MODELING THE PERFORMANCE OF INTERNATIONAL CONSTRUCTION JOINT VENTURES

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submitted by **BELİZ ÖZORHON** in partial fulfillment of the requirements for the degree of **Doctorate of Philosophy in Civil Engineering Department**, **Middle East Technical University** by,

Prof. Dr. Canan Özgen
Dean, Graduate School of **Natural and Applied Sciences** _____

Prof. Dr. Güney Özcebe
Head of Department, **Civil Engineering** _____

Assoc. Prof. Dr. İrem Dikmen Toker
Supervisor, **Civil Engineering Dept., METU** _____

Prof. Dr. Talat Birgönül
Co-Supervisor, **Civil Engineering Dept., METU** _____

Examining Committee Members:

Asst. Prof. Dr. Metin Arıkan
Civil Engineering Dept., METU _____

Assoc. Prof. Dr. İrem Dikmen Toker
Civil Engineering Dept., METU _____

Asst. Prof. Dr. Rıfat Sönmez
Civil Engineering Dept., METU _____

Assoc. Prof. Dr. Canan Sepil
Civil Engineering Dept., METU _____

Asst. Prof. Dr. Gökhan Arslan
Civil Engineering Dept., Anadolu University _____

Date: 09.10.2007

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: Beliz ÖZORHON

Signature :

ABSTRACT

MODELING THE PERFORMANCE OF INTERNATIONAL CONSTRUCTION JOINT VENTURES

ÖZORHON, Beliz
Ph.D., Department of Civil Engineering
Supervisor: Assoc. Prof. Dr. İrem DİKMEN TOKER
Co-Supervisor: Prof. Dr. Talat BİRGÖNÜL

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International joint ventures (IJVs) have become popular because of their importance as a strategic alternative in global competition. Construction companies consider IJVs as a vehicle to enter new markets and exploit business opportunities. Being a special type of strategic alliance, IJVs offer partnering companies to combine the distinctive competencies and the complementary resources. Despite the benefits associated with IJVs, such entities are very difficult to manage mainly due to their inherent complexity, involving a mixture of different cultures, managerial systems, philosophies, and attitudes. As a result of these difficulties, the failure rate of IJVs is generally high. Therefore, measurement of the performance of IJVs has been an important research topic for a few decades. However there is no consensus on an appropriate definition of the indicators and determinants of IJV performance in construction.

In this study, a framework is proposed to model the IJV performance in construction industry. A multi-dimensional performance measure is developed and determinants influencing the level of performance are defined. In this context, a questionnaire survey was administered to Turkish construction companies that have established IJVs with foreign partners. The validity of the proposed drivers and measures of performance is investigated and relationships between them are analyzed using the structural equation modeling technique.

The results point out the significance of the inter-partner fit and the quality of partner relations for a successful IJV operation. The findings of the study also suggest that project-related factors have a moderate influence on IJV performance. In a properly designed IJV structure, partners with compatible skills, resources, and cultures are found to maintain good relations and are expected to achieve greater IJV success.

Key words: International joint ventures, Turkish construction industry, performance measurement, managerial issues, organizational issues, cultural issues, project conditions, country conditions.

ÖZ

İNŞAAT SEKTÖRÜNDEKİ ULUSLARARASI ORTAK GİRİŞİMLERİN PERFORMANSININ MODELLENMESİ

ÖZORHON, Beliz
Doktora, İnşaat Mühendisliği Bölümü
Tez Yöneticisi: Doç. Dr. İrem DİKMEN TOKER
Y. Tez Yöneticisi: Prof. Dr. Talat BİRGÖNÜL

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Uluslararası ortak girişimler (UOG) uluslararası rekabette stratejik bir seçenek olarak önem taşıdığından oldukça popüler hale gelmiştir. İnşaat şirketleri de UOG'leri yeni pazarlara girmek ve iş olanaklarını değerlendirmek için araç olarak kullanmaktadırlar. Bir stratejik ortaklık yöntemi olarak UOG'ler ortak şirketlerin ayırıcı yeteneklerini ve tamamlayıcı kaynaklarını bir araya getirmelerini sağlamaktadır. UOG'ler, getirilerine rağmen, farklı kültürleri, yönetim sistemlerini, felsefelerini ve davranış biçimlerini içeren karmaşık yapılarına bağlı olarak yönetilmesi çok zor olan oluşumlardır. Bu zorluklara bağlı olarak da UOG'lerin başarısızlık oranlarının genel olarak yüksek olduğu gözlemlenmektedir. Bu nedenle, son yıllarda UOG performansının ölçümü önemli bir araştırma konusu olmuştur. Ancak, inşaat sektöründeki UOG'ler için üzerinde uzlaşılan performans göstergeleri ve kriterleri bulunmamaktadır.

Bu çalışmada inşaat alanındaki UOG'lerin performansını modellemek üzere bir çerçeve önerilmektedir. Çok boyutlu bir performans ölçütü ile performans

düzeyini etkileyen kriterler tanımlanmaktadır. Bu bağlamda, yabancı ortaklar ile UOG kurmuş olan Türk inşaat şirketlerini hedef alan bir anket çalışması gerçekleştirilmiştir. Önerilen performans ölçütleri ve belirleyicilerinin istatistiksel olarak geçerlilikleri araştırılmış ve bunlar arasındaki ilişkiler yapısal denklem modelleme yöntemi ile analiz edilmiştir.

Elde edilen sonuçlar, başarılı bir UOG süreci için ortaklar arasındaki uyum ve ilişkinin niteliğinin önemine işaret etmektedir. Araştırmanın bulguları ayrıca, projeye yönelik faktörlerin de UOG'i orta derecede etkilediğini göstermektedir. Doğru tasarlanmış bir organizasyon yapısı, tamamlayıcı yetenekler ve kaynaklar ile uyumlu kültürlere sahip ortakların iyi ilişkiler kurabilmeleri ve devamında da daha başarılı olmaları beklenmektedir.

Anahtar kelimeler: Uluslararası ortak girişimler, Türk inşaat sektörü, performans ölçümü, yönetim sorunları, kurumsal sorunları, kültürel sorunlar, proje koşulları, ülke koşulları.

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To

My Family

TABLE OF CONTENTS

LIST OF TABLES

TABLE

LIST OF FIGURES

FIGURE

LIST OF ABBREVIATIONS

CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
dof	Degrees of Freedom
HRM	Human Resources Management
ICJV	International Construction Joint Venture
IJV	International Joint Venture
JV	Joint Venture
MNE	Multinational Enterprise
NNFI	Non-normed Fit Index
RMSEA	Root Mean Square Error of Approximation
R&D	Research and Development
SEM	Structural Equation Modeling
USD	United States Dollar

CHAPTER 1

INTRODUCTION

International joint ventures (IJVs) have been an important research topic over the last few decades primarily because of their importance as a strategic alternative in global competition. One of the ways construction companies are able to exploit business opportunities and enter new markets abroad is through the formation of IJVs. However, such entities are difficult to manage due to their composite structures that entail diverse organizational and managerial styles, and objectives. Considering the high failure rates of IJVs (Makino and Beamish, 1998), the assessment of IJV performance deserves extensive research.

The core objectives of this study are two-fold; the first one is to define appropriate performance measures for IJV performance in construction and to empirically test the validity of these measures, the second one is to explore the direct and indirect influence of the factors affecting the IJV performance. In addition, the interrelations between these factors are investigated.

Below sections summarize the background of this research, problem determination, and statement of problem, refer to the related studies performed so far, establish the aims and objectives of the research, introduce the method of research, discuss the scope and limitations, and finally present the organization of thesis.

1.1. Background of the research

Strategic alliances have been widely discussed in the context of international business over the past two decades (Xu et al., 2005) since inter-firm

collaboration has become an important component of creating competitive advantage. Joint ventures (JVs) offer a unique opportunity of combining the distinctive competences and the complementary resources of participating firms. Through the formation of IJVs, companies are able to exploit business opportunities and enter new markets abroad. However, the benefits associated with IJVs are counterbalanced by a wide range of problems. The failure rate of IJVs, in general, is high (Makino and Beamish, 1998). Since IJVs consist of three entities, such as two parents and the JV organization itself, these entities may have different goals, management practices, and organizational cultures and it becomes difficult to manage these organizations and achieve critical success criteria. Like in other industries, achieving high levels of performance is difficult in the construction industry as performance is extensively dependent on several internal and external factors.

1.2. Problem determination

The measurement of the performance of strategic alliances has been an important research topic in the field of international management (Geringer and Hebert, 1991; Yan and Zeng, 1999). When the literature on JV performance is reviewed, two major perspectives are examined such as the indicators (measures) of performance and the determinants (factors) influencing JV performance. However measuring IJV performance has always created difficulty for researchers because performance is a complex and multi-dimensional phenomenon. According to Chowdhury (1992) no consensus on an appropriate definition and measurement of performance of IJVs has yet emerged.

There are three main difficulties in evaluating the performance of IJVs. The first one is to decide whose performance should be assessed, namely the IJV partners', the IJV organization's or the project's. The second difficulty involves whether to use objective and/or subjective measures as performance indicators. The third difficulty is to identify a complete and valid list of determinants of performance and to define the relationships between these determinants.

1.3. Problem statement

The majority of the current literature on IJVs concentrates on manufacturing industries, while IJV theories have not been investigated empirically in the construction industry.

This research is based on the definition of appropriate performance measures and investigation of determinants influencing the international construction joint ventures (ICJVs). Review of literature suggests that only an adequate combination of criteria allows assessing the multidimensionality of performance, which requires a better understanding of the links between its different dimensions.

In this respect, a complete and valid performance measure should be constructed; direct and indirect impact of both internal and external factors on IJV performance in construction need to be explored.

1.4. Related studies

A major difficulty in evaluating the success of IJVs is caused by the confusion associated with the definition of performance and how performance should be measured.

There is a small group of studies that investigated IJV theories in construction mainly associated with the risks of IJVs in construction (Bing and Tiong, 1999; Bing et al., 1999; Shen et al., 2001; McIntosh and McCabe, 2003), the factors affecting the performance of IJVs (Mohamed, 2003; Gale and Luo, 2004; Sillars and Kangari, 2004), and management issues in IJVs (Norwood and Mansfield, 1999; Luo, 2001; Luo et al., 2001a; Chan and Suen, 2005).

The assessment of the performance of an IJV in construction is complex and requires a structured, systematic, and comprehensive approach. There are studies which propose several performance measures for IJVs in construction (e.g., Luo, 2001; Mohamed, 2003; Sillars and Kangari, 2004; Horii et al., 2005), but there is no complete definition yet.

1.5. Aim and objectives of the research

The major aim of this research is to construct a performance model for IJVs in construction such that the performance measures and determinants are empirically valid and the relationships between them are justified. The validity of the model will be tested by statistical analyses using structural equation modeling (SEM) based on data collected through a questionnaire study. Proposal of such a framework has considerable contributions to the IJV research in construction. It will constitute a common performance construct for researchers and practitioners that is empirically validated and that can be used by construction companies as a post-project appraisal tool after the termination of the IJV, and/or may provide guidance to companies that wish to assess multiple aspects of the IJV. This model aims to help potential IJV partners to be aware of which company and project objectives they should concentrate on, what they should consider important for the successful operation of the IJV and also to help them redesign their perception of what they get out of the IJV.

In this respect, following are the objectives of this research:

- Discussion of the difficulties encountered in IJV literature within the construction management research domain
- Determination of the measures and determinants of IJV performance as explained within the IJV literature
- Development of an IJV framework specific for the construction industry
- Definition of the indicators of ICJV performance
- Identification of drivers of ICJV performance
- Hypothesis development and testing based on the performance measures
- Hypothesis development and testing based on the relations among performance determinants
- Analysis of the whole model and exploration of the inter-relationships between model parameters

- Discussion on the performance measure and determinants
- Recommendations on structuring and managing the ICJV organization to achieve success.

1.6. Research method

A questionnaire survey is administered to construction companies that have established IJVs with foreign partners. SEM is used as a research tool to test the validity of the proposed measures of IJV performance; to test the hypotheses based on the relations among determinants of ICJV performance and to analyze the influences of these determinants on ICJV performance.

1.7. Scope and limitations

This research has some limitations mainly based on the data collection process. The questionnaire is administered to only the Turkish partners of the ICJVs. In principle, collecting data from multiple partners in the same IJV represents a more realistic methodology for this kind of research. The choice of one partner respondent in this study was motivated by the difficulties in obtaining data from all partners due to logistical and cost barriers. This choice was expected not to affect the findings of the study based on the findings of Geringer and Hebert (1991) and Glaister and Buckley (1998) who found that perceptions of IJV partners on IJV performance are positively correlated.

Since the data reflects the experiences of Turkish companies and the markets they operated in, the model may not be applicable to all construction companies; other models for companies from different countries may be developed and different results may be obtained. However, conducting such a survey was not included within the scope of this thesis.

1.8. Organization of thesis

In the second chapter of this study, the importance and advantages of IJVs are discussed. In the third chapter, topics related to IJV performance are highlighted. In the fourth chapter, research methodology is presented and the questionnaire that is prepared for data collection is depicted. In the fifth chapter, data analysis results are presented. SEM is proposed as the statistical analysis method using which the hypotheses regarding the interrelations between the attributes of the model and their influence on IJV performance are tested. Findings of the study are discussed in Chapter 6 and some recommendations are provided for the construction companies in Chapter 7. In addition to the main text, this study also includes three appendices, in which a sample of the interview related to the research study, descriptive statistics and the curriculum vitae of the author can be found.

CHAPTER 2

INTERNATIONAL JOINT VENTURES (IJVs)

2.1. Definition of an IJV

With business increasing its globalization, alliances between and among multinational firms are becoming popular (Harrigan, 1988). Joint ventures (JVs), a special type of strategic alliance (SA), offer a unique opportunity to combine the distinctive competencies and the complementary resources of participating firms. Geringer (1988) defined a JV as involving at least two parent organizations that contribute equity and resources to a semi-autonomous legally separate entity, of which they participate in the decision making. An international joint venture (IJV) is defined as a JV with at least one parent headquartered outside the JV's country of operation (Geringer and Hebert, 1989). An IJV is an equity sharing arrangement in which a foreign corporation and a local firm (either private or government owned) pool their resources, share risks and operational control to operate an independent business unit on a continuous basis for profit and/or to achieve other strategic objectives (Geringer and Hebert, 1991).

