market Selection

Table 4 provides a summary of our market selection analysis. The model is highly significant, as are all the control variables. However, while our measure of '*other aspects of*' psychic distance, $\mathbf{PD_{DK}}$, is statistically significant, supporting **H1b**; the traditional measure of cultural distance, **Hof**, is not. Thus the first hypothesis, **H1a**, is not supported.

4.2 Predicting Entry Mode Choice

In contrast, the entry mode models (Table 8) are statistically significant, but disappointingly weak in terms of the number of non-significant predictor variables. Even when adopting a generous standard of 0.10 significance, only three of the eight control variables, and neither of the main variables of interest, achieve statistical significance (Model 2). In subsequent investigations, a temporal trend in the use of joint ventures was discovered, and thus an extra variable (**Year**) has been introduced to control for that (Model 3); however,

the non-significance of the two psychic distance variables does not change. Neither hypotheses **H2a** nor **H2b** are supported.

4.3 Predicting Performance

While, the final parsimonious performance model (Model 5, Table 9) is statistically significant, it is also disappointingly weak in terms of its predictive power (an adjusted r^2 of 5.6%). Indeed, for the initial performance model (Model 4, Table 9), so few of the control variables are significant that the overall model fails to achieve statistical significance. However, despite these limitations, our measure of '*other aspects of*' psychic distance, $\mathbf{PD_{DK}}$, is a statistically significant predictor of performance, supporting **H3b**. In contrast, the traditional measure of cultural distance, **Hof**, does not appear to be a significant predictor of performance; and thus, the hypothesis, **H3a**, is not supported.

5 Discussion & Conclusions

In terms of achieving of its original objective – exploring how best to measure psychic distance - this paper presents reasonably strong evidence that a broader operationalisation of psychic distance is required. The most commonly used indicator, the Hofstede-based index does not achieve statistical significance as a predictor of any of the three criterion variables. This result is consistent with previous findings (Tihanyi et al., 2005; Zhao et al., 2004). In contrast, a new formative index, based on five key dimensions of psychic distance taken from Dow & Karunaratna (2006) is a significant predictor of FDI market selection and performance. In the case of predicting FDI entry mode selection, neither of the psychic distance indices achieve statistical significance, but this is also true of the majority of the TCE-based control variables. This unexpected result forms the basis of a separate discussion. However, with respect to measuring and operationalising psychic distance in empirical IB research, we believe these results argue strongly that researchers need to move beyond simply inserting the Hofstede index, and in doing so believe they have adequately controlled for psychic distance. As Shenkar (2001) has already argued, the construct is much broader than that. At the very least, we would recommend the inclusion of both the Hofstede and the Dow & Karunaratna indices, but research should not end there. There may be other aspects of psychic distance which are not adequately reflected in either of these indices.

Returning to the entry mode choice analyses, the 'surprisingly weak results' form the basis of a second but unexpected contribution of this article. Despite the fact that the overall models (Models 2 & 3) achieve statistical significance, we refer to our results as 'weak' for

two reasons. First of all, only two of the predictor variables prove to be significant to 0.05. Secondly, the percentage of correct predictions (74% in Model 2) is extremely weak given that 72.1% of all ventures in our sample are joint ventures. In effect, Model 2 is only improving the proportion of correct predictions by 1.9%! If these models were taken as a test of the application of TCE theory to entry mode choice, one would have to conclude that the theory does not provide an effective explanation of entry mode selection.

Two potential reactions to our 'weak' entry mode results might be that either the data collection process was somehow flawed, or that the TCE model does not apply in the Slovakian context. However, after reviewing both our results and the previous literature on foreign entry mode selection, we would argue there is a third and more plausible explanation. If one takes the Pearson correlations amongst our variables (Table 6) and compares them to the effect sizes reported in a recent meta-analyses (Zhao et al., 2004), the results are remarkably similar. Our data indicates a Pearson correlation between R&D intensity and the use of joint ventures of -0.14, -0.15 between advertising intensity and the use of joint ventures, and -0.18 between global experience and the use of joint ventures. Zhao et al (2004) report Pearson correlations of -0.055, -0.063 and -0.101 for the comparable pairs of variables. In essence, our Slovakian data appears to exhibit similar if not larger effect sizes than previous studies based in other regions. One critical difference is that a large proportion of entry mode studies have relied on substantially larger sample sizes (the average sample size in Zhao et al's review is 635).

