

Examining The Use of Hofstede's Uncertainty Avoidance Construct in International Research: A 25-Year Review

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Abstract

The goal of this research was to determine the manner in which Hofstede's uncertainty avoidance construct has been incorporated into international research. Hofstede's work is often referenced in this realm of work, but how, specifically, is it used? This study provides a framework of this dimension from Hofstede's work that other researchers can use as a resource for planning articles and/or as a benchmark upon which to develop further studies. During our data gathering, we identified 118 articles in the *Journal of International Business Studies* (i.e., the outlet for his initial article) that used Hofstede's uncertainty avoidance. Three articles mentioned uncertainty avoidance in the research notes and 15 used uncertainty avoidance to support positions taken in the literature review. Forty-one articles used uncertainty avoidance while explaining their research hypotheses. Of the remaining 59 articles, 29 used Hofstede's data to compare countries using composite indices, and 30 used uncertainty avoidance as an independent or control variable.

Keywords: Hofstede, Cultural Constructs, Uncertainty Avoidance

1. Introduction

Hofstede believes that culture is a system of shared values and beliefs that represent a "set of likely reactions of citizens with a common mental programming. . . . reactions need not be found within the same persons, but only statistically more often in the same society" (1991: 112). Consequently, uncertainty avoidance represents the collective willingness of a society to tolerate ambiguous outcomes (i.e., a cultural difference). Hofstede's (1983) uncertainty avoidance construct was calculated as a composite score of three separate factors: (a) rules orientation, (b) employment stability, and (c) nervousness or stress at work as shown in Formula 1. The rules orientation factor reflects individuals' responses to the statement: "Company rules should not be broken – even if the employee thinks it is in the company's best interests" (Hofstede, 1983: 118-119). Hofstede notes that the rules orientation factor was measured on a five-point Likert scale with one reflecting "strongly agree" and five reflecting "strongly disagree". For the rules orientation factor, higher (lower) beliefs about the need to follow rules have lower (higher) values on the Likert scale.

$$\text{Uncertainty Avoidance} = 300 - 30 (\text{mean score rule orientation}) - (\% \text{ intending to stay less than 5 years}) - 40 (\text{mean stress score}) \quad \text{Formula 1}$$

Hofstede states that the employment stability factor reflects individuals' responses to the statement: "How long do you think you will continue working for this company?" (1983: 119). The score for the employment stability factor was the percent of individuals who intend to remain with their current employer no more than five years. This part of the computation asked individuals to select one of the following responses: "(1) Two years at the most; (2) From two to five years; (3) More than five years (but I probably will leave before I retire); and (4) Until I retire". For the employment stability factor, longer (shorter) intentions to remain with the current employer have higher (lower) values. Hofstede indicates that the nervousness or stress at work factor reflects individuals' responses to the statement: "How often do you feel nervous or tense at work?" (1983: 119). The nervousness or stress at work factor was measured on a five-point Likert scale with one being "I always feel that way" and five being "I never feel that way". For the nervousness or stress at work factor, higher (lower) feelings of being nervous have lower (higher) values on the Likert scale.

Our study examines the existing literature in the *Journal of International Business Studies* to determine the manner in which Hofstede's uncertainty avoidance construct has been incorporated into international research. Hofstede's work is often referenced in this realm of work, but how, specifically, is it used (i.e., as a research note, in literature review as a definition, as part of a composite index, or as an independent or control variable). This is a longitudinal study that reviews the applications of Hofstede's research for a period of 25 years – from 1983 (i.e., when Hofstede introduced his constructs) to 2008. This study provides a framework of this dimension from Hofstede's work that other researchers can use as a resource for planning articles and/or as a benchmark upon which to develop further studies.

2. Overview of the Literature Review

For the 25 years of this study, we found 118 articles. The data in Figure 1 indicate the growing use of Hofstede's work in international research published in the *Journal of International Business Studies*. The first article using Hofstede's (1983) cultural dimensions was in 1988, which is about five years after his initial cultural dimensions article appeared in the journal. Since then, the number of articles in the *Journal of International Business Studies* that have used this construct has grown at an average rate of about two articles per year. The univariate regression model using the number of years from Hofstede's (1983) original article in the journal as the independent variable indicates an adjusted r^2 of 0.26 (i.e., the variable explained 26 % of the variation in the model).