2.2. Importance of IJVs

Although IJVs are not a new occurrence in international business, the trend towards forming IJVs has become increasingly common since the 1970s (Harrigan, 1986; Anderson, 1990; Beamish and Delios, 1997) and they have been the most pronounced form of business organization for multinational enterprises (MNEs) in developing countries (Beamish, 1988).

JVs provide the opportunity to share costs and risks, to acquire knowledge, to enter new markets, and to gain economies of scale or to rationalize operations (Contractor and Lorange, 1988). JVs offer a mechanism for doing together what firms are unable to do alone, which is especially important for smaller firms with very limited resources.

Interestingly, the IJV market entry mode represents two opposing trends, firstly, it is becoming increasingly popular as a mode of market entry and expansion (Makino and Beamish, 1998). In recent years an increasing number of global corporations have become involved in IJVs at home and overseas. The composition of firms adopting the IJV entry mode covers many sectors, industries, and product groups (Griffith et al., 2001 cited in Julian and O'Cass, 2002). Secondly, for over a decade IJVs have been shown to be a fragile entity, where it has been repeatedly argued that the failure rate of IJVs is above thirty percent, and it is often markedly higher compared to other alternative forms of market entry and operation (Makino and Beamish, 1998).

IJV research is at the pre-paradigmatic stage of theory development as the core concepts and their relationships are still not well understood (Parkhe, 1993), particularly the issue of IJV performance (Anderson, 1990; Geringer and Hebert, 1991). This largely stems from the inherent complexity of IJVs, involving a mixture of different cultures, managerial systems, philosophies, and attitudes towards competition (Tatoglu and Glaister, 1998).

2.3. Motives for IJVs

There are a number of overriding economic and political reasons for the rise in the popularity of IJVs. A number of researchers (Beamish and Inkpen, 1995; Blodgett, 1992; Tallman and Shenkar, 1994) have identified a variety of reasons behind MNEs' decisions to enter into IJV agreements. These include the characteristics of foreign markets, such as, access to suitable distribution channels, sharing heightened economic and political risks in new business

ventures, government pressure and technology transfer (Makino and Delios, 1996). According to Beamish (1988), there are 16 partner contributions in IJVs; faster entry, local political advantages, inexpensive labor, raw material supply, local business knowledge, better market access, satisfy expected government requirements/avoid political intervention, general managers, capital, knowledge of local economy, politics and culture, meeting existing government requirements, technology or equipment, functional managers, access to local market, better export opportunities, and knowledge of foreign economy, politics and culture.

The literature concerning JV formation can be categorized into four major theoretical areas; namely, the transaction costs approach (Williamson, 1975), the competitive strategy approach (Porter, 1980; Harrigan, 1984), the organizational knowledge and learning approach (Hamel, 1991), and the resource dependence (Pfeffer and Salancik, 1978 cited in Demirbag and Mirza, 2000) or organization theory approach (Kogut, 1988). All of the theories deal with firms trying to achieve certain strategic objectives, although each has a different focus, and should be seen as complementary rather than competing. Transaction cost theory focuses on cost minimization; resource dependency theory on obtaining resources; organizational learning on knowledge; relationship marketing on providing superior customer value; and strategic behavior theory on profit maximization.

- ***Transaction cost approach:*** Transaction cost economics was developed by Williamson (1975), who suggested that firms chose alternative arrangements that minimize the sum of production and transaction costs. According to Kogut (1988), "transaction costs refer to the expenses incurred for writing and enforcing contracts, for haggling over terms and contingent claims, for deviating from optimal kinds of investments in order to increase dependence on party or stabilize a relationship, and for administering a transaction".
- ***Competitive position approach:*** Porter (1986) stated that the formation of SAs depends on the five forces; the threat of new entrants, the bargaining

power of suppliers, the bargaining power of buyers, the threat of substitute products, and rivalry among firms. The competitive strategies approach states that alliances are formed also as a defensive mechanism in order to hedge against strategic uncertainty (Kogut, 1988).

- ***Organizational learning*** differentiates between tacit and specific knowledge. Whereas specific knowledge can be transferred through licensing, tacit knowledge is that knowledge embedded in an individual and which can only be transferred by learning alongside the individual (Kogut, 1988).
- ***Resource dependency-Organization theory approach:*** The fourth approach suggested by Kogut (1988) was the organization theory approach, specifically the resource dependency approach. The resource dependence approach states that firms have specific resources but that few companies are self sufficient in these resources (Glaister, 1996), and therefore must depend on others for important resources. A deficiency in one or more strategic resource (i.e., core competencies) is seen as the driving force for collaboration and a means of reducing uncertainty and managing this dependency. The need for partners' complementary skills and resources is a primary motivation for the formation of JV arrangements (Geringer, 1991; Hamel, 1991; Beamish, 1984). Geringer (1991) in particular found that need for partners' complementary resources (such as market knowledge, market access, local identity, and marketing channel) was the most important partner selection criterion.

Each of these approaches makes predictions about the conditions under which JVs will be formed. This research, however, looks into post-formation factors associated with IJV success.

2.4. Life cycle of an IJV

Prior research has indicated that IJVs are transitional organizations with dynamic natures (Franko, 1971; Harrigan, 1986). The process of an IJV in this study is distinguished in three stages; namely, partner selection, formation, and operation.

- ***Partner selection:*** The selection of the appropriate partner constitutes one of the major factors of success for the IJV. Geringer (1991) posits that partner selection process is considered to be of crucial importance to the formation and operation of JVs. Partner selection determines an IJV's mix of skills, knowledge, and resources, its operating policies and procedures, and its vulnerability to indigenous conditions, structures, and institutional changes (Geringer, 1991). Killing (1983) states that it is impossible to identify an exhaustive list of criteria which an organization should meet when attempting to assess a potential *complementary* partner. Geringer (1991) discusses the strategic determinants of partner selection criteria distinguishing between partner-related and task-related dimensions. Partner-related factors are concerned with variables which are specific to the character, culture and history of the involved partners, for example, experience of management, past association between partners, business compatibility between the partners, the corporate culture of the partners, and prior IJV experience. Task-related factors, on the other hand, apply to the operational skills and resources needed by an IJV to achieve project success. These relate to those variables that focus on operational and performance characteristics. Such variables include technical knowledge, market contacts, complementary resources, and the ability to negotiate with local authorities–in other words a wide range of variables, tangible or intangible, human or nonhuman. Those criteria will be discussed in detail in following sections.

- ***Formation:*** Firms select strategies to improve their competitive postures and to gain an advantage over one or more competitors (Harrigan, 1986). SAs are formed based on strategies of how to manage environmental uncertainties, how to overcome lack of resources and, in particular, how to manage the

firm's range of inter-organizational relations. During the formation stage, potential partners spend considerable time to identify their common compatible interests in the task-related areas. Foreign organizations that possess unique organization-specific advantages which are strongly desired by the local partner are usually in a position to negotiate an agreement from a position of strength (Sridharan, 1997). Kwok et al.'s (2000) study which identified a number of these critical factors including: negotiation, profit and loss distribution, clarity of contribution among partners, control and decision making policy, clarity of sharing of risks and liabilities, composition of decision-making body, and dispute resolution procedures.

- ***Operation:*** During the operation of a project, it is important to enter into a fair engineering contract, employ qualified subcontractors and suppliers, maintain a good relationship with the host government and other parties, and adopt renegotiation as a dispute resolution and problem-solving technique (Bing and Tiong, 1999).

2.5. Advantages gained through the IJVs

Alliances improve the strategic position of firms in competitive markets by providing resources from other firms that enable them to share costs and risks in product design, production, marketing, or distribution. Forging an alliance enables a firm to focus resources on its core skills and competencies while acquiring other components or capabilities it lacks from the marketplace (Zaman and Mavondo, 2002). Benefits of a JV include; faster and easier access to local market and distribution system, improved knowledge of the local economy, improved access to local human resources, including managers and labor, a sharing of risk, preferential treatment, this could include the repatriation of dividends, the registering of investment to increase the capital base on which dividends may be computed and the securing of government contracts and work permits for expatriates (Beamish, 1988).

According to Nielsen (2002b), there are several advantages obtained through IJVs such as risk/cost sharing, transfer of knowledge related capabilities, shaping competition, access to new markets, and facilitating internationalization.

- ***Risk sharing:*** The use of the IJV as a foreign market entry mode has helped in reducing the significant political and economic risks generally associated with foreign projects (Johnson et al., 2001 cited in Julian and O'Cass, 2002). IJVs provide foreign partners with quick and easy access to new markets by leveraging the local partner's market knowledge and local networks that help reduce risks and increase revenue (Simonin, 1999 cited in Julian and O'Cass, 2002).
- ***Transfer of knowledge-related capabilities:*** The traditional view of JVs holds that they provide benefits from the exploitation of synergies, technology, or other skills transfer (Harrigan, 1985). New knowledge provides the basis for organizational renewal and sustainable competitive advantage. In various studies, knowledge acquisition has been linked with operational performance as well as with the performance of specific organizational tasks (Doz, 1996). In bringing together firms with different skills and knowledge bases, alliances create unique learning opportunities for the partner firms.
- ***Shaping competition:*** The basis of competition is greatly influenced by collaborative arrangements since it potentially affects strategic positioning within an industry or across industries (Porter and Fuller, 1986 cited in Nielsen, 2002b). In an attempt to reduce competition, joining resources might help defend current strategic positioning against more powerful competitors.
- ***Access to new markets:*** Traditionally, multinational companies used SAs as a vehicle to enter the markets of developing countries that enforced restrictive conditions on foreign direct investments (Hood and Young, 1979 cited in Nielsen, 2002b). In terms of knowledge related capabilities, collaboration may be instigated based on a perceived need to access and exploit local

knowledge (i.e. market knowledge, distribution channels or more complex government relationships).

- ***Facilitate internationalization:*** SAs may, as mentioned above, play a crucial role in facilitating and speeding up entry into foreign markets. For companies in the early stages of the internationalization process, who are lacking resources to expand internationally and who have little or no international experience, collaborating with a local partner might provide valuable access to both international capabilities and specific market knowledge (Beamish, 1988; Geringer, 1988). Forming an IJV may help speed up the internationalization process, which may lead to first mover or early entrants advantage (Gannon, 1993 cited in Nielsen, 2002b).

2.6. Difficulties in managing IJVs

IJVs have received a great deal of attention from researchers over the last few decades (Tomlinson, 1970; Franko, 1971; Killing, 1983; Beamish, 1985), primarily because of their importance as a strategic alternative in global competition (Killing, 1983; Harrigan, 1985). Yet such international collaborative arrangements are very complex to manage successfully, partly because of the difficulty of matching the goals and aspirations of autonomous organizations, headquartered in two or more countries. The complexity of the venture is caused by the presence of two or more parent organizations usually of different cultures, which may be competitors as well as collaborators (Janger, 1980; Killing, 1983). Often, the good intentions and rational motives behind these alliances are not congruent with the strategic direction of either firm on its own, let alone the strategic direction of both in unison. Consequently, IJVs are frequently plagued with high degrees of instability and poor performance (Parkhe, 1993).

2.6.1. Performance history of IJVs

Despite their increasing importance, a considerable number of IJVs are reported to have performed poorly with estimated rates of instability and unsatisfactory performance ranging from thirty-seven percent to over seventy percent (Janger, 1980; Harrigan, 1985; Geringer, 1991; Park and Ungson, 1997; Beamish and Delios, 1997). It is therefore not surprising that performance of JVs has been a prominent theme of research over the past two decades (Killing, 1983; Beamish, 1988; Geringer and Hebert, 1989, 1991; Geringer, 1988; Makino, 1995; Beamish and Delios, 1997; Glaister and Buckley, 1998).

Previous studies have shown that the IJVs have a high failure record reporting on the dissolution rate but also on the effectiveness and the efficiency of the JV management. One might conclude that important sources of the problems are originally starting from the different goals of establishing the JV, disparate managerial styles and systems, different national cultures and management cultures, and incompatibility of structure (Beamish, 1988, Harrigan, 1985; Killing, 1983).

IJV failure rates are probably higher than are those for domestic JVs because IJVs generally face greater challenges. For example, many IJV partners must monitor operations in settings with which they have little familiarity (e.g. markets, distribution systems, legal systems); they must often cope with significant geographical separation and time differences; and they must bridge cultural boundaries (e.g. Brown at al., 1989).

2.6.2. Assessment of IJV performance

The measurement of the performance of SAs has been an important research topic in the field of international management (Geringer and Hebert, 1991; Yan and Zeng, 1999). However the validity of the underlying measures is still questionable and except for Arino's (2003) work, few attempts have been made to estimate their empirical validity (Parkhe, 1993). According to Chowdhury

(1992) no consensus on an appropriate definition and measurement of performance of IJVs has yet emerged. A major difficulty in evaluating the success of IJVs is caused by the confusion associated with the definition of performance and how performance should be measured. Anderson (1990) argues that a major reason for the controversy stems from a lack of clarity about what an indicator of performance is and what a determinant of performance is. A review of the literature suggests that only an adequate combination of criteria should allow addressing the multidimensionality of performance, which requires a better understanding of the links between its different dimensions.

One of the core objectives of this study is to define appropriate performance measures for IJV performance in construction and to empirically test the validity of these measures. Discussion on performance indicators and the performance construct proposed for the construction industry is presented in the next chapter.

2.6.3. Identification of determinants of IJV performance

Many factors have been suggested in the literature as potentially important determinants of JV performance (Glaister and Buckley, 1999). These include partner and task-related variables, firm and industry related factors and managerial and host country related factors. In this study, determinants of performance are categorized into five groups as partner-related criteria, inter-partner fit, inter-partner relations, JV structure-related factors, and country-related factors. Chapter 3 discusses the determinants of IJV performance.

2.7. International Construction Joint Ventures (ICJVs)

The majority of the current literature on IJVs concentrates on manufacturing industries, while IJV theories have not been investigated empirically in the construction industry. The construction industry is complex and multidimensional, and to improve this situation, the major construction projects

in developing countries are often carried out in IJVs with construction companies from developed countries (Chan and Tse, 2003).

Forthcoming sections discuss the advantages gained though IJVs in construction projects; risks and problems encountered during partner selection; and operation of the JV.