These results and observations raise the question whether the TCE-approach is an effective framework for predicting entry mode choice. We would argue it is not. One can achieve statistical significance for most TCE variables if a large enough sample is collected, but the models only explain an alarmingly small amount of the variance. There appears to be a strong need for researchers to return to an exploratory phase, and to investigate what other, as yet unmeasured factors may be driving entry mode choice. Based on our own experiences from collecting data in Slovakia, the underlying motive for the FDI may be one missing factor. This aspect is reflected in the work of Harzing (2002) and Sanchez-Peinado et al (2007); but we believe the range of FDI motives may be substantially more complex than even portrayed in those papers.

In summary, this paper incorporates three overlapping contributions for IB researchers. The first and foremost of these is that it confirms the need for researchers to employ a much broader operationalisation of psychic distance. Simply 'plugging in' the Hofstede index as a control variable is potentially missing a large portion of the potential impact of psychic

distance. More specifically, this paper confirms the validity, and broadens the generalisability of one potential solution to that problem - the Dow & Karunaratna (2006) scales. This paper confirms their criterion-related validity with respect to two distinct aspects of FDI: market selection and performance. The new scale's ability to predict FDI entry mode choice is not confirmed at this stage, but that may reflect a broader problem in terms of the TCE-based approach's ability to predict entry mode choice. Thirdly, this paper extends the generalisability of both the psychic distance scales and three predictor-variable models (market selection, entry mode and performance) to a new geographic region – central eastern Europe. To our knowledge only a small number of previous studies (Brouthers & Brouthers, 2001; Brouthers & Brouthers, 2003; Meyer, 2001) have explicitly addressed FDI in that region.

From a practitioner's perspective, the significance of this research lies in reaffirming the broad array of factors which may impinge on the internationalisation of a firm, and in recognising that the entry mode choice in particular, is a complex decision for which we do not yet have a full understanding.

The research presented here has a variety of limitations, the most salient of which is the geographic-focus. While our sample may be representative of the Slovakian population of firms, it is not necessarily representative of all central eastern European countries, and is certainly not representative of all countries. Moreover, in terms of assessing the impact of home country characteristics on entry mode choice and performance, our sample is definitely biased towards large and 'psychically-close' countries such as the Czech Republic and Germany. Thus, one must be careful in generalising these results to broader contexts. Our research is also limited by breadth of control variables which we were able to include. In ech instances, we have included the control variables most commonly adopted by previous researchers, but in the instance of entry mode choice and predicting performance, those models are clearly limited.

With respect to the measurement of psychic distance, the most critical research agenda emerging from this paper concerns the further validation of the Dow & Karunaratna scales in other geographic settings, and in its appropriateness as a predictor of entry mode choice. In conjunction with that, there is an obvious need for further work on entry mode choice models to identify missing predictor variables.

Table 1. Summary of psychic distance scores for the 82 potential home countries*

Countries	Hof +	PD_{DK} ++	# of Entries	Countries	Hof +	PD_{DK} ++	# of Entries
Argentina	4.7	0.9	0	Libyan	3.2	4.4	0
Australia	5.3	1.4	1	Luxembourg	5.4	1.8	0
Austria	5.9	1.1	14	Malaysia	3.3	2.6	0
Bangladesh	3.3	5.2	0	Malta	5.5	1.0	0
Belgium	4.6	1.2	3	Mexico	2.4	1.4	0
Brazil	4.1	1.6	2	Morocco	3.4	4.7	0
Bulgaria	5.4	0.9	0	Netherlands	10.3	1.3	8
Canada	5.5	1.8	0	New Zealand	6.4	1.4	0
Chile	7.4	1.1	0	Nigeria	4.2	4.2	0
China	2.6	5.3	1	Norway	11.5	1.5	1
Colombia	3.7	1.4	0	Pakistan	5.2	4.8	0
Costa Rica	10.4	1.3	0	Panama	5.0	1.3	0
Cote d'Ivoire	4.2	4.4	0	Peru	5.9	1.5	0
Croatia	5.1	1.1	0	Philippines	2.0	1.5	0
Czech Republic	3.8	0.8	9	Poland	3.4	0.8	0
Denmark	11.9	1.4	3	Portugal	7.7	1.0	0
Ecuador	3.2	1.4	0	Romania	4.8	1.1	0
Egypt	3.2	4.1	0	Russian Fed.	5.5	1.1	0
El Salvador	6.2	2.0	0	Saudi Arabia	3.2	4.6	1
Estonia	7.5	1.0	0	Serbia	5.0	2.3	0
Ethiopia	5.0	4.6	0	Sierra Leone	4.2	5.7	0
Finland	8.6	1.5	1	Singapore	5.0	2.7	0
France	5.1	1.2	12	Slovenia	8.3	1.0	0
Germany	5.1	1.2	38	South Africa	3.6	1.6	0
Ghana	4.2	2.8	0	Spain	5.6	1.4	2
Greece	5.4	1.0	1	Suriname	5.3	1.4	0
Guatemala	6.6	3.0	0	Sweden	12.3	1.5	5
Hong Kong	3.6	2.1	0	Switzerland	4.2	1.2	5
Hungary	3.2	0.7	3	Taiwan	5.4	2.4	0
India	2.8	4.2	1	Tanzania	5.0	3.6	0
Indonesia	4.4	4.1	0	Thailand	6.1	3.2	0
Iran	4.9	4.2	0	Trinidad	4.7	1.1	0
Iraq	3.2	4.9	0	Turkey	4.9	3.1	0
Ireland	5.0	0.9	0	UAE	3.2	3.7	0
Israel	8.4	2.3	0	United Kingdom	4.5	1.3	4
Italy	3.5	1.1	10	USA	5.0	2.0	21
Jamaica	4.2	1.6	0	Uruguay	6.6	0.9	0
Japan	2.5	3.0	4	Venezuela	2.5	1.3	0
Kenya	5.0	3.2	0	Vietnam	5.3	4.5	0
Korea, Rep. of	6.3	1.4	4	Zambia	5.0	2.7	0
Kuwait	3.2	3.4	0				
Lebanon	3.2	1.4	0	**Total**			**154**