2.1 Research Notes and Definition Articles

Panel A of Table 1 is composed of three articles that mention uncertainty avoidance in only the notes section of the referenced research. Two of these articles (Jackson & Deeg, 2008; Speck & Roy, 2008) mention Hofstede's five cultural dimensions of power distance, uncertainty avoidance, individualism, masculinity and long-term orientation. Tihanyi et al. (2005) coded their studies using samples of Multi-National Enterprises from high to low uncertainty avoidance cultures using the quartiles of Hofstede's uncertainty avoidance index.

Panel B of Table 1 lists 15 articles (12.7 %) that used uncertainty avoidance as a definition to support the literature review. For example, Neelankavil et al. (2000: 126) state that "uncertainty avoidance measures the extent to which people in a society tend to feel threatened by uncertain, ambiguous, risky or undefined situations." The majority of the articles in Panel B mention Hofstede's four cultural dimensions of power distance, uncertainty avoidance, individualism and masculinity. Later, Hofstede (2006) added a fifth dimension of long-term orientation.

2.2 Research Hypothesis Articles

Of the 118 articles we identified, 41 articles (34.7 %) used uncertainty avoidance to justify their hypotheses or used previous research to explain the effects of uncertainty avoidance (Table 2a, b, & c). Table 2a contains the 11 articles that theorized about the potential effects of uncertainty avoidance. The 14 articles in Table 2b include studies that had samples from only one-or-two countries. Finally, Table 2c presents the 16 studies with three-or-more countries.

Several of these articles proposed a theory of high uncertainty avoidance for countries, cultures, societies or employees. For example, DiRienzo et al. (2007) suggest that, in societies with high uncertainty avoidance, people feel uncomfortable in unpredictable situations, which results in unwillingness to challenge authority and rules. These authors also mention that high uncertainty avoidance societies tend to be more corrupt.

Due to their need to control their environment, Money (1998) maintains that, while low uncertainty avoidance cultures are more comfortable with risk, high uncertainty avoidance cultures avoid risk (Chui et al., 2002) and seek ways to add structure or control to their environments. Leung et al. (2005) explain that resistance to change will be higher in cultures of high uncertainty avoidance, and Hirst et al. (2008) note that employees who are higher in uncertainty avoidance prefer greater standardization. For example, Turkey is classified as a high uncertainty avoidance and power distance culture, which is reflected by subordinates always accepting their superiors' directives without question (Pellegrini & Scandura, 2006).

About a dozen of these articles used uncertainty avoidance to hypothesize or demonstrate an association or difference. For example, uncertainty avoidance is positively correlated with the preference for joint ventures and related to risk-taking behavior (Li et al., 2001; Makhija & Steward, 2002). Sirmon and Lane (2004) note that differences in uncertainty avoidance and long-term orientation could represent differences in how partners perceive and adapt to opportunities and threats in their environments. For example, inter-partner differences in uncertainty avoidance and long-term orientation have a significant negative impact on international joint ventures (Yan & Zeng, 1999). Wu et al. (2008) propose that uncertainty avoidance may also be related to employment discrimination. Agarwal (1993) suggests that including additional cultural factors such as uncertainty avoidance can help explain differences that may exist among countries.

The remaining articles in this section mentioned Hofstede's findings or conducted an additional analysis. Hofstede found no evidence of convergence over time with respect to the work-related values of power distance, uncertainty avoidance, individualism and masculinity (Husted et al., 1996). While Manev and Stevenson (2001) stated that cultural norms vary from country to country based on Hofstede's cultural constructs, Markides and Ittner (1994) measured the cultural distance between the United States and the target country using Hofstede's four cultural constructs. Huang and Van de Vliert (2002) conducted an additional analysis controlling for eight potential rival country-level explanatory variables - one of which was uncertainty avoidance. Although all these articles cited uncertainty avoidance in their literature review, they did not use uncertainty avoidance in their methodology.

2.3 Cultural Distance Index Articles

Tables 3a & b contain the 29 articles (24.6 %) that used Hofstede's data to compare the cultural distance between a selected country and a target country. Kogut and Singh (1988) modified Hofstede's cultural distance constructs to

form a composite index based on the deviation for each of Hofstede's cultural constructs. Kogut and Singh (1988) used this composite index (Formula 2) to measure the distance of the target country score for that cultural dimension of the United States. Kogut and Singh's index measures this distance for each cultural dimension separately, while holding the United States as a constant.