2.7.1. IJVs in construction industry

Some project groups result from various forms of cooperation between companies such as SAs, partnerships, JVs, or consortiums (Hamel et al., 1989 cited in Chevrier, 2003).

Construction Industry Institute (CII) (1991) defined partnering as:

> *A long-term commitment between two or more organizations for the purposes of achieving specific business objectives by maximizing the effectiveness of each participant resources. This requires changing traditional relationships to a shared culture without regard to organizational boundaries. The relationship is based on trust, dedication to common goals, and an understanding of each other's individual expectations and values.*

JVs in construction fall broadly into two categories, that of integrated and non-integrated. In the case of a non-integrated JV, the overall responsibility for the contract usually has to be negotiated by a JV board. Separate sections of the work are then subcontracted out, with each of the partners taking over the responsibility for running their own technical and administrative elements of work. The advantage of this type of venture is that for the contractors entering into the partnership, each can complement the others skills. However, there is the disadvantage that some contractors have to put in more effort than others, thus leading possibly to internal conflicts at a later stage (Norwood and Mansfield, 1999).

Project-based JVs are a special case of alliances according to the archetypes of Lorange and Roos (1992). These JVs are temporary in nature and involve the creation of a separate entity through the alliance of two or more organizations for the purpose of carrying out a specific project (Aldrich, 1979 cited in Sillars and Kangari, 2004). The JV participants join, often through contractual agreement, to contribute resources of skill, experience, financing, or physical resources (Badger et al., 1993). Each of the parties contributes resources only as required to perform the project, and the rewards are distributed back to each party as financial return (Lorange and Roos, 1992). JVs are a means of accessing resources held by other organizations, including competitors, on a limited basis; organizations are able to avoid committing substantial capital in development or acquisition of those resources.

Building on existing definitions of JVs (Geringer, 1988; Geringer and Hebert, 1989) a JV, in this study, is defined as involving two or more legally distinct organizations (the parents), each of which actively participates, beyond a mere investment role, in the decision-making activities of the JV. Furthermore, it is considered to be an IJV if at least one partner is headquartered outside the venture's country of operation or where the venture has a significant level of operation in more than one country. Hence, an ICJV in this research can be defined as "inter-firm collaboration over a given (international) economic space and time for the attainment of mutually defined goals" (Nielsen, 2002b).

2.7.2. Motivations for ICJVs

The increasing magnitudes, complexities, and risks associated with major construction projects have brought together organizations with diverse strengths and weaknesses to form JVs to collectively bid for, and execute projects (Kumaraswamy et al., 2000). Construction organizations have extensively used IJVs as a vehicle to enter new construction markets around the world. The number of ICJVs is growing worldwide at an increasing pace, especially in developing countries. Developing countries see ICJVs as one of the best

instruments for meeting the competing interests of national development and the prevention of the domination of the economy by foreign investors (Sornarajah, 1992 cited in Mohamed, 2003).

The use of ICJVs basically stems from theories on how strategic behavior influences the competitive positioning of a construction organization. According to Kwok et al. (2000), ICJVs can be in one of three legal forms such as corporation, partnership, or contractual/consortium. According to Norwood and Mansfield (1999), some motives for forming ICJVs are to participate in overseas projects, to maintain an overseas presence particularly when the market was low in the home country, to spread financial risk, to bring in outside expertise, to make use of existing geographical or regional base, and to access greater manpower from local partner.

2.7.3. The process of an ICJV

According to Bing et al. (1999), there are three phases in the life of a JV such as start-up; operation and dismantle. The start-up phase is the period from initial contacts between parent companies to IJV start-up, including negotiation and a signing agreement. The operation phase refers to the period of construction work being implemented. The dismantle phase is the period when most construction tasks have been completed, the project is in the clean-up stage, and the participants start negotiating the ending matters (Bing et al., 1999).

The partner selection and venture formation processes set the basis of the relationship between the partners during the operation of the ICJV (Gjerde 1995 cited in Mohamed, 2003). The smooth operation of the ICJV is mainly dependent upon the interaction between the partners in making strategic and operational decisions (Sridharan, 1997). For IJVs to survive, their parents must find a way to work together, i.e. they must be able to agree on goals and policies, and to renegotiate them in response to changes in the environment (Doz, 1996).

2.7.4. Advantages of ICJVs

There are many benefits as well as strategic objectives that firms expect to achieve by utilizing IJVs as the vehicle for entering foreign markets. In addition, IJVs facilitate the process of acquiring and/or learning new skills and technologies. Numerous advantages were cited by the companies as a direct result of undertaking JVs. These include greater access to local markets and engineering consultants; improved capabilities in terms of size and scope of work carried out; broadened expertise; an ability to select and obtain suitable staff relatively easily as opposed to recruiting from the external market; access to new areas of the world without having to carry all the risk; and an ability to take on and maintain an international workload (Norwood and Mansfield, 1999).

2.7.5. Risks and problems of ICJVs

Within the general trend of globalization, worldwide economic cooperation and technology transfer are common practice. International construction projects are just one of the activities that involve multinational participants from different political, legal, economic, and cultural backgrounds (Chan and Tse, 2003). There are risks associated with an ICJV due to partner and host country-related factors.

In forming JV construction companies, JV partners expose themselves to other sever internal risks. These include but are not limited to (Bing et al., 1999) inheriting a partner's financial problems; having disagreements about accounting standards; distrust between partner employees; policy changes in parent companies affecting the project; lack of management competence; disagreements about staff allocation and positions in the project team hierarchy; disagreement on allocation of work to be done; and technology-transfer disputes. Selecting a partner that is credit-worthy and financially strong and that has a strong connection with the host government is considered to be an effective measure to mitigate risks in operating an ICJV (Bing and Tiong, 1999). The relationship between JV partners has to be designed and managed. Project

management skills are required to successfully undertake this design process. Alignment is required when selecting a JV or alliance partner to match what can be offered by various partners and identified competencies gaps that need to be filled. This is part of a scoping and needs analysis phase, which can be seen as part of a broader briefing or team development stage (Walker and Johannes, 2003).

Ostler (1998) identifies major host government-related risks encountered by construction organizations operating in the international arena. These include political, economic, structural, policy, environmental, market, and production factors. A review of the literature reveals a wide range of these risk factors, such as changes in law, corruption, delay in approval, expropriation, and reliability and creditworthiness (Zhi, 1995; Salzmann and Mohamed, 1999; Wang et al., 1999 cited in Mohamed, 2003).

2.7.6. Performance issues of ICJVs

Like in other industries, achieving high levels of performance is difficult in the construction industry as performance is greatly impacted by partner compatibility, inter-working relationships, IJV structure, host country conditions, and project-specific characteristics.

Chapter 3 discusses the performance issues in terms of indicators and determinants of IJV performance which are mentioned in literature. Chapter 4 introduces the performance framework developed for ICJVs and the research methodology used to analyze the proposed model. The validity of the performance construct and the hypotheses regarding the relationships within the whole model are tested in Chapter 5.

CHAPTER 3

PERFORMANCE ISSUES IN INTERNATIONAL JOINT VENTURES

3.1. Issues concerning the evaluation of IJV performance

Performance of IJVs has been a prominent theme of research over the past two decades (Geringer and Hebert, 1989; Killing, 1983; Glaister and Buckley, 1998). Measuring IJV performance has always created difficulty for researchers because performance is a complex and multi-dimensional phenomenon. So far, assessment of IJV performance has been problematic and efforts to identify variables associated with IJV performance have been constrained by disagreements regarding the comparability and reliability of alternative performance measures and methods (Geringer and Hebert, 1991).

There is a large extent of discussion about the difficulties in evaluating IJV performance. One of the discussions focuses on the characteristics/structure of the IJV organizations and the expectations of the partner companies. IJVs are owned and governed by two or more companies, and therefore should not be evaluated like wholly-owned divisions, all the more so as the interests of the IJV and its parents are often in conflict (Anderson, 1990). It should be recognized that IJVs may not be established to fulfill standard financial objectives such as profitability but are instead formed for a number of motives, for example to enhance organizational learning (Kogut, 1988), or to improve the strategic positioning of the parent firms (Contractor and Lorange, 1988; Glaister and Buckley, 1996; Tatoglu and Glaister, 1998) such as to gain presence in new markets. Moreover, the success of IJVs is not to be confounded with the success of the joint project (Dussauge and Garrette, 1997 cited in Blanchot and

Mayrhofer, 1997). Anderson (1990) claims that a major difficulty in evaluating the success of IJVs is due to the definition and the measures of performance. Anderson (1990) argues that a major reason for the controversy stems from a lack of clarity about what an *indicator* of performance is and what a *determinant* of performance is. Both academicians and managers tend to mix performance indicators and determinants according to their own viewpoints of what works.

Within the context of this research, two main difficulties in evaluating the success of IJVs are identified and analyzed. The first one is to decide whose performance should be assessed, namely the IJV partners', the IJV organization's or the project's. The second one is to decide which measures (objective and/or subjective) to use as performance indicators.

Anderson (1990) notes that given a minimum of three elements to an IJV, at least two parent firms and the IJV management, there might be differences in orientations on which aspects of performance to measure and how successful these measures indicate the performance to be. Therefore, in order to have a complete understanding of performance, success of the partners in addition to the operation success should be taken into account when assessing the overall IJV performance. In this study, different aspects of IJV performance have been considered and those are discussed in the following sections.

The evaluation can be realized using subjective or objective measures or a combination of both types of performance measures. Objective measures include financial criteria, e.g., measures of profitability, growth, and cost position, and operational measures e.g., longevity of the JV ownership and survival. Because of the difficulties associated with obtaining financial and operational measures to gauge the performance of IJVs, several researchers turned their attention towards subjective measures (e.g., Killing, 1983; Lasserre, 1999; Fey and Beamish, 2001). Each type of performance measure has its own advantages and drawbacks. There is no consensus on the most appropriate criteria (and methods) for the evaluation of success, even if some of them are more widely used than others. Certainly, none is perfectly adequate, since each of them reflects one

specific aspect of performance. Only an adequate combination of criteria allows assessing the multidimensionality of performance, which requires a better understanding of the links between its different dimensions. Whereas the correlation between objective and subjective measures has been empirically tested, little is known about the links between the various criteria used within each category (Blanchot and Mayrhofer, 1997). This study adopts a combination of performance measures that is mentioned in detail in following sections.

3.2. Types of performance indicators

So far, empirical research has adopted different measures in assessing JV performance from different parties' points of view (one parent, two parents or IJV managers). Deciding on the indicators (measures) of performance is an important issue.

Child and Yan (2003) suggest there are two main perspectives on IJV performance. The first one is the "goal performance" that is defined as the extent to which the objectives that each parent company has in forming an IJV are realized in practice. The second perspective, "system performance" is defined as the extent to which an IJV performs well as a business unit. Mohr and Puck (2005) identified six performance criteria, which they grouped into two performance constructs after carrying out a factor analysis of our empirical data. The first construct, labeled short-term performance, includes profitability, growth and market share, while a second construct, named long-term performance, combines the level of technology, stability and competitiveness of the JV, while a second construct, named long-term performance, combines the level of technology, stability and competitiveness of the JV.

In their summary of prior empirical research, Geringer and Hebert (1991) categorized extant studies into three groups depending on a variety of criteria used to assess IJV performance: financial indicators, objective measures and subjective assessment of satisfaction. Different types of measure correspond to

different levels of performance (Venkatraman and Ramanujam, 1986). In this study, performance indicators are grouped under two categories namely, objective (including financial and operational) and subjective measures.

3.2.1. Objective measures

Objective indicators may be observed in terms of financial or operational measures.

- ***Financial measures:*** Geringer and Hebert (1991) state that early studies relied on a variety of traditional financial indicators such as profitability, return on investment, growth, market share and cost position (Tomlinson, 1970). Recently, financial performance has also been studied as a categorical variable on a three point scale on the basis of gains and losses. It is a subjective measure of performance, reported by the manager as his/her assessment of the subsidiary's financial performance. This measure has been frequently used in previous studies (Makino and Delios, 1996; Makino and Beamish, 1998; Beamish and Kachra, 2004). Despite their widely usage, financial measures may fail to reflect the extent an IJV has achieved its short and long-term objectives (Killing, 1983; Anderson, 1990). For example, IJVs formed in developing countries may not be able to generate financial profit for a long time. Empirical results also support the view that traditional accounting figures, including profitability measures, are statistically insufficient to distinguish more successful firms from less successful ones (Chowdhury, 1992).

- ***Operational measures:*** Some studies use operational measures of performance such as the survival or longevity of the IJV (Killing, 1983; Kogut, 1988; Millington and Bayliss, 1997, Barkema and Vermeulen, 1997; Hennart and Zeng, 2002), its instability (Gomes-Casseres, 1987; Sim and Ali, 2000), renegotiation of the IJV contract (Blodgett, 1992), and dissolution (Park and Ungson, 1997). Among these, the most popular proxies for

measurement of IJV performance in the literature have been stability and survival of the IJV. Stability has been defined in different ways by different researchers (Beamish and Inkpen, 1995; Gomes-Casseres, 1987; Yan and Zeng, 1999). Instability can be defined as a significant change in the ownership structure or the termination of the IJV. Some studies argue against the use of these objective proxies to assess the outcome of a venture (Doz, 1996; Gomes-Casseres, 1987). They argue that the transitory character of IJVs often stems from the nature of parent firm's strategic intent when forming IJVs. This suggests that IJV instability is not always tantamount to collaborative failure as is widely assumed. They also argue that to interpret dissolution of IJVs as a failure overlooks the possibility that the dissolution is a result of success, that is, both the partners obtained their expected benefits and decided to discontinue. Thus duration and survival appear to be unacceptable measures of performance because termination of a JV may be a result of success, failure or simply an adaptation to changes in the environment.

3.2.2. Subjective measures

In assessing JV performance, as Anderson (1990), Geringer and Hebert (1991) argue, financial measures embody potential limitations. Parent firms' performance perception is highly likely to be based on a large number of criteria, and financial measures are only some of these. Anderson (1990) recommends measuring JV performance in terms of a package of inputs and outputs weighted over time. As Anderson (1990) argues, inter-partner relationships and harmony in JVs should be considered as an input to realize long-term objectives of parent firms. If one considers inter-partner harmony as a long-term objective of parent firms, a financial or objective measure in itself is unlikely to capture accurately an IJV's relative performance against objectives. Hence, despite poor financial results in the short-term, an IJV may have been meeting or exceeding a parents' objectives and thus be considered successful by one or all of the parents

(Geringer and Hebert, 1991). Moreover, financial measures assess only one dimension of performance, however for a complete evaluation other factors, many of which are qualitative, must also be weighted.