* These countries represent the set of all countries for which the Hofstede (1980; 2001) and Dow & Karunaratna (2006) variables are available. These countries form the basis of our market selection analyses.

\+ Psychic distance from Slovakia as measured by Kogut & Singh's (1988) composite index of the Hofstede dimensions of national culture.

++ Psychic distance from Slovakia based on a composite index of five of Dow & Karunaratna's (2006) dimensions: differences in language, region, industrial development, education and degree of democracy.

Table 2. Descriptive statistics for market selection variables (n = 82)

	Expected Sign	Min.	Max.	Mean	Std Dev
POP_ln	+	-.99	7.13	2.79	1.62
Dist_ln	-	4.03	9.79	8.06	1.22
GDP_pc	+	0.10	42.4	9.71	11.01
Hof	_	1.97	12.30	5.14	2.12
PD_{DK}	_	0.73	5.68	2.25	1.38
Entries_ln	n.a.	0	3.66	.47	.86

Table 3. Correlation matrix for market selection variables (n = 82)

		1	2	3	4	5
1	POP_ln	1.00				
2	Dist_ln	.200 *	1.00			
3	GDP_pc	-.206 **	-.287 **	1.00		
4	Hof	-.334 **	-.182	.339 **	1.00	
5	PD_{DK}	.379 **	.302 **	-.280 **	-.327 **	1.00
6	Entries_ln	.238 *	-.446 **	.522 **	.142	-.275 **

Table 4. Summary of entry modes by home country

Countries	# of JV	# of WOS
Hungary	1	2
Czech Republic	1	8
Greece	0	1
Austria	4	10
Italy	5	5
Belgium	1	2
France	4	8
Germany	10	28
Switzerland	1	4
Netherlands	3	5
United Kingdom	2	2
Australia	1	0
Denmark	0	3
Korea, Republic of	0	4
Spain	0	2
Finland	0	1
Norway	1	0
Sweden	3	2
Brazil	0	2
USA	4	17
Japan	1	3
India	1	0
Saudi Arabia	1	0
China	0	1
Total	43	111

* This psychic distance scale is based on a composite index of five of Dow & Karunaratna's (2006) dimensions: differences in language, region, industrial development, education and degree of democracy.

Table 5. Descriptive statistics for entry mode and performance variables

	Expected sign wrt JV	Expected sign wrt Perf_f	n	Min.	Max.	Mean	Std Dev
R&D	-	n.a.	154	1	4	2.47	1.21
Adv	-	n.a.	154	1	4	2.37	1.05
PSize_f	-	+	154	-1.14	5.32	0.00	0.93
Age_subsid	n.a.	+	154	0	16	7.21	4.85
Unrelated	+	-	154	1	5	2.55	1.13
Diversified	+	n.a.	154	1	5	3.29	1.13
GExp_f	-	+	154	-1.01	4.88	0.04	1.04
RExp_f	-	+	154	-0.58	7.19	0.24	1.16
Exp_Slo	-	+	154	0	1	0.23	0.42
Hof	+	-	154	2.48	12.30	5.50	2.23
PD_{DK}	+	-	154	0.73	5.32	1.43	0.63
JV	n.a.	n.a.	154	0	1	0.28	0.45
Perf_f	n.a.	n.a.	145	-2.58	2.39	0.00	1.00