The 24 articles in Table 3a used Kogut and Singh's index to measure the cultural distance between two countries using the United States as the control country. However, Slangden and Hennart (2008) measure cultural distance between the Netherlands (as their control country) and 35 other countries using Kogut and Singh's index. Benito and Gripsrud (1992) take a similar approach and used Kogut and Singh's index to measure the cultural distance between Norway and foreign direct investment countries.

$$\text{Cultural Distance} = \left[\sum_{i=1}^4 \{(I_{ij} - I_{iu})^2 / V_i\} / 4 \right] \dots \dots \dots \text{Formula 2}$$

Where:

- I_{ij} Index for the i th cultural dimension and j th country
- V_i Variance of the index of the i th cultural dimension
- u Indicates the United States

From Kogut & Singh, 1988: 422

The five articles in Table 3b proposed adjustments to Kogut and Singh's index. For example, Uhlenbruck (2004) made an algebraic adjustment to Kogut and Singh's calculation of cultural distance (Formula 3). Additionally, he uses Trompenaars and Hampden-Turner's (1998) data while utilizing Kogut and Singh's index to calculate more than one measure at a time. For example, his adjustment allowed him to treat western and eastern Germany as two separate cultures within one country, which was not possible using Hofstede's index. Also, due to cultural changes over time within a country, Trompenaars and Hampden-Turner's more recent data provide an advantage in calculating cultural distance. Two of the five articles in Table 3b do not propose a new index; however, their authors used a variation of Kogut and Singh's index. Chan and Makino (2007) build on Kogut and Singh's index for national culture in a number of dimensions including Hofstede's four classical dimensions plus long-term orientation. Griffith and Harvey (2001) use an approach similar to Kogut and Singh to provide an index of cultural distance over each dimension's variance.

$$\text{Hofstede's Distance} = \left[\sum_{i \in \text{Da}} (I_{ia} - I_{it})^2 / V_i \mid \text{D}_{at} \right] \dots \dots \dots \text{Formula 3}$$

Where:

- I_{ia} Index for the i th cultural dimension for the a th country
- I_{it} Index for the i th cultural dimension for the t th country
- V_i Variance of the index of the i th cultural dimension
- $\mid \text{D}_{at} \mid$ Number of compared measures

From Uhlenbruck, 2004: 117

2.4 Independent or Control Variable Articles

Tables 4a & b contain the 30 articles (25.4 %) that used Hofstede's uncertainty avoidance construct as either an independent or control variable. Table 4a includes the 24 studies that used data bases or other samples that did not include human subjects. The six studies in Table 4b used human subjects in the research. Of these 30 articles, 16 (53.3 %) used other readily-assessable data bases as the source of their dependent variables (i.e., data on education, disclosure, life insurance consumption and accounting standards); eight (26.7 %) used data from surveys, and the remaining six (20.0 %) used financial data (i.e., percentage of foreign ownership and post-acquisition performance). Tables 4a & b also include the findings of these 30 articles as they relate to uncertainty avoidance.

3. Conclusions

This study examined the extent and nature of the use of Hofstede's uncertainty avoidance in articles published in the *Journal of International Business Studies* for a period of 25 years from 1983 to 2008. The beginning of this timeframe (1983) coincides with Hofstede's initial publication of his four cultural dimensions. While these

dimensions were introduced in 1983, our data indicate that the first article to use uncertainty avoidance in the *Journal of International Business Studies* was Kogut and Singh (1988). (Note 1) While we only report on Hofstede's uncertainty avoidance construct, the majority of the research we examined in the course of this study included all of Hofstede's constructs.

Our data indicate that 50.0 % (59 of the 118) of the articles citing Hofstede's work used the uncertainty avoidance construct as part of their literature reviews to make the point about differences in cultures. Twenty-nine of the 118 articles (24.6 %) used Hofstede's cultural constructs in the computation of cultural distance indices. For example, Kogut and Singh (1988: 422) used the difference between the United States (control country) and the score for other countries' cultural constructs as part of the computation for their cultural difference index. Other research has used Kogut and Singh's model with a different control country. Uhlenbruck (2004) made an algebraic adjustment to Kogut and Singh's calculation of cultural distance (Formula 3) so that he could use Trompenaars and Hampden-Turner's (1998) data. The remaining 30 articles (25.4 %) were the only articles that used uncertainty avoidance as an independent or control variable.

These results indicate the continuing influence of Hofstede's uncertainty avoidance construct on international research. His initial work has engendered a significant stream of research that examined cultural differences in a variety of disciplines. It is evident from this research that Hofstede's indices still provide the basis for both theoretical and empirical work. As seen in its use in the literature reviews and notes, it provides a point of common understanding for those doing research in intercultural phenomena.

As evidenced by this study, Hofstede's work continues to be used as a basis for international research on cultural dimensions. It is used in a variety of ways: As a means of definition, as a construct for measurement, and as a basis for the development of additional instruments. The results of this longitudinal review can provide future researchers with a broad base of the research that has incorporated Hofstede's work on Uncertainty Avoidance on which to build.

A limitation of our research is that it only considered the articles in the *Journal of International Business Studies*. However, this limitation also provides the opportunity for future research. In the future, researchers should examine other research-specific journals to ascertain whether the results of this research are supported.

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Notes

Note 1. In 1980s there was no online database for journals. The second author recalls developing the literature review for his dissertation in 1989 and 1990. He spent most of his free time searching through hard copies of journals for relevant articles. Consequently, a five-year lag between the publication of an article such as Hofstede's in 1983 and the first use of his research in subsequent research in 1988 was not unusual especially if one considers the submission, review and publication processes.

Table 1. Notes section and definition articles

Author(s)	Year	Sample	Major Finding(s)
Panel A: Notes Section Articles			
Jackson & Deeg	2008	Theory development	Used Hofstede in literature review.
Speck & Roy	2008	Argentina, Chile, China, Croatia, India, Lebanon, Mexico, New Zealand, Poland, Slovenia, Turkey, U.A.E., U.S.	Effects of materialism and television viewing on perception of well-being
Tihanyi et al.	2005	U.S.-based Multi-National Corporation	Used Hofstede to code Multi-National Enterprises. Found strong negative association between cultural distance and entry mode choice for US-based Multi-National Enterprise
Panel B: Definition Articles			
Bigoness & Blakely	1996	Australia, Brazil, Denmark, France, Germany, Italy, Japan, Netherlands, Norway, Sweden, U.K., U.S.	Used Hofstede in literature review. Found 4 managerial values that differentiated among cultures
Giacobbe-Miller et al.	2003	China, Russia, U.S.	Effects of culture on distributive justice values
Gibson	1995	Australia, Norway, Sweden, U.S.	Country differences in leadership styles were found
Griffith & Myers	2005	U.S. Importers	Strategic fit of norm governance strategies on global supply chain relationships
Hofstede	2006	Database of 56 countries	Comparison of GLOBE and Hofstede scales
Hofstede	1983	50 countries	Developed UA construct and measures
Kale & Barnes	1992	Theory development	Cultural and personality influences on buyer-seller interactions
Lenartowicz & Roth	1999	Theory development	Suggest another framework for culture assessment
Ling et al.	2005	Theory development	Influence of culture on "issue selling" approaches by subsidiary managers in Multi-National Corporations
Lynch & Beck	2001	20 country sample	Impact of culture on internet-buying behaviors
Neelankavil et al.	2000	China, India, Philippines, U.S.	Impact of culture on senior manager's perception of middle manager performance
Newman & Nollen	1996	US with 18 non-US subsidiaries	Effect of congruence of management practices and culture on Multi-National Enterprise performance
Ralston et al.	1997	China, Japan, Russia, U.S.	Used Hofstede as a literature review item. Used Schwartz instrument for divergence or convergence of manager's work values.
Yeh & Lawrence	1995	Literature review	Critique of Hofstede's link between culture and economic growth
Zhang et al.	2003	U.S.	Impact of trust on manufacturer's relationships in the export market

Table 2a. Research hypotheses articles – No Sample

Author(s)	Year	Use of Uncertainty Avoidance	Major Finding(s)
Leung et al.	2005	Review of cultural research	Need for a more complex methodology in examining the effects of culture
Maznevski	1994	Book review	Use of metaphors to understand 17 countries
Mezias & Scandura	2005	Theory development	Effect of mentoring on expatriate adjustment and career development
Miller	1992	Theory development	Framework for integrated risk management at the strategic level in international business
Money	1998	Theory development	Impact of culture on international multilateral negotiations
Shenkar	2001	Theory development	Need for better measure of cultural distance
Sirmon & Lane	2004	Theory development	Impact of cultural differences on international firm alliances
Smith	2006	Discussion	Analysis of debate between GLOBE and Hofstede
Tallman & Shenkar	1994	Theory development	Effect of culture on decision-making model of Multi-National Enterprise executives regarding international cooperative ventures
Thomas et al.	1994	Discussion	Patterns of country coverage in the <i>Journal of International Business Studies</i>
Yan & Zeng	1999	Discussion	Review of literature on international joint venture instability

Table 2b. Research hypotheses articles – Samples of one-or-two countries

Author(s)	Year	Use of Uncertainty Avoidance	Major Finding(s)
Agarwal	1993	India and U.S.	U.S. shows stronger relationship than India ((LPD/HI) (HPD/LI)cultures) in: job codification/role ambiguity, rule observation/role ambiguity, rule observation/organizational commitment, organizational commitment/work alienation
Buck et al.	2003	Ukrainian Labor Force Survey	Human Resource Management strategies are related to firm performance in the Ukraine
Celly et al.	1999	U.S. National Association of Purchasing Management members	Uncertainty about international purchasing increases relationship building to compensate
Fey & Björkman	2001	Russia	Effect of Human Resource Management on Multi-National Corporation's subsidiary performance
Hirst et al.	2008	China and U.K.	Cultural differences in employee autonomy, stress and organizational productivity
Makhija & Steward	2002	U.S. and Czech Republic	Impact of culture on perceptions of risk for managers
Markides & Ittner	1994	U.S.	Benefits of international diversification on shareholders
Miller et al.	2001	Mexico	Impact of compensation strategies in American owned plants in Mexico
O'Grady & Lane	1996	Canada and U.S.	Closer psychic distance should result in better firm performance in international development
Pellegrini & Scandura	2006	Turkey	Effect of culture on leadership practices
Rao & Hashimoto	1996	Canada based Japanese ex-patriot managers	Impact of culture on influence strategies of managers - Japanese towards Canadian and Japanese workers
Soutar et al.	1999	Australia and Japan	Perceptions of each culture differ from those respondents of the that culture
Wu et al.	2008	Taiwan and Thailand	Impact of culture on discriminatory criteria in employment decisions
Zaheer	1995	Japan and U.S.	Impact of culture on firm structures and processes

HI High Individualism
 HPD High Power Distance
 LI Low Individualism
 LPD Low Power Distance

Table 2c. Research hypotheses articles – Samples of three-or-more countries

Author(s)	Year	Sample	Major Finding(s)
Chui et al.	2002	Worldscope data base	National culture affects corporate capital structures
DiRienzo et al.	2007	85 countries	Impact of economic, cultural, information and communication technology on corruption
Griffith et al.	2000	Canada, Chile, Mexico, U.S.	Effect of culture on relationship development strategies
Hofstede et al.	2002	21 country sample	Goals of business leaders
Huang & Van de Vliert	2002	International Society Survey Program - 19 country sample	Determinants of job satisfaction
Husted et al.	1996	Mexico, Spain, U.S.	Cultural differences in moral reasoning
Javidan et al.	2006	GLOBE and Hofstede's data	Refutation of Hofstede's critique of GLOBE
Kashlak et al.	1998	US and 109 countries	Effects of culture, economics, and governance mechanism on reciprocity in business alliances
Kwok & Tadesse	2006 b	Data set of 140 countries	Effect of presence of Multi-National Enterprises on corruption
Lau & Ngo	2001	Europe, Hong Kong, Japan, U.S.	Effect of OD interventions on multinational firms and employee performance
Li et al.	2001	China's Third Industry Census - Australia, Canada, China, France, Germany, Great Britain, Japan, Macao, North Korea, Singapore, South Korea, Taiwan, U.S.	Effect of culture on behavior and performance of firms - joint ventures
Manev & Stevenson	2001	U.K. Multi-National Enterprises and subsidiaries in 36 countries	Culture on manager's network ties in a Multi-National Enterprise
McNamara & Vaaler	2000	Ratings from the Nationally Recognized Statistical Rating Organization agencies - six agencies	Credit rating risk assessments of emerging market borrowers
Ralston et al.	1993	China, Hong Kong, U.S.	Effect of culture on differences in managerial values
Sivakumar & Nakata	2001	Arab Countries, Argentina, Australia, Austria, Brazil, Canada, Denmark, East Africa, El Salvador, Finland, France, Germany, Greece, Guatemala, Hong Kong, Ireland, Israel, Jamaica, Japan, Malaysia, Netherlands, Norway, Panama, Peru, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, Turkey, U.K., U.S., Venezuela, West Africa	Methodology to perform better multi-country analyses using Hofstede's cultural constructs.
Smith et al.	1996	Hong Kong, Japan, U.K., U.S.	Impact of culture on manager's handling of work events

Table 3a. Cultural Distance Index Articles – Used Kogut & Singh's Index

Author(s)	Year	Sample	Major Finding(s)
Barkema & Vermeulen	1997	25 firms	KSI to compute cultural distance
Benito & Gripsrud	1992	201 cases	KSI as measure of cultural distance between Norway and Foreign Direct Investment countries
Dow & Karunaratna	2006	38 countries	Talk about what many researchers do
Ellis	2008	924 market entries	UA defining factor for firm internationalization
Frost & Zhou	2005	104 multinational	KSI to calculate cultural distance as sum of standard differences
Gomez-Megia & Palich	1997	100 firms	KSI to calculate a composite cultural distance index for each firm
Hennart & Larimo	1998	38 ventures	KSI to measure cultural distance between Japan & US; Finland & US.
Hennart & Zeng	2002	97 joint ventures	KSI as a proxy for unexpected changes in the external economic environ.
Hutzschenreuter & Voll	2008	135 companies	Cultural distance measured in accordance with KSI
Jensen & Szulanski	2004	271 questionnaires	KSI to measure distance between source and receiver countries
Kogut & Singh	1988	228 entries	Built the KSI using Hofstede's indices – based on four cultural dimensions
Li & Guisinger	1992	9 service industries	KSI to measure cultural distance between home and host countries
Loree & Guisinger	1995	Benchmark studies	KSI to measure deviation for each host country
Luo	2006	126 questionnaires	KSI to measure cultural distance
Luo	2007	192 International Joint Ventures	Obtained five Cultural Distances – controlled variables for tests
Luo	2003	196 Multi-National Enterprise	KSI to measure cultural distance
Luo & Park	2004	Multiple samples	Measured cultural distance using KSI
Luo & Peng	1999	108 questionnaires	Computed cultural distance using KSI
Morosini et al.	1998	52 companies	UA can influenced post-acquisition performance and controlled for KSI
Nadolska & Barkema	2007	265 companies	Cultural differences between host and home country using KSI
Pan	1996	4,223 International Joint Ventures	KSI to measure uncertainty avoidance
Pan & Tse	1996	4,223 International Joint Ventures	KSI for all of Hofstede's cultural dimensions
Slangden & Hennart	2008	36 countries	Cultural Distance between the Netherlands and 35 host countries through KSI
Thomas & Mueller	2000	1,800 responses	Cultural Distance used to determine systematic variation across cultures using KSI

Table 3b. Cultural Distance Index Articles – Used index similar to KSI

Author(s)	Year	Sample	Major Finding(s)
Chan & Makino	2007	4,451 subsidiaries	Built on Kogut and Singh's formula to measure national cultural distance
Evans & Mavondo	2002	102 senior executives	Composite index based on KSI used as basis for psychological. distance
Griffith & Harvey	2001	4 distributors	Used approach similar to the KSI over each dimension's variance
Pothukuchi et al.	2002	127 joint ventures	Applied aggregate index similar to KSI to measure cultural distance.
Uhlenbruck	2004	170 acquisitions	Modified KSI for Trompenaars & Hampden-Turner's data

KSI Kogut & Singh's Index

Table 4a. Research using uncertainty avoidance as an independent or control variable – Firm/data base samples

Author(s)	Year	Sample	Major Finding(s)
Au	1999	42 cultures	Intra-cultural Variation is smaller (larger) in high (low) UA cultures
Bowen & De Clercq	2008	40 countries	Country's degree of UA as a control variable
Brouthers & Brouthers	2001	4 home & 5 target	Construct is absolute difference between home and target country
Buck & Shahrin	2005	Global data	UA and corporate government (Germany, US, UK, Japan)
Chui & Kwok	2008	41 countries	Life insurance consumption and UA association not significant
Craig et al.	1992	U.N. Statistical data	Comparison 10-time blocks from (1950 to 1988).
Erramilli	1996	337 subsidiaries	Values representing UA tendency of Multinational Corporation's home countries
Fu et al.	2004	12 countries	UA in tables
Husted	1999	Published sources	Hofstede's four cultural constructs as independent variables
Kirkman et al.	2006	180 studies	Counterintuitive findings
Kwok & Tadesse	2006a	Global data	Countries of higher UA are more likely to have a bank-based system
Lim et al.	2004	33 countries	Internet shopping rate negatively related to UA
Pan	2002	8,078 International Joint Ventures - China	High UA countries have higher equity ownership in International Joint Ventures in China
Parboteeah et al.	2008	World values survey	UA significantly correlated in expected direction
Reuer et al.	2004	1,325 observations	Controlled for UA – target firms with high UA less willing to share risk with acquiring firm
Salter & Niswander	1995	Global data	Used four cultural dimensions to test accounting values
Schuler & Rogovsky	1998	12 countries	Seniority-and skill-based compensation positively correlated with UA
Shenkar & Zeira	1992	44 International Joint Ventures	UA negatively correlated with role ambiguity
Steenkamp et al.	2003	Korea & U.S.	Korea belongs to top half of countries surveyed on UA
Tang & Koveos	2008	GDP analysis	Gross Domestic Product log graphs and cultural constructs
Tse et al.	1997	2,998 Foreign Business Activities	UA did not register any significant influence in any equations
Ueno & Sekaran	1992	2 countries	UA might exert an equal & opposite effect on budget structuring
Van de Vliert	2003	58 countries	UA not significant in over/under payment
Zaheer & Zaheer	1997	25 countries	Classified countries as either high or low on UA

UA Uncertainty Avoidance construct

Table 4b. Research using uncertainty avoidance as an independent or control variable – Human samples

Author(s)	Year	Sample	Major Finding(s)
Brock et al.	2008	298 general managers	Difference between Headquarters and host country UA
Dawar et al.	1996	619 MBA students	UA was correlated with country-level index of opinion seeking
Heuer et al.	1999	46 MBAs & 22 middle managers from Indonesia and 104 MBAs students from the U.S.	UA between US and Indonesia
Newbury & Yakova	2006	398 employees	Higher country UA positively related with employee preferences
Nye et al.	2008	705 college students	Students (from three countries) exhibited greater cross-national homogeneity
Shane	1995	4,405 individuals	UA was a predictor variable

UA Uncertainty Avoidance construct

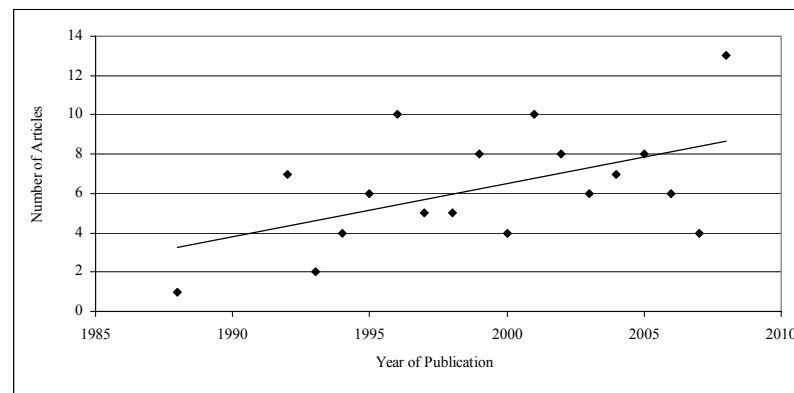


Figure 1. Number of articles using Hofstede's uncertainty avoidance in the *Journal of International Business Studies* by year