Although there is no agreed definition of JV performance in the literature (Yan and Zeng, 1999), goal accomplishment underlies most interpretations (Anderson, 1990; Parkhe, 1993). Drawing from the strategy literature, three levels of performance that depend on the goals under consideration may be recognized; financial performance, operational performance and organizational effectiveness (Venkatraman and Ramanujam, 1986). Yan and Gray (2001a) reported that the achievement of the partners' original strategic objectives was the most appropriate measure of IJV performance since the traditional measures such as profit, market share and growth were relatively meaningless for new ventures in emerging markets. Yan and Gray (2001a) used this measure of performance since it assesses business performance of the JV according to parents' expectations and objectives before the formation of the venture.

A partner's satisfaction with the overall performance of the JV is one of the most frequently used subjective measures of IJV performance (Killing, 1983; Geringer and Hebert, 1991; Parkhe, 1993; Lasserre, 1999; Demirbag and Mirza, 2000; Fey and Beamish, 2001; Choi and Beamish, 2004). It is neither a financial measure, such as profitability, market share or rate of return nor an objective measure, such as survival, duration, stability or number of contract renegotiations.

The main advantage of perceptual measures is their ability to provide information regarding the extent to which the IJV has achieved its overall objectives; however, these types of measures have also suffered accusations of serious limitations and biases. By using both objective and perceptual measures, Geringer and Hebert (1991) found that objective measures were positively correlated with parent firms' reported satisfaction with IJV performance and with perceptions of the extent to which an IJV performed relative to its initial objectives.

3.2.3. Comparison of performance measures

There is a large amount of literature on the comparability of objective and subjective measures. While objective and financial measures are the most concrete, they have two primary shortcomings (Lasserre, 1999). First, they are difficult to obtain in large-scale samples because they are deemed sensitive and confidential and firms seek to preserve competitive advantage by concealing all but consolidated corporate reports (Geringer and Herbert, 1989). Second, these measures often lack comparability, especially in the international arena, because accounting conventions, tax rates, currencies and purchasing power parity can vary tremendously across international borders. Likewise, subjective measures have also been criticized, with perceptual bias being the primary concern (Geringer and Herbert, 1989).

Some researcher studies state there is positive correlation between objective and subjective measures (Beamish and Banks, 1997; Dymsza, 1988; Geringer and Hebert, 1989). However, there has been considerable disagreement regarding the comparability of these alternate measures (Parkhe, 1993). The links between objective and subjective measures have been empirically tested by Geringer and Hebert (1991) whose study revealed that the correlation between objective and subjective measures is generally positive but that the strength of the link varies significantly according to the criteria used.

Due to potential limitations and difficulties associated with the ability of financial and objective measures to gauge the efficacy of IJVs, several researchers turned their attention away from objective measures towards subjective measures of parent managers' satisfaction with IJV performance (Killing, 1983; Lasserre, 1999; Fey and Beamish, 2001). As Orr and Levitt (2004) argue, satisfaction, as a subjective measure of performance, has three primary advantages. First, the positive correlation between satisfaction and other objective measures suggests that managers incorporate financial and objective aspects of performance into their perceptual performance evaluations when they answer questions about perceived satisfaction on survey questionnaires. Second,

even on its own, as Lasserre (1999) has pointed out, “satisfaction or dissatisfaction of the people involved in management reflects an important dimension of JV performance regardless of whether the JV is financially or commercially successful”. Third, subjective measures make it possible to collect large-scale, comparable samples by alleviating the concerns of confidentiality that are aroused in corporate sponsors who are reluctant to provide other more sensitive objective and financial data. Although partner satisfaction lacks precision, it allows for broader coverage compared to financial measures and overcomes the contamination problems associated with JV duration and survival.

On the other hand, some studies involved the usage of both objective and subjective measures. For example, in the study by Luo (2001), the JVs’ performance was measured both by an objective financial measure (i.e. profitability) and a subjective perceptual measure (i.e. managerial assessment). Rajan (2004) considered two indicators of performance, one is a perceptive measure of an objective indicator (financial performance) and the other is a perceptive measure of the subjective indicator (overall satisfaction). The study by Luo and Park (2004) introduces a comprehensive, multidimensional construct that reflects various aspects of JV performance. An index is utilized based on the mean of responses on the degree of satisfaction in six areas; overall performance, sales growth, market share, profitability, customer satisfaction, organizational reputation, and product image.

Table 3.1 gives a summary of performance measured used in literature in three categories such as financial, objective and subjective indicators as well as an additional category entitled as “multidimensional” that comprises of combinations of indicators from other categories.

Table 3.1: Performance indicators

Study	Sample Size	Performance measure	
Tomlinson (1970)	71	FINANCIAL	Return on investment, growth
Luo (2002)	293		Sales level, return on investment
Makino and Delios (1996)	558		Financial gain or loss
Beamish and Kachra (2004)	1335		Financial gain or loss
Merchant (2005)	700		Abnormal returns
Tihanyi et al. (2005)	66		Return on equity, return on assets
Hanvanich et al. (2003)	636		Cumulative abnormal stock returns
Park and Ungson (1997)	137	OPERATIONAL	Stability, longevity
Sim and Ali (2000)	59		Stability
Beamish and Inkpen (1995)	5		Stability
Hennart and Zeng (2002)	97		Longevity
Barkema and Vermeulen (1997)	828		Longevity
Gomes-Cosseres (1987)	5000		Instability
Blodgett (1992)	1025		Stability
Millington and Bayliss (1997)	49		Longevity
Yan and Gray (2001a)	90	SUBJECTIVE	Achievement of strategic objectives
Choi and Beamish (2004)	71		Overall satisfaction
Luo and Park (2004)	250		Overall satisfaction
Demirbag and Mirza (2000)	144		Overall satisfaction
Lasserre (1999)	98		Overall satisfaction
Fey and Beamish (2001)	40		Overall satisfaction
Ulijn et al. (2005)	12		Overall satisfaction
Orr and Levitt (2004)	4500		Overall satisfaction
Julian and O'Cass (2002)	161		Satisfaction with the achievement of strategic objectives, overall satisfaction
Mjoen and Tallman (1997)	102	MULTIDIMENSIONAL	Perceptive measures on profitability, met objectives, satisfaction
Pothukuchi et al. (2002)	127		Efficiency, competitiveness, satisfaction
Geringer and Hebert (1991)	82		Satisfaction with IJV's overall performance and met objectives, survival, stability, duration
Child and Yan (2003)	67		Achievement of parent company goals, economic system performance
Mohamed (2003)	44		Value, profit, satisfaction
Glaister and Buckley (1998)	75		Level of satisfaction, survival, duration, stability
Osland and Cavusgil (1996)	8		Profitability and satisfaction
Mohr and Puck (2005)	110		Satisfaction with the IJV for short-term and long- objectives
Makino and Beamish (1998)	737		Financial performance and survival

What can be derived from the above discussion is that a combination of several types of measures should be used to explore the multidimensionality of performance. Following section proposes a performance construct whose validity is tested both qualitatively and empirically.

3.3. Determinants of IJV performance

Multiple factors determine the performance outcome of IJVs, ranging from the nature of the industry and institutional environment within which the alliance operates to the quality and commitment of the alliance management. The criteria for judging JV performance becomes, apparently, a complex and controversial topic in JV research. Nielsen (2002a) separates the discussion of the determinants of performance in IJVs into two categories: pre-alliance formation factors and post-alliance formation factors pertaining to different stages during the relationship development. Pre-alliance formation factors refer to variables pertaining to the time before the alliance is formed, in particular prior experience with partner, the reputation of the partner, and the perceived learning potential.

Once the alliance is formed and operating, post-alliance formation factors, such as collaborative know-how, trust, protectiveness, and cultural distance are hypothesized to determine the performance of the alliance. Beamish (1988) identifies two variables that affect the performance of the JV, namely partner need and commitment, although his work focuses on the first one. He provides a rigorous typology of partner needs, divided into five groups called “items readily capitalized”, “human resource needs”, “market access needs”, “government/political needs” and “knowledge needs”. In Brouthers et al. (1995), the authors draw upon previous theoretical and empirical work to develop a conceptual framework that can be used to analyze the likelihood of IJV success. The proposed framework focuses on four wide categories of factors called “complementary skills”, “cooperative cultures”, “compatible goals” and “commensurate levels of risk”. The so-called Four Cs of IJVs are further analyzed and the authors conclude that if the Four Cs are seriously taken into

consideration, that could result in a more efficient and effective partner selection process.

Many factors have been suggested in the literature as potentially important determinants of JV performance (Glaister and Buckley, 1999). Within this study, determinant of performance are categorized into five groups as task and partner-related criteria, inter-partner fit, inter-partner relations, JV structure-related factors and country-related factors.

3.3.1. Task and partner-related criteria

Partner selection criteria have been allotted both task and partner-related dimensions in research on alliances and JVs (Geringer, 1991). Task-related criteria relate to the operational skills and resources of the partner. Key resources parent companies can provide to a JV include capital, plant and technology, know-how and technical support, investment in its human resources, and organizational capabilities. Partner-related criteria relate to the efficiency and effectiveness of the partner's operations. These factors include factors such as firm size, previous JV experience, and type of JV partner. Among those the most important ones are the partner's host country knowledge, past IJV experience, multinationality, and partner size.

- ***Partners' host country knowledge:*** Knowledge about the host countries is a critical resource for the success of IJVs. Target country specific experience should reduce uncertainty related to the operation environment and in this way increase the possibilities for better performance (Larimo, 2001). A local (host country) partner represents a primary source of local knowledge as compared to home country partners (Yan and Gray, 1994). Prior research has found evidence that there is a positive relationship between the use of a local partner and the performance of IJVs (Beamish, 1985; Blodgett, 1992; Makino and Delios, 1996).

- ***Past IJV experience:*** Past IJV experience of partners was postulated to have a positive influence on IJV stability and performance as a result of learning and the benefit of experience, though the empirical evidence found conflicting impacts (Harrigan, 1988; Beamish and Inkpen, 1995). Harrigan (1988) argued that JVs benefit from partner's experience because past mistakes could be avoided and hence positively enhanced IJV stability. Greater experience, understanding, competence, and confidence in managing inputs will result in a more detailed and accurate perception of risks (Agarwal, 1994). As soon as a company is confident in its ability to manage difficulties in an overseas environment, it will tend to choose a greater level of control (Kogut and Singh, 1988). Makino and Delios (1996) indicated that the impact on success might be contingent on the level of partners' experience. Lane and Beamish (1990) found that the international experience of parent firms has effect on the IJVs' performance. Sim and Ali (1998) argued that past IJV experience of the parent firms is likely to have a positive impact on performance.
- ***Multinationality:*** In terms of multinationality, an IJV partner with extensive international spread tends to reduce its commitment to the IJV option (Beamish, 1984) and prefers to rationalize its operations globally to optimize network profitability (Franko, 1971; Gomes-Casseres, 1990).
- ***Partner size:*** Firm size has been found to be an important variable affecting firm performance (Smith et al., 1989; Merchant, 2000; Pan and Li, 2000). Resources are closely linked to firm size and consequently firm performance. This is because large firms are likely to have better access to financial resources that are required to hire managerial expertise and to support research and development which enhances the firm's competitiveness and performance.

3.3.2. Inter-partner fit

It has been noted in the IJV literature that complementary needs create "inter-partner fit", which is expected to generate a synergistic effect on IJV performance (Buckley and Casson, 1988). Partner fit determines the extent to which partner firms can get along and realize anticipated synergies from the joint venture (Yan and Duan, 2003; Buckley and Casson, 1988; Morris and Cadogan, 2001). The issue of partner fit has been widely discussed in the IJV partner selection literature. From a process perspective, the linkage between partner selection and IJV success lies in inter-partner fit (Yan and Gray, 1994).

Prior research has articulated a linkage between "inter-partner fit" and IJV performance. However, "fit" has been defined using different notions such as strategic symmetry (Harrigan, 1988), inter-firm diversity (Parkhe, 1991), match of partner characteristics (Geringer, 1988), or inter-partner compatibility/complementarity (Beamish, 1988). Without specifying the critical features of the phenomenon or suggesting appropriate measures for these features, studies of inter-partner fit can provide only very limited insights since inter-partner fit is a multidimensional and complex concept evolving from a mixture of factors (Yan and Duan, 2003). According to Luo (1998), strategic, organizational, and financial attributes are all crucial to IJV performance. A partner with superior strategic traits, but lacking strong organizational and financial characteristics, results in an unstable JV. The possession of desirable organizational attributes without corresponding strategic and financial competence leaves the JV unprofitable. A partner with superior financial strengths without strategic and organizational competencies can lead to an unsustainable venture. In this study, dimensions of "inter-partner fit" are categorized into four namely, strategic fit, organizational fit, financial fit, and cultural fit.

3.3.2.1. Strategic fit

Operation-related criteria are associated with the strategic attributes of partners including marketing competence, relationship building, market position, industrial experience, strategic orientation, and corporate image (Luo, 1998). The strategic orientation of parent firms is important to venture success because how well it matches that of its partner influences inter-partner consistency in terms of strategic goals and behaviors, cooperative culture, and investment commitment (Parkhe, 1991). These in turn affect the formulation and implementation of technological, operational, financial, and managerial policies at various levels including corporate, business, functional, and international. As strategic orientation determines organizational adaptability and innovativeness, it may affect not only the partner firm's strategic but also organizational behaviors such as managerial philosophy and style and long-term orientation, which may in turn influence mutual trust and collaboration between parties.

Hennart et al. (1998) have argued that inter-partner difference in goals, values, and routines will lead to conflicts that increase the possibilities of IJV dissolution. Luo and Park (2004) also investigated the role of goal difference between parents considering several dimensions such as profitability, taking advantage of investment incentives by the host government, local market expansion, technology transfer, developing R&D capabilities, cost reduction, global market expansion, export growth, access to monetary resources, risk reduction, opportunity to join forces with competitors, learning management and production skills, and opportunity to employ skilled personnel. Conflict between the partners that may result from goal incongruity can also negatively affect performance (Fey and Beamish, 1999; Hebert, 1994; Mohr and Spekman, 1994).

3.3.2.2. Organizational fit

Litwin and Stringer (1968 cited in Fey and Beamish, 1999) define organizational climate as a set of measurable properties of the work environment, perceived

directly or indirectly by people who live and work in this environment and assumed to influence their motivation and behavior. They suggested that organizational climate was comprised of eight dimensions: structure, responsibility, reward, risk, warmth, support, standards, conflict, and identity. Organizational synergy is the match or congruency between partners in a JV. That is each firm in the venture offers and contributes complementary and congruent skills, abilities, and resources. Cooperation-related criteria often mirror organizational attributes such as organizational leadership, organizational rank, ownership type, learning ability, foreign experience, and human resource skills (Luo, 1998). Organizational fit consists of complementarity/compatibility of partners' financial capabilities, company size, management systems, and national/international workload.

3.3.2.3. Financial fit

Cash flow-related criteria are generally represented by financial attributes exemplified by profitability, liquidity, leverage, and asset management (Luo, 1998). A local partner's profitability will directly influence its ability to make a capital contribution, fulfill financial commitments, and disperse financial resources to the JV. A local partner's liquidity is critical to IJV operations because it directly affects the venture's ability to pay off short term financial obligations.

3.3.2.4. Cultural fit

Most researchers have so far focused on differences in cultural backgrounds of partner companies and their negative consequences on the management of cooperative ventures (Barkema and Vermeulen, 1997; Mjoen and Tallman, 1997). Lane and Beamish (1990) conclude that cultural compatibility is one of the most important factors in the endurance of a global alliance. As culture influences behaviour and management systems, it thus has the potential to

destabilize JVs. Beamish (1988) and Killing (1983) noted that the cultural similarity of the partners might not be able to explain the satisfaction of the IJVs. The essence of Sirmon and Lane's (2004) argument is that cultural differences stemming from national, organizational, and professional cultures inhibit international alliance partners' employees' ability to interact effectively. "The degree of cultural fit that exists between combining organizations is likely to be directly correlated to the success of the combination" (Cartwright and Cooper, 1993).

It is hypothesized that cultural similarity increases harmony and reduces friction (Shenkar, 2001) in cross-cultural strategic partnerships. Arguments to support this proposition build on three primary insights. First, culturally similar managers are more likely to share the same attitudes, values, beliefs, knowledge, management systems (Lasserre, 1999), leadership styles and scripts of behavior, as well as business, organizational and administrative practices (Kogut and Singh, 1988). Second, such cultural similarities facilitate and enhance the ability to communicate, cooperate, integrate knowledge, and develop trust (Killing, 1983). Third, cultural dissimilarities increase the frequency and severity of communication difficulties (Brown et al., 1989), miscommunications (Park and Ungson, 1997), conflict (Sim and Ali, 2000), and misinterpretation of a foreigner's intentions, whether honest or opportunistic. In brief, past theoretical arguments can be captured in a single statement: cultural similarity increases harmony and decreases friction in cross-cultural interactions and vice versa.

Cultural distance has received a great deal of attention in the international business literature (Barkema et al., 1996; Kogut and Singh, 1988; Morosini et al., 1998; O'Grady and Lane, 1996). It has been identified as a key factor in explaining foreign market attractiveness, expansion patterns, the degree of adaptation of marketing and retailing strategies, modes of entry and organizational performance (Evans, 2000). The partner's national or organizational culture has the potential to affect in depth all aspects of the

collaboration, including performance. Cultural distance is grouped into two such as national cultural distance and organizational cultural distance.

a) National cultural distance:

Geert Hofstede (1980) developed a pioneering and widely accepted classification scheme which breaks national culture into the dimensions of power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity, and long-term orientation. Hofstede's (1980; 1991) empirical framework of national culture is based on a survey of 117,000 IBM employees across 50 countries and 3 multi-country regions. The questionnaire focused on work-related values using 32 items to measure the importance of various work goals.

1) Power Distance Index focuses on the degree of equality, or inequality, between people in the country's society. A high Power Distance ranking indicates that inequalities of power and wealth have been allowed to grow within the society. A low Power Distance ranking indicates the society de-emphasizes the differences between citizen's power and wealth. In these societies equality and opportunity for everyone is stressed.

2) Individualism focuses on the degree the society reinforces individual or collective, achievement and interpersonal relationship. A high Individualism ranking indicates that individuality and individual rights are paramount within the society. A low Individualism ranking typifies societies of a more collectivist nature with close ties between individuals.

3) Masculinity focuses on the degree the society reinforces, or does not reinforce, the traditional masculine work role model of male achievement, control, and power. A high Masculinity ranking indicates the country experiences a high degree of gender differentiation. A low Masculinity ranking indicates the country has a low level of differentiation and discrimination between genders.

4) Uncertainty Avoidance Index focuses on the level of tolerance for uncertainty and ambiguity within the society. A high Uncertainty Avoidance ranking indicates the country has a low tolerance for uncertainty and ambiguity. This creates a rule-oriented society that institutes laws, rules, regulations, and controls in order to reduce the amount of uncertainty. A low Uncertainty Avoidance ranking indicates the country has less concern about ambiguity and uncertainty and has more tolerance for a variety of opinions.

5) Long-Term Orientation focuses on the degree the society embraces, or does not embrace long-term devotion to traditional, forward thinking values. High Long-Term Orientation ranking indicates the country prescribes to the values of long-term commitments and respect for tradition. A low Long-Term Orientation ranking indicates the country does not reinforce the concept of long-term, traditional orientation.

Kogut and Singh (1988) developed a composite index of cultural distance based on the first four dimensions of Hofstede's (1980) framework. Many studies have subsequently used Kogut and Singh's (1988) index, or an adapted version, as a measure of cultural distance (e.g., Agarwal, 1994; Barkema et al., 1996; Morosini et al., 1998; Padmanabhan and Cho, 1996; Park and Ungson, 1997; Luo and Park, 2004).

b) National cultural distance-performance relationship:

Hofstede (1991) has shown that individuals living in a particular country tend to share similar values, and that they bring these values to the firms for which they work. Hence a firm's values are largely a reflection of its national culture. IJV partners based in different countries will therefore tend to have different values. These differences in values will in turn make it difficult for IJV partners to agree on common goals, solutions to problems, and resolution to conflicts than if they came from the same country.

Prior research has provided mixed empirical evidence regarding the specific influence of cultural distance on IJV performance (Brouthers and Brouthers, 2001). Some researchers found that differences in national culture caused conflicts and barriers (Lane and Beamish, 1990; Sim and Ali, 2000). According to Nielsen (2002a), at least four interrelated negative effects of cultural distance on IJV performance can be identified: (1) cultural distance can lead to communication problems, which may hinder knowledge exchange and inter-organizational learning; (2) it can cause managerial conflicts due to misunderstandings, which may lead to additional costs; (3) it can influence partner firm approaches to conflict resolution, which may adversely impact operations; and (4) it can erode applicability of certain partner competencies, which may decrease the potential benefits from cooperation (Park and Ungson, 1997; Parkhe, 1991). Sirmon and Lane (2004) stated that cultural differences stemming from national cultures inhibit the IJV partners' employees' ability to interact effectively. As national culture influences behavior and management systems, it thus has the potential to destabilize IJVs. Parkhe (1991) argued that partners' cultural differences in national aspects (e.g., in perception and interpretation of phenomena) contributed to the instability of IJVs. Makino and Beamish (1998) suggested that IJVs between partners with similar national cultures should experience higher survival rates and performance levels than IJVs between partners with dissimilar cultures.

There is also evidence to suggest that differences in national culture can be beneficial. Some researchers found that differences in national culture were a source of admiration and challenge, leading to a higher level of communication and more sustained collaboration (Park and Ungson, 1997; Shenkar and Zeira, 1992; Luo et al., 2001b). For instance, Barkema and Vermeulen (1997) found that distance in national culture was positively related to IJV survival. This is supported by Barkema et al. (1997) who also found cultural distance to be significantly related to IJV survival. Managers tend to spend much effort on avoiding misunderstandings in international alliances than they would in domestic alliances, where sharing the same national culture leads to high-level

communication and a sustained collaboration (Shenkar and Zeira, 1992; Park and Ungson, 1997). Thus, sometimes, increased differences in national culture can lead to higher IJV performance (Morosini et al., 1998). Differences in national culture may also affect the ability of firms to learn how to operate with a foreign partner in the IJV (Barkema and Vermeulen, 1997) and may enhance the firm's learning capabilities (Makhija and Ganesh, 1997). In another research, Park and Ungson (1997) hypothesized that greater the differences between IJV partners' national cultures, the lower the longevity of the IJV, but found instead the reverse. The study by Orr and Levitt (2004) is also in line with those studies which imply that differences in national culture might actually enhance performance, if only very slightly (Hu and Chen, 1996; Park and Ungson, 1997; Morosini et al., 1998).

Other researchers like Beamish (1985) and Glaister and Buckley (1999) found no relation between the two variables. Alternatively, Franko (1971) found little impact of dissimilarities in national cultures on the stability of IJVs. Fey and Beamish (2001) reported that the differences between IJV partners' national cultures did not affect the performance of the IJV. Tihanyi et al.'s (2005) analysis failed to provide statistical evidence of significant relationships between national culture and IJV performance.

Empirical findings are inconsistent due in part to the methodological and theoretical confusion related to the constructs used to measure differences in national culture (Shenkar, 2001).

c) Organizational cultural distance:

Because organizations are, in many ways, embedded in the larger society in which they exist, research on cultural differences of cross-national businesses should examine both national and organizational cultures. But with few exceptions (Hofstede et al., 1990; Newman and Nollen, 1996; Weber et al., 1996), past studies have not been concerned with cultural distance at both levels.

Although some researchers (Pratt et al., 1993; Erez and Gati, 2004) may think that organizational culture is nested in national culture, most researchers (Hofstede et al., 1990; Newman and Nollen, 1996; Weber et al., 1996; Makhija and Ganesh, 1997; Pothukuchi et al., 2002) regard national and organizational cultures as separate constructs with variable attitudinal and behavioral correlates.

Schein (1992) defines the culture of a group as:

> "*A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.*

Hofstede (1991) defines organizational culture as "*The collective programming of the mind which distinguishes the members of one human group from another"*.

Organizational culture consists of shared assumptions and values that shape members' behaviors and help them understand the organization. Organizational culture differences differentiate partners based on their management practices, which are deemed essential for the functioning of their respective organizations. Differences in practices represent conflicting expectations and incompatible organizational processes. Partners with dissimilar organizational cultures may expend time and energy to establish managerial practices and routines to facilitate interaction, and may incur higher costs and more mistrust than culturally similar partners (Park and Ungson, 1997).

Whereas national culture relates primarily to deep-seated values, organizational culture relates primarily to shared beliefs in organizational practices and processes (Hofstede et al., 1990). JV research has focused primarily on the influence of national cultural distance and has not adequately examined the role of organizational cultural distance. Harrigan (1988) notes: "…comments from interviewed managers lead me to suspect that cultural homogeneity among sponsors is more important to venture success than symmetry in their national

origins." Hofstede (1991) focuses instead on the practices in organization, as he argues that the *values* of founders and key leaders become the *practices* of the members. Hofstede's (1991) research has shown that organizational cultures differ mainly at the levels of symbols, heroes and rituals, together labeled *practices*; national cultures mostly differ at the deeper level, the level of values.

Hofstede et al. (1990) asserted that organizational culture is best measured by organizational practices instead of more abstract assumptions and values. In their study of 10 companies in Denmark and the Netherlands, Hofstede et al. (1990) found six practices that could be used to measure organizational culture. Hofstede et al. (1990) empirically found six independent dimensions that describe the numerous organizational practices, such as process oriented versus results oriented; employee oriented versus job oriented; parochial versus professional; open system versus closed system; loose control versus tight control and normative versus pragmatic. The organizational culture dimensions outlined in these six practices identify managerial tendencies in an organization, typified by a set of desirable and expected behaviors (Hofstede, 1998).

1) Process oriented vs. results oriented: This dimension confronts a process oriented orientation with a results orientation. In a process oriented culture, employees tend to avoid uncertainty. In a results oriented culture, on the other hand, people are used to situations where uncertainty occurs and they view this as a challenge.

2) Employee oriented vs. job oriented: A concern for employees (employee oriented, consideration of the employees' feelings, thoughts and problems) is compared with a concern for completing the work (job oriented, strong pressure for employees to complete their job).

3) Organization bound vs. professional (Professional versus parochial): This is obvious when people feel the organizational norms cover their behavior at home as at work. A professional culture is one in which "people identify with their type of job", compared to a parochial culture in which "employees derive their identity largely from the organization".

4) Open system vs. closed system: An open systems company welcomes beginners. Almost everybody would fit. In a closed system only very special people fit into the organization and new employees need a long time to accommodate. This refers to the perceived communication climate within the organization, with a closed system culture being seen as "closed and secretive", and an open system seen as "open to newcomers and outsiders".

5) Loose control vs. tight control: The control dimension refers to the degree of internal structuring in the organization. In units with loose control hardly anybody thinks of costs and to be punctual is not a virtue. In a tight control unit, employees emphasize cost-consciousness first and everybody has a strong sense for punctuality.

6) Normative vs. pragmatic: This dimension considers the popular notion of customer orientation. A normative organization emphasizes organizational procedures. Pragmatic in this case means market-driven. Customer satisfaction is more important than the procedure to reach this goal. "Pragmatic units are market-driven; normative units perceive their task towards the outside world (customers and clients) as the implementation of inviolable rules".

d) Organizational cultural distance-performance relationship:

Differences in organizational culture differentiate IJV partners based on their management practices, which are deemed essential for the functioning of their respective organizations. When organizations in an IJV differ in their practices, these differences may result in conflicting behaviors, leading to misunderstandings and interaction problems. Partners with dissimilar organizational cultures may expend time and energy to establish mutually agreeable managerial practices and routines to facilitate interaction, and may incur higher costs and more mistrust than partners with similar organizational cultures (Park and Ungson, 1997). Examining a large sample of IJVs, Pothukuchi et al. (2002) found that "the presumed negative effect from partner

dissimilarity on IJV performance originates more from differences in organizational culture than differences in national culture". Based on another study of alliances, Brown et al. (1989) concluded that large differences in partners' organizational cultures can have a significant negative influence on IJV performance.

Table 3.2 summarizes the findings in literature for cultural distance-performance relationship.

Table 3.2: Cultural distance-performance relationship

Study	Sample	Measurement scale	Finding	Performance measure
Hu and Chen (1996)	2442	CD approximated using country of origin as dummy variable.	Positive	Stability
Park and Ungson (1997)	137	CD calculated with Hofstede data using Kogut and Singh index.	Positive	Longevity
Sim and Ali (2000)	59	Percieved CD measured by survey questionnaire on 9 items.	Positive	Stability
Morosini et al. (1998)	52	CD calculated from Hofstede data using Kogut and Singh index.	Positive	Post acquisition performance
Nielsen (2002a)	118	1-7 Likert Scale	Positive	Relational equity, efficiency, financial performance, learning
Evans and Mavondo (2002)	102	CD calculated with Hofstede data using Kogut and Singh index.	Positive	Financial performance and strategic effectiveness
Ulijn et al. (2005)	12	Culture at national, corporate and professional levels (Difference perceived between partners)	Positive	Global appraisal of performance
Orr and Levitt (2004)	4500	Value distance, practice distance and leadership distance	Positive	Overall partner satisfaction level
Luo et al. (2001b)	295	Respondents' assessment in 5 point Likert scale	Positive	Multidimensional
Barkema and Vermeulen (1997)	828	CD calculated with Hofstede data using Kogut and Singh index, and Euclidean index.	Negative	Longevity
Barkema et al. (1997)	244	CD calculated from Hofstede data using Kogut and Singh index.	Negative	Longevity
Lasserre (1999)	98	Percieved CD measured on 5 items	Negative	Manager's satisfaction with the IJV

Table 3.2: Cultural distance-performance relationship (continued)

Study	Sample	Measurement scale	Finding	Performance measure
Hanvanich et al. (2003)	636	CD calculated with Hofstede data using Kogut and Singh index.	Negative	Cumulative abnormal stock returns
Antia et al. (2005)	361	CD calculated with Hofstede data using Kogut and Singh index.	Negative	Firm valuation (market capitalization)
Mjoen and Tallman (1997)	102	Respondents' assessment in 6 point Likert scale	Negative	Perceptive measures on profitability, met objectives, satisfaction
Fey and Beamish (2001)	40	CD calculated with Hofstede data using Kogut and Singh index.	Negative	Subjective assessment of overall performance
Hennart and Zeng (2002)	74	Dichotomous variable	Negative	Longevity
Mjoen and Tallman (1997)	102	Percieved CD measured by survey questionnaire on 7 items.	Not significant	Satisfaction, met objectives, profitable investment
Beamish and Kachra (2004)	1335	CD calculated with Hofstede data using Kogut and Singh index	Not significant	Performance
Luo (1997)	116	CD approximated using country status as a dummy variable.	Not significant	Financial Performance
Tihanyi et al. (2005)	66	CD calculated with Hofstede data using Kogut and Singh index	Not significant	Return on equity, return on investments, return on assets ans survey-based measures of performance
Glaister and Buckley (1998)	75	Dichotomous	Not significant	UK parent's subjective level of satisfaction, survival, duration, stability
Pothukuchi et al. (2002)	127	CD calculated with Hofstede data using Kogut and Singh index Organizational cultural distance calculated with Hofstede data	Not significant Negative	Efficiency, competitiveness, satisfaction

3.3.3. Inter-partner relations

Extant literature has focused on commitment, collaboration, communication, trust, and conflict resolution as the important attributes of alliance relationships. The soft dimension of JVs labeled "inter-partner relations" is comprised of factors such as inter-partner cooperation, inter-partner trust, and long-term reciprocal behaviour (Demirbag and Mirza, 2000). The nature of the relationship (conflictual or cooperative, commitment or its absence) is likely to affect JV operations (Buckley and Casson, 1988; Parkhe 1991, 1993). Anderson (1990) argued that inter-partner relations can be treated as a long-term performance dimension.

Following paragraphs discuss several dimensions in inter-partner relations and their importance for IJV success.

3.3.3.1. Previous cooperation

The desire and willingness to expend resources in the development of long-term relationships is closely linked to a firm's prior experiences with that partner and the extent to which positive or negative expectancies have been fulfilled (Larson, 1992 cited in Luo, 2002). Experience earned from prior engagement serves as evidence to justify subsequent risky steps beyond the accumulated evidence (Das and Teng, 1998). In addition, prior relationships indicate a history of repeated interaction, which may lead to relational advantages and stability. Previous contact between partners also leads to the development of specialized skills and routines adapted to the exchange. These include specific knowledge about the structure and operation of the partner organization as well as familiarity with its executives and managers (Shenkar and Zeira, 1992). Previous cooperation also fosters a climate of openness that is essential for discussing behavioral problems that may be a barrier to learning (Doz, 1996).

3.3.3.2. Cooperation

Cooperation is the key dimension of the IJV relationship. Understanding the nature and scope of cooperation is essential in analyzing the operation and success of an alliance. Cooperation is a proxy for commitment, trust, and synergy. A highly collaborative relationship provides the flexibility and adaptability necessary to overcome uncertainties, resolve conflicts and achieve mutually beneficial outcomes. Previous studies have demonstrated that cooperation is positively and linearly associated with these variables that enhance IJV performance (Parkhe, 1993).

Luo (2002) measured inter-party cooperation in the following nine areas: cooperation in deciding strategic objectives and goals for the IJV; being ready to give in on an issue to enable the IJV to achieve its goals, as stated in the contract; reaching a consensus in making strategic decisions; cooperation in distribution and execution of authority; cooperation in establishing managerial rules and policies for IJV activities; mutual consultation concerning strategic issues under uncertain conditions; cooperation in functional domains such as production, research and development, purchasing, marketing, human resources, and budgeting; cooperation in selecting the senior management of the IJV; and cooperation in implementing new plans for the production mix, R&D, or new market entry.

3.3.3.3. Commitment

Commitment can be described as the willingness of JV partners to exert effort on behalf of the JV relationship (Mohr and Spekman, 1994). There are four levels of commitment relevant to JVs: 1) commitment to international business; 2) commitment to JV success; 3) commitment to the particular JV; and 4) commitment the particular JV partner. Commitment is necessary for success and is required at each step in the process. Commitment is required to overcome initial uncertainties associated with a new country or partner (Beamish, 1988).

Committed partners will consider long-term gains rather than short-term advantages. Partners that are committed to the IJV work harder to prevent differences affecting the performance. They are interested in creating and maintaining a good relationship with their partner and thus less likely to let differences in functional approaches result in conflicts and negatively affect IJV performance.

Committed partners are likely to be more cooperative, communicative, and flexible in accommodating conflict issues. When parties are committed to the relationship, cooperation evolves from "commitment to cooperation in its own right" (Buckley and Casson, 1988).

3.3.3.4. Communication

In order to achieve the benefits of collaboration, effective communication between partners is essential (Cummings, 1984). Effective communication between is crucial for JV management at least for two reasons (Doz, 1996). First, parents do not usually start their collaboration with a full understanding of each other's goals, capabilities, and behaviors; these are revealed when the JV starts operating. Failure by parents to quickly learn about each other may lead to misunderstandings and suspicion, and eventually to lower commitment, poor economic results, and dissolution (Doz, 1996; Shenkar and Zeira, 1992). Communication helps with the sharing and dissemination of individual experiences (Inkpen, 1996).

3.3.3.5. Conflict resolution

Building on Hebert's (1994) definition, Fey and Beamish (1999) define IJV conflict as the interaction between IJV partners, where the actions of one partner prevent or compel some outcome against the resistance of another partner. Beginning with early IJV research, IJV scholars such as Harrigan (1985), Killing (1983), and Reynolds (1984) have suggested that extensive conflict negatively

affects IJV performance. Anderson (1990) argues that it is difficult to imagine a venture that enjoys lasting success if partners are suspicious and conflicting since conflict among partners tends to cause frustration and unpleasantness which in turn results in dissatisfaction.

Conflict between the partners can indicate disagreement over goals, operational and managerial expectations, send confusing signals to the IJV managers and employees, and thereby hamper performance levels (Yan and Gray, 2001b). Such circumstances may also limit an IJV's ability to respond to environmental changes and, thus, to be successful (Hebert, 1994). Conflict may also result in the unwillingness of parent firms to contribute resources that the IJV needs to achieve its goals (Killing, 1983).

3.3.3.6. Trust

Trust is an important component of IJV performance because it provides for greater adaptability in an IJV, as well as improves knowledge exchange, a key component of organizational learning and IJV success (Dodgson, 1996; Das and Teng, 1998). The need for trust between partners in a JV has been identified as an important element of a long-term JV relationship (Parkhe, 1993). Trust provides parties the possibility of governing risks in transactions.

The literature suggests that one of the most critical factors determining alliance performance is the degree of trust between the partners (Park and Ungson, 1997; Das and Teng, 1998). Mohr and Puck (2005) suggest that trust can moderate the negative influence of functional diversity on JV performance. Their basic assumption is that one IJV partner trusts the other if the latter is perceived to stick to agreements (integrity); be interested in achieving both partners' objectives benevolence; and have the competences resources that are needed to do so (competence). Building on this conceptualization of trust they suggest that the existence of trust affects the relationship between functional diversity and IJV performance.

The trust-communication-commitment characteristics are truly integrated. By developing and maintaining an open communication system with the JV and with the partner, the parent is able to: 1) understand the JV's problems better and offer better solutions; 2) become aware of changes occurring in the JV business or in its partner's expectations; 3) keep in touch with its partner, hence showing commitment to the JV and contributing to a trust relationship (Beamish, 1988).

3.3.4. JV structural (managerial) factors

The managerial factors include ownership, JV decision-making structure, control exercised by partners and operational autonomy (Schaan, 1983; Killing, 1983; Beamish, 1984; Kogut, 1988; Geringer and Hebert, 1989; Blodgett, 1992), which may be labeled JV structural factors (Merchant, 2005).

3.3.4.1. Ownership

One of the most commonly reviewed variables so far has been the influence of the distribution of ownership in the IJV. According to Killing (1983) the dominance of one partner will increase stability, because effective control will enable the parent to manage the IJV as a wholly owned subsidiary, avoiding the managerial costs inherent in an IJV. However, Beamish (1985) and Blodgett (1992) argue that roughly equal equity shares will result in greater stability because the partners are equally committed to the JV and both partners possess roughly equal bargaining power. More positively, majority ownership can simplify the IJV control process (Killing, 1982).

3.3.4.2. Control

Control is defined as influence exercised by the parents over the management of the venture (Killing, 1983; Schaan, 1983; Beamish, 1985; Geringer and Hebert, 1989). The control that is partitioned between the parents thus represents the

relative influence of each parent on the management of the JV. Parent control over JVs may be defined in terms of the decision-making role of JV management. The exercise of managerial control has been one of the most important subjects in the IJV literature (Beamish, 1984; Parkhe, 1993) since Killing's (1983) in-depth study of the different types of parent control structures and their performance implications.

IJVs represent a voluntary cooperative relationship in which the participating firms are exposed to the risk of opportunism. Thus, how to design an appropriate control structure to reduce the risk becomes a critical factor affecting IJV survival and success (Killing, 1983; Mjoen and Tallman, 1997; Parkhe, 1993; Yan and Gray, 1994). An appropriate control structure allows the partner firms to integrate the IJV's activities with their overall strategies and activities and protects against the loss of the venture's competitive advantage to the partner or other competitors (Geringer and Hebert, 1989). As compared with controlling a single business venture, controlling an IJV involves an obvious, extra dimension of complexity because the behaviors of the IJVs and the partners' employees must be considered in choosing the set of controls to use.

a) Operationalization of control:

Geringer and Hebert (1989), building on earlier work by Schaan (1983), defined control as a multidimensional construct comprised of the mechanisms of control (equity ownership, representation in management bodies, technical superiority, and management skills, etc.); extent of control (whether one or more partners play an active role in decision-making); and focus of control (the scope of activities over which parents exercise control). These dimensions are complementary and interdependent (Hu and Chen, 1996).

Previous studies have only examined one or two of the three control dimensions: Tomlison (1970) on mechanisms; Franko (1971), Janger (1980) and Killing (1983) on extent; Geringer (1986) on scope and extent; and Schaan (1983) on

scope and mechanisms. Yan and Gray (1994) found that parent control was exercised in three levels: strategic control at board of directors level; operational control at the JV's general management level; and structural control imposed by the parents in forming the venture's organizational structure, processes and operating routines. A small number of JV researchers (Schaan, 1983; Beamish, 1985; Geringer, 1988; Geringer and Hebert, 1989; Yan and Gray, 2001b; Yan and Child, 2002; Choi and Beamish, 2004) have reported the phenomenon of split control JVs, sometimes even considering it from different perspectives or with slightly different terminology.

b) Control-performance relationship:

The issue of control is one of the most tested determinants of performance in the research on JVs. However, with respect to the relationship between control and performance, research has produced highly conflicting results (Yan and Gray, 2001b). For example, Osland and Cavusgil (1996), Ding (1997), Calantone and Zhao (2000), Yan (2000) and Luo et al. (2001) found results supporting the argument for one-partner-dominant IJVs, whereas Beamish (1993) and Yan and Gray (1994, 1996) found evidence supporting the shared management argument. Some JV scholars have suggested that MNEs should secure dominant control of the JV's management when engaging in JV with local emerging market partner (Ding, 1997; Mjoen and Tallman, 1997; Yan and Gray, 2001b). Killing (1983) reported a positive association between foreign parent control over IJV and stability in developed countries whereas Blodgett (1992) reported a positive association between foreign parent dominance and IJV instability.

In Luo's (2001) study, management control was measured by three dimensions (strategic control, operational control and structural control). The statistical results revealed that there was a positive correlation between overall control and JV performance. The hypothesized relationships in Yan and Gray's (2001b) study between strategic and structural control and achievement of partner goals were not significant. In particular, the results suggest that greater operational

control exercised by a partner is associated only with a higher level of achievement of *this* partner's strategic objectives, and the division of control is not necessarily related to the IJV's overall success, as previous research has suggested (Killing, 1983).

Choi and Beamish (2004) found that JVs following the split control management performed better than any other approach. No performance differences were found among the remaining three types of management control. This suggests that MNEs and local partners should split control that is, choose the activities to control so that those chosen activities can be matched with their respective firm-specific advantages.

A major factor that has contributed to the empirical inconsistency is the lack of correspondence between theory building and theory testing (Yan and Gray, 2001b). Since both control and performance are multidimensional constructs (Geringer and Hebert, 1989), a wide array of definitions and measures has been available to researchers. It is not surprising, then, that this scattershot approach has produced inconsistent findings. Taken as a whole, the mixed findings above suggest that the relationship between control and performance in IJVs remains open to further investigation (Hu and Chen, 1996).

Table 3.3 summarizes the findings in literature for control-performance relationship.

Table 3.3: Control-performance relationship

Study	Sample	Measurement scale	Finding	Performance measure
Luo (2001)	97	Focus of control	Positive	Satisfaction by partners, annual profit rate, government satisfaction
Mjoen and Tallman (1997)	102	Focus of control	Positive	Multidimensional (perceptive measures on profitability, met objectives, satisfaction)
Janger (1980)	168	Extent of control	Not significant	Stability
Child and Yan (2003)	67	Extent of control	Not significant	Achievement of parent company goals, economic system performance
Killing (1983)	36	Extent of control	Dominant control increases performance	Stability
Yan and Gray (2001b)	90	Extent of control	Dominant control increases performance	Achievement of partner's strategic objectives
Beamish (1985)	66	Extent of control	Dominant control decreases performance	Stability, managerial satisfaction
Tomlinson (1970)	71	Extent of control	Dominant control decreases performance	Profitability
Choi and Beamish (2004)	71	Extent of control	Split control increases performance	Overall satisfaction with IJV
Yan and Gray (1994)	4	Extent of control	Shared control increases performance	Achievement of strategic objectives
Osland and Cavusgil (1996)	8	Extent of control	Shared control increases performance	Profitability and satisfaction

3.3.4.3. Number of partners

Most studies on IJVs have focused on those formed between local and home country firms, where the underlying assumption has been that a JV involves only two-partner firms. Although this structure dominates, many firms enter into partnerships that involve three, four, and five or more firms (Beamish and Kachra, 2004). Clearly, involving more partners in a JV also has the potential to increase the variety of resources and capabilities available to the JV. It is an empirical as much as a theoretical question whether the potential benefits of better resources offset the costs of managing such a complex organizational form. Managing a JV is bound to be more difficult the larger the number of parents because more parents mean higher coordination costs and greater likelihood of conflicts (Hennart and Zeng, 2002).

Hu and Chen (1996) and Park and Russo (1996) specifically examined the impact of the number of partners on performance and survival. Both found a positive relationship. Beamish and Kachra (2004) found no significant relationship between number of partners in an IJV and IJV performance on a sample of 1335 Japanese JVs in 73 countries, not including Japan.

3.3.4.4. Contract

An IJV contract provides a legally bound, institutional framework in which each party's rights, duties, and responsibilities are codified and the goals, policies, and strategies underlying the anticipated IJV are specified. In a typical IJV contract, there are four categories of terms: terms of IJV formation such as its goals, capitalization, and forms of contribution, project construction, and composition of board; terms of IJV operations and management such as product development, technological transfer, marketing, human resources management, accounting, and finance; terms of IJV cooperation such as the responsibilities of each party, duties of managers, profit sharing, liabilities for breach of contract, and dispute

settlement; and terms concerning IJV termination such as its renewal, alterations, disposal of assets, and JV liquidation or dissolution (Luo, 2002).

Most of the researches on JVs have concluded that a good JV agreement is an essential success factor and can avoid a great deal of trouble and conflict in future JV operations (Bing and Tiong, 1999). A good JV agreement must be drafted in clear terms and conditions that can be easily understood by all partners as well as the working staff, and each partner's authority and responsibility in the JV must be clearly understood. Basically, a JV should be established based on mutual trust and understanding, but the agreement must be more concrete and precise regarding liability (Bing and Tiong, 1999).

3.3.5. Host country-related factors

All international businesses are exposed to host government-related risks to a certain extent. Factors such as cultural distance, political risk, and industry-specific conditions (Park and Ungson, 1997) can be labeled institutional factors which influence the IJV performance. Root (1994 cited in Mohamed, 2003) argues that instability associated with changes in host government policies towards foreign investment can directly affect business operations. Local laws regarding foreign investment can affect a JV agreement. For example, many jurisdictions prohibit complete foreign ownership giving rise to difficulties if the local partner should pull out. Other jurisdictions may require that local personnel be placed in some or all management positions. Also, lack of appropriate legislation and frequent changes in current economic policies and commercial laws can negatively affect the JV's performance (Mohamed, 2003).

3.3.5.1. Host country risk

The environment under which JVs operate was found to influence performance. This may encompass the host country political system, economic development, legal system, national culture, and government policy towards foreign

investment (Hamel, 1991; Inkpen, 1992). Indeed, one of the principal market characteristics frequently cited as influencing IJV performance is the policies of host country governments. Frequently, when a developing country is involved, government pressure may lead a foreign corporation to take on a local partner (Yan and Gray, 1994). The host country government may also exercise influence over the choice of suppliers and over marketing, once the venture is established (Osland, 1994). Or it may impose exchange controls, which can have an important impact on an IJV's reinvestment, financing, and repatriation decisions (Beamish, 1993; Yan and Gray, 1994). As a result, laws or pressure from the host government can play a significant role in the marketing performance of the IJV.

3.3.5.2. Psychic distance

Makino and Beamish (1998) classified JVs into four ownership structures: intra-firm (e.g. JVs formed between affiliated home-country firms), cross-national (e.g. unaffiliated home-country firms), traditional (e.g. home-country and host-country based firms), and tri-national (home country and third-country based firms). In this research, the typology includes IJVs within the home country as well as IJVs outside the home country.

Hanvanich et al. (2003) adopted a JV ownership structure that takes into account not only the effect of having partner nationality differences (partner cultural differences) but also the effect of having JV operating in foreign country (location cultural differences), or both. This approach provides more profound insights into the impact of cultural difference on IJV performance.

As researchers have theorized, MNEs doing business abroad face additional costs arising from unfamiliarity of the local environment (e.g. cultural, legal, political and economic differences) (Hymer, 1976 cited in Hanvanich et al., 2003). In the context of JVs, a firm is expected to incur fewer costs and enhance

shareholder value if the JV is located in its home country than if it is located abroad.

Cultural distance is often treated as synonymous with psychic distance. Vahlne and Wiedersheim-Paul (1973 cited in Evans and Mavondo, 2002) defined psychic distance in terms of factors that prevent or disturb the flow of information between suppliers and customers. Nordstrom and Vahlne (1994) subsequently redefined psychic distance as "factors preventing or disturbing firm's learning about and understanding a foreign environment". In contrast, O'Grady and Lane (1996) define psychic distance as "...a firm's degree of uncertainty about a foreign market resulting from cultural differences and other business difficulties that present barriers to learning about the market and operating there".

Evans and Mavondo (2002) suggest that the true explanatory power of psychic distance can only be revealed when the individual elements are fully measured. These include language, business practices, political and legal systems, economic environment, industry structure, and national culture (Lee, 1998; Nordstrom and Vahlne, 1994). It is proposed that psychic distance be defined as the distance between the home market and a foreign market, resulting from the perception of both cultural and business differences.

Despite the general acceptance of a negative relationship between psychic distance and organizational performance, empirical findings are rather inconclusive (Ali, 1995; O'Grady and Lane, 1996). Moreover, some support for a psychic distance paradox, where the perception of differences between the home and foreign markets actually enhances performance, has also been found (O'Grady and Lane, 1996). In Evans and Mavondo's (2002) study, results suggest that psychic distance explains a significant proportion of the variance in financial performance and strategic effectiveness (positively). Cultural distance and business distance do not have a significant effect on financial performance. Business distance was found to have a significant positive effect on strategic effectiveness.

CHAPTER 4

RESEARCH METHODOLOGY

4.1. ICJV performance framework

The complex structure of an IJV, although potentially it is difficult to manage, can provide a firm with the resources and capabilities necessary to operate successfully in its environment, which can lead to positive levels of performance (Beamish and Kachra, 2004). However, IJV performance is not only related to structure and the resources provided by the various partners, it is also related to how well partners meet the challenge of ensuring a good relationship (Das and Teng, 1998). Looking at the IJV as a system enables us to investigate the interactions, conflicts and other problems, which affect the success or the failure of the IJV as a management process (Buchel et al., 1998).

In order to model the performance of an ICJV, the indicators and determinants of performance should be clearly distinguished and identified. An effective performance management system depends on the performance metrics used to define the performance of the organization from a number of perspectives. It is very important to design those metrics so that they relate directly to the various perspectives that an organization decides to adopt (Kagioglou et al., 2001).

Below framework (Figure 4.1) consists of several factors affecting the performance of an ICJV operation that are originating from the overall system such as the partners, the IJV organization itself, the host country and the project under consideration. Determinants of performance are assumed to be inter-related and there are also causal relationships between the parameters. Moreover a 4-dimensional performance measure is defined in accordance with the multi-dimensionality of ICJV performance.

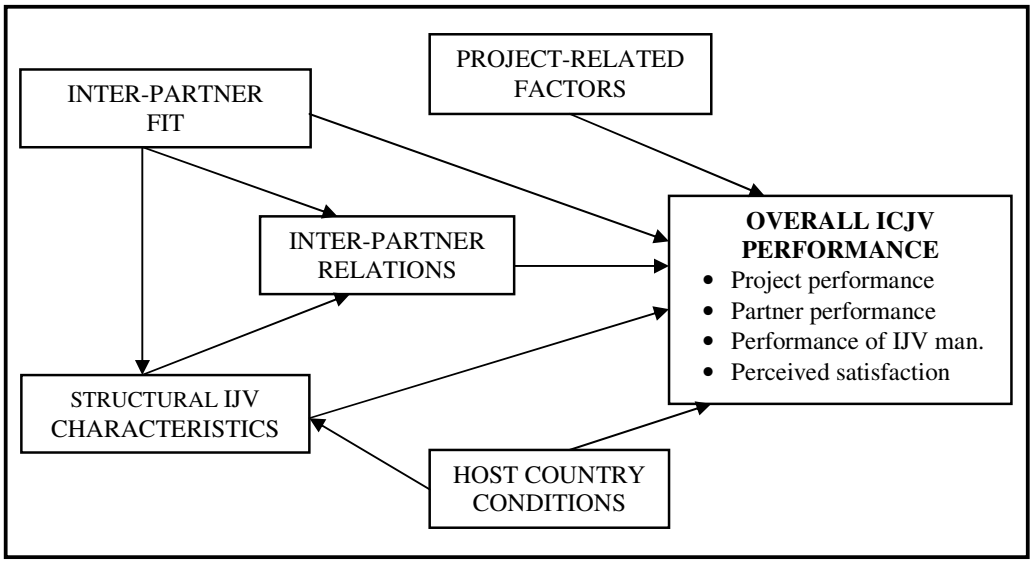


Figure 4.1: ICJV performance framework

The core concern of this research study is to investigate the ICJVs that Turkish companies have formed with their foreign partners and to explore the performance related issues in these JVs. Thus, appropriate performance measures have to be developed, the validity of these measures has to be tested and the direct and indirect influences of several variables on overall ICJV performance have to be examined. For this purpose, a questionnaire study has been designed details of which are presented in the forthcoming sections.

4.2. Administration of the questionnaires

Based on the framework presented in Figure 4.1, in order to test the hypothesized relations between the variables, a questionnaire has been designed. The questionnaire survey was administered through face-to-face interviews and via e-mail to the Turkish partners of IJVs. The projects were undertaken either in Turkey or in a foreign country. Considering the fact that medium-to-large companies are likely to undertake IJVs with more frequency compared to smaller firms, the target population was set as the members of the Turkish Contractors

Association (TCA). The number of IJV projects completed by Turkish construction companies with foreign partners in the last ten years is around 110 (TCA, 2005). A total of 68 completed questionnaires were returned for data analysis, 48 of which were administered through face-to-face interviews and 20 via e-mail. Thus, around 60% of the target population was covered in this study.

4.3. Assumptions of the questionnaire

Following are the assumptions made in this questionnaire:

- *"ICJVs" define the projects that are undertaken by a Turkish and a foreign parent operating in Turkey, by a Turkish and a foreign parent operating in the foreign partner's home country or by a Turkish and a foreign parent operating in a third country.*

  By this way, differences of companies from different countries and different cultural backgrounds can be easily observed. Moreover, the impact of the cultural similarity/difference between an IJV partner and the host country an also be assessed.

- *In order to measure the performance of an ICJV, only completed projects will be considered.*

  The performance model involves variables related to both pre-formation of an IJV and also factors related to how the IJV is operated, so only completed project could reveal the real performance level.

- *If the IJV has another Turkish parent, then this parent will <u>not be</u> assessed.*

  In order to keep consistency in the sample only foreign partners are taken into account.

- *If the IJV has more than one foreign parent, the one which has a closer relation with the Turkish partner will be assessed.*

Respondents are asked to focus on the closest partner to be able to provide reliable data.

- *If you have completed more than one project with your partner, it is necessary to evaluate each completed project.*

  The survey is project-based, since a different project would produce completely different conditions, each one is considered in data collection.

- *If you have undertaken projects with different foreign partners, it is necessary to evaluate each project and each partner.*

  Since project consequences would differ based on the partner, each project with each partner should be evaluated separately.

As mentioned before, the Turkish partners of the IJVs have participated in the questionnaire survey. In principle, collection of data from multiple respondents represents a more realistic measure of IJV performance, and by testing the assessment of one respondent against the opinions of others enhances the reliability and validity of subjective measures. Relatively few studies reported in the IJV literature address performance evaluation from the perspectives of both partner firms (Schaan, 1983; Osland and Cavusgil, 1996). The choice of one partner respondent is motivated by the difficulties in obtaining data from all partners due to logistical and cost barriers. Noting that equity JVs are organizations in which ownership and decision-making are shared, Geringer and Hebert (1991) hypothesized that one parent's evaluation of the other partner's or IJV manager's satisfaction regarding IJV performance would be positively correlated and they found that results did not differ substantially if one evaluates the satisfaction of one partner, both partners, or the IJV manager. Glaister and Buckley (1998) hypothesized a similar relation and found a positive and strong correlation between the UK partners' satisfaction of JV performance and the UK partners' perception of the foreign partners' satisfaction, and the UK partners' perception of the JV general managers' satisfaction. Drawing upon these

findings, having a single respondent for each IJV is assumed to be a proper approach and reflect correct information about the IJV.

4.4. Content of the questionnaire

The respondents are given a "Table of Contents" on which the subject headings are listed. A sample of the interview can be found in Appendix A. The interview has four main topics; the section in which the ICJV performance framework is presented was discussed in previous paragraphs. Other three sections are discussed in below paragraphs.

4.4.1. General information about the company and the project

Respondents are asked to give some information on their companies and the IJV project they have performed. The main goal of asking the company and project information was to generate a profile of the respondent companies and projects. The demographic information about the companies is gathered by seven questions about the number of years the companies have been in the construction sector, areas of expertise, first experience in international markets, the total turnover of domestic and overseas jobs undertaken so far, the frequency of venturing with foreign partners and diversity in international markets. Project-related questions mainly focus on the host country, partner firm, type, and duration of the project, and the management structure of the IJV organization. A total of 20 questions, seven of which correspond to company-related and thirteen of which belong to project-related issues, appear in this section of the questionnaire.

4.4.2. Performance indicators of ICJVs

The assessment of performance is related to the objectives under which a JV is formed (Beamish and Delios, 1997), however, the partners may have different

objectives as well as conflicting agendas. Consequently, measuring JV performance should be approached with due care, bearing in mind the objectives of forming the venture. Strategy development for an organization is one of the most fundamental management activities that provides a vision of where the organization wants to be in the short and long term future. It is inevitable, therefore, that any performance management system will need to have strategy as the main input, so that any results coming out of the system could be used to evaluate the extent to which the organization has met its strategic goals (Kagioglou et al., 2001).

Although there are studies that deal with performance measurement and management in construction (e.g., Kagioglou et al., 2001; Chan et al., 2004), these studies propose frameworks to measure either project or company performance. For example, balanced scorecard is a performance management system which incorporates four main measurement perspectives (customer perspective, internal business processes, learning and growth, and financial) to evaluate whether a business is moving towards its strategic goals (Gentia Software, 1998). On the other hand, key performance indicators for construction (Bprc, 1999) provide information on the range of performance being achieved on all construction activities including client service and product satisfaction, defects, cost and time predictability, profitability, productivity, safety, construction cost, and construction time. However, the assessment of the performance of an IJV in construction is more complex and requires a more structured, systematic, and comprehensive method. There are studies which propose several performance measures for IJVs in construction (e.g., Luo, 2001; Mohamed, 2003; Sillars and Kangari, 2004; Horii et al., 2005), but there is no complete definition yet.

Within the context of this research, a four-dimensional construct was proposed to measure IJV performance, defined in terms of (1) “project performance”, an objective indicator that measures the extent to which project objectives are realized in terms of schedule, cost, quality and client satisfaction, (2)

"performance of IJV management", a subjective indicator that measures the effectiveness of management control over the IJV as perceived by an IJV partner, (3) "partner performance", a subjective indicator that measures the extent to which an IJV partner's preset objectives are realized, and (4) "perceived satisfaction with IJV", a subjective indicator that measures the performance of the IJV as perceived by an IJV partner.

4.4.2.1. Project performance

Although some companies may cooperate with the same partner in several projects, JVs in construction industry are considered to be project-based rather than a continuous collaboration. So, the operational success of a JV in the construction industry should also be defined in terms of project success. Project performance is defined as the extent the predefined project objectives are realized. Most commonly cited project goals are related to time, budget, and functionality/quality considerations (Handa and Adas, 1996) in addition to satisfaction of the clients (Ashley et al., 1987). Within this research, it is measured in terms of achieving project targets such as completion of the project in time, within budget, under predefined quality requirements and satisfying the client. In the survey, respondents are asked to evaluate the importance level of project targets in terms of ICJV performance and the extent they are realized in 1-5 point Likert scale.

4.4.2.2. Partner performance

The assessment of performance is related to the objectives of an IJV (Beamish and Delios, 1997). Besides fulfilling financial or operational objectives, a company may get involved in an IJV for a number of additional motives such as to enhance organizational learning (Kogut, 1988), to improve the strategic positioning of the company, or to gain presence in new markets (Contractor and Lorange, 1988; Tatoglu and Glaister, 1998). Construction companies have

several motives to form IJVs, such as participating in overseas projects, maintaining an overseas presence particularly when the market is low in the home country, spreading financial risk, bringing in outside expertise, making use of existing geographical or regional base, and accessing greater manpower from their partners (Norwood and Mansfield, 1999). Partner performance measures the extent to which the preset organizational objectives of a company are realized as a result of a project undertaken through an IJV. In this study, the major objectives of a construction company when forming an IJV consist of sharing risks, sharing resources, reducing costs, enhancing competitiveness, entering international markets, and learning managerial and technical skills from the partners. In the survey, respondents are asked to evaluate the importance level of the listed objectives in terms of ICJV performance and the extent they are realized in 1-5 point Likert scale.

4.4.2.3. Performance of IJV management

While "project performance" measures the success of the IJV operation at the project level, and "partner performance" at partner company level, "performance of IJV management" measures the success of the IJV operation at the centralized IJV level. "Performance of IJV management" can be defined by the effectiveness of control over the IJV operation. Control is defined as the influence exercised by the IJV partners over the management of the IJV (Killing, 1983; Schaan, 1983; Beamish, 1985; Geringer and Hebert, 1989). Since control is a multidimensional construct (Geringer and Hebert, 1989), a wide array of definitions and measures are available to researchers, such as those proposed by Schaan (1983), Geringer and Hebert (1989), and Merchant (1998). Yan and Gray (1994) defined the scope of management control in terms of strategic, operational, and structural dimensions. Adopting a similar approach, "performance of IJV management" was measured in this study by the level of effectiveness of management control in terms of strategic control at board of directors level, operational control at general management level, and

organizational control imposed by the partners in forming the venture's organizational structure, processes and operating routines. In the survey, respondents are asked to evaluate the level of effectiveness of strategic, operational, and organizational control in 1-5 point Likert scale.

4.4.2.4. Perceived satisfaction

A partner's satisfaction with the overall performance of the IJV is one of the most frequently used subjective measures of IJV performance (Killing, 1983; Geringer and Hebert, 1991; Parkhe, 1993; Lasserre, 1999; Demirbag and Mirza, 2000; Fey and Beamish, 2001; Choi and Beamish, 2004). The main advantage of subjective indicators based on respondents' perceptions is their ability to provide information regarding the extent to which the IJV has achieved its overall objectives (including financial, survival, or expansion objectives, or any objective as the case may be). The perceived satisfaction with IJV of an IJV partner with the IJV is a subjective measure that was used in this study as one of the performance indicators.

In addition to measuring the realized organizational and project objectives, a subjective indicator is also considered to reflect the perceptions of company representatives about the JVs. Overall satisfaction is the last indicator of an ICJV performance, which defines the degree of satisfaction of the parents with the JV and which is believed to provide a general idea about the success of the partnership beyond all financial and objective criteria. In the survey, respondents are asked the extent of satisfaction with their ICJV in 1-5 point Likert scale.

The proposed multidimensional performance construct is supposed to reflect all the aspects of an ICJV, including the company objectives, project targets and degree of satisfaction, all of which may be considered as success indicators that measure the performance of an ICJV in each stage of the JV organization such as pre-formation, operation and termination.

4.4.3. Performance determinants of ICJVs

Factors that are proposed to determine the level of ICJV performance are grouped under five categories namely, "inter-partner fit", "inter-partner relations", "JV structural factors", "host country conditions", and "project conditions".

4.4.3.1. Inter-partner fit

According to previous studies, the factors that affect inter-partner fit commonly include strategic fit, resource fit, operational fit, organizational fit, and cultural fit (Luo, 1998; Das and Teng, 1999; Morris and Cadogan, 2001; Yan and Duan, 2003; Ulijn et al., 2005). But of course, depending on the assumption made in each individual study, there is some overlap between these dimensions. In this study, "inter-partner fit" is defined by three dimensions, namely strategic and organizational fit, national culture fit, and organizational culture fit that cover all factors mentioned in the literature without overlap.

a) Strategic and organizational fit: The strategic orientation of a partner firm is important to IJV success because how well it matches that of its partner(s)' influences inter-partner consistency in terms of strategic goals and behaviors, cooperative culture, managerial philosophy, innovativeness, and long-term orientation, which may in turn influence mutual trust, commitment and collaboration between parties (Parkhe, 1991). In this study, "strategic fit" consists of complementarity/compatibility of partners' financial capabilities, company size, management systems, national/international workload, goal congruency between IJV partners, previous experience in the host country, previous experience with similar projects, adequacy of management skills, technical skills and human resources, and quality of relationship with the client.

- ***Financial capability*** of partner firms is critical since a partner's profitability directly influences its ability to make a capital contribution,

fulfill financial commitments, and dispense financial resources in the operation of the IJV.

- ***Partner size*** may be a significant determinant of IJV performance (Hennart et al,. 1998; Pan and Chi, 1999; Smith at al., 1989; Merchant, 2000; Pan and Li, 2000). The literature suggests that asymmetry in partners' firm size has negative effects on the stability of a JV (Geringer, 1988; Harrigan, 1988; Killing, 1983; Gomes-Casseres, 1990). Indeed, Geringer (1988) and Killing (1983) argued that a venture between a small firm and a giant firm suffered from mismatches in strategic mission, corporate culture, and level of bureaucracy and would be incompatible. But Kogut (1988) did not find consistent evidence to support this view and Harrigan (1988) found only a weak relationship between size asymmetry and JV performance. Park and Ungson (1997) found that size differential did not affect the duration and the prospect of JV dissolution.

- ***Similarity between partners' management systems*** is another important determinant of IJV performance (Beamish, 1984; Killing, 1983). Differences in partners' management styles can result in conflict; nonresolution of such conflicts can eventually affect the performance of the JV (Sridharan, 1997).

- ***Partners' national/international workload*** may influence the effort and time they allocate to the IJV. A partner with extensive international spread tends to reduce its commitment to the IJV (Beamish, 1984), which in turn may affect IJV performance.

- ***Goal congruency between partners*** is a primary factor in IJV success (Inkpen and Currall, 1998; Tomlinson and Thompson, 1977; Tung, 1984). Conflict between partners that may result from goal incongruity can negatively affect performance (Fey and Beamish, 1999; Hebert, 1994; Mohr and Spekman, 1994). Hennart et al. (1998) have argued that inter-partner difference in goals may also increase the possibility of IJV dissolution.

- ***Complementarity of partners in terms of previous experience in host country*** is an important strategic asset since in this experiential process, foreign firms develop a general knowledge about the political, social, economic, and cultural aspects of the IJV location and specific knowledge about local business practices and local networks (Johanson and Vahlne, 1977). This acquired knowledge is expected to stimulate the trust and collaboration between partners. This effect is empirically supported by Beamish (1987), Luo (1997), and Shenkar (1990).

- ***Complementarity of partners in terms of previous project experience*** may be critical for IJV success. The partners' ability to acquire, learn, process, assimilate, integrate, deploy, and exploit an inflow of new knowledge and skills may depend on how these relate to the skills already established (Luo, 1997). As Gunhan and Arditi (2005) state, having a special expertise can be a major strength for a company operating in international markets.

- ***Compatibility of partners' managerial skills, technical skills, and human resources*** is important in that it allows a firm to complete a project successfully. Compatible management skills not only enable partners to operate the IJV effectively but also help them maintain good relations with other project participants. Compatible technical skills are required to smoothly mitigate possible project risks that may lead to cost, time and quality problems. Finally, human resources reflect the blending of partners' cultures and management styles, and as such affect the IJV's job design, recruitment and staffing, orientation and training, performance appraisal, compensation and benefits, career development, and labor-management relations (Luo, 1998).

- ***The quality of partners' relationship with the client*** is also a good indicator of strategic fit. Since client satisfaction is an important indicator of performance, strong relations with the client are useful in dealing with client-related issues.

b) National culture fit: Cultural distance has received a great deal of attention in the international business literature (Kogut and Singh, 1988; Barkema et al., 1997; Park and Ungson, 1997; Morosini et al., 1998; O'Grady and Lane, 1996; Evans and Mavondo, 2002). There is no one single definition which encapsulates the term 'culture' wholly. It has been referred to as a set of shared experiences, understandings, and meanings among members of a group, an organization, a community, or a nation (Hofstede, 1991; Mead, 1998). Culture is also that complex whole which includes knowledge, beliefs, arts, morals, customs and any other capabilities and habits acquired by men and women as members of a society (Low and Leong, 2000). Culture is an ingrained behavioral influence which affects the way collective groups approach, evaluate, and negotiate opportunities for international business. Culture has been identified as a key factor in explaining foreign market attractiveness, expansion patterns, the degree of adaptation of marketing and retailing strategies, modes of entry and organizational performance (Evans, 2000). The topics relating to the impact of culture on strategic alliances span a number of areas such as organizational and national cultures. But as described in the next section, the findings of the studies that investigated the relationship between IJV performance and the similarity in national and organizational culture as well as similarity between IJV and host country culture have so far been contradictory.

Hofstede (1991) developed a pioneering and widely accepted classification scheme which breaks national culture into the dimensions of power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity, and long-term orientation.

- ***Power distance*** focuses on the degree of equality or inequality between people in a country's society. It measures inequalities in income distribution and the opportunities provided to people.
- ***Individualism-collectivism*** focuses on the degree the society reinforces individual or collective achievement and interpersonal relationship.

- ***Masculinity-femininity*** focuses on the degree the society reinforces the traditional masculine work role model of male achievement, control, and power.
- ***Uncertainty avoidance*** focuses on the level of tolerance for uncertainty and ambiguity within the society, the extent to which rules are obeyed and risks are avoided.
- ***Long-term orientation*** focuses on the degree the society embraces long-term devotion to traditional, forward thinking values.

Kogut and Singh (1988) developed a composite index of cultural distance based on the first four dimensions of Hofstede's (1980) framework. Many studies have subsequently used Kogut and