Table 6. Correlation matrix for entry mode and performance analyses (n =154) [t]

		1		2		3		4		5		6		7		8		9		10	11	12
1	RD	1.00																				
2	Adv	0.23	**	1.00																		
3	PSize_f	0.10		-0.06		1.00																
4	Age_subsid	-0.05		-0.07		0.22	**	1.00														
5	Unrelated	-0.03		-0.01		-0.04		-0.13		1.00												
6	Diversified	0.11		0.14		0.02		0.04		0.32	**	1.00										
7	GExp_f	0.16		0.07		0.31	**	0.22	**	-0.12		0.21	*	1.00								
8	RExp_f	0.10		0.03		0.21	**	0.08		-0.15		0.15		0.42	**	1.00						
9	Exp_Slo	0.23	**	0.05		0.12		-0.17	*	-0.02		0.12		0.20	*	0.28	**	1.00				
10	Hof	-0.02		0.04		-0.09		0.07		0.10		0.14		-0.03		0.11		-0.12		1.00		
11	PD_{DK}	0.08		-0.16		0.06		-0.04		-0.11		-0.01		0.13		-0.01		-0.00		-0.14	1.00	
12	JV	-0.14		-0.15		-0.09		0.13		0.16		0.09		-0.18	*	-0.20	*	-0.13		0.06	0.05	1.00
13	Perf_f	0.08		0.04		-0.05		0.03		-0.00		0.03		0.16		0.13		0.14		0.15	-0.13	0.02

[t] The sample size of 154 applies to all variables except for the performance variable, Perf_f. For that variable, and all of its bi-variate correlations, the sample size is 145.

* $p < .05$, ** $p < .01$ (two tailed significance)

Table 7 Multiple regression predicting number of FDI entries into Slovakia from 82 potential host countries

Model 1	B	t	Signif
	Dependent variable:	*Entries_ln*	
Constant	1.632	(3.120)	**
POP_ln	0.262	(5.849)	***
Dist_ln	-.243	(4.239)	***
GDP_pc	.036	(5.490)	***
Hof	.006	(0.184)	*n.s.*
PD_{DK}	-.140	(2.600)	**
Adj r^2	.544		
F	20.30		
p	.000		

*** p< 0.001, ** p < 0.01, * p < 0.05 (one tailed significance)

Table 8 Logistic regression predicting entry mode of FDI into Slovakia (Logistic regression coefficients, with Wald statistics in parentheses)

	Model 2		Model 3	
	Dependent variable: JV			
Constant	-1.770 (2.748)		193.5 (4.589)	
R&D	-0.181 (1.104)		-0.146 (0.676)	
Adv	-0.320 (2.499)	^{t}	-0.298 (2.059)	^{t}
PSize_f	-0.111 (0.151)		-0.205 (0.503)	
Unrelated	0.118 (0.385)		0.165 (0.694)	
Diversified	0.371 (3.259)	*	0.360 (2.912)	*
GExp_f	-0.311 (1.357)		-0.482 (2.634)	^{t}
RExp_f	-0.547 (3.333)	*	-0.528 (3.227)	*
Exp_Slo	-.393 (0.528)		-0.198 (0.124)	
Hof	0.050 (0.345)		0.036 (0.176)	
PD_{DK}	0.171 (0.330)		0.239 (0.616)	
Year			-0.098 (4.670)	*
n	154		154	
Chi Sq	21.352		26.230	
df	10		11	
Signif	.019		.006	
Nagelkerke R^2	.187		.226	
% Correct	74.0		72.7	

*** p < 0.001, ** p < 0.01, * p < 0.05, ^{t} p < 0.10 (one tailed significance)

Table 9 Multiple regressions predicting performance of FDI entries into Slovakia (Regression coefficients, with t-statistics in parentheses)

	Model 4		Model 5	
	Dependent variable: Perf_f			
Constant	-0.097 (0.236)		-0.114 (0.365)	
PSize_f	-0.094 (0.971)			
Age_subsid	-0.004 (0.210)			
Unrelated	-0.005 (0.062)			
JV	0.122 (0.648)			
GExp_f	0.196 (2.007)	*	0.161 (1.799)	*
RExp_f	0.009 (0.098)		0.007 (0.075)	*
Exp_Slo	0.314 (1.507)	t	0.310 (1.546)	t
Hof	0.071 (1.871)		0.072 (1.945)	
PD_{DK}	-0.250 (1.738)	*	-0.244 (1.743)	*
n	145		145	
Adj r^2	.039		.056	
F	1.643		2.704	
p	.109		.023	

*** p < 0.001, ** p < 0.01, * p < 0.05, ^{t} p < 0.10 (one tailed significance)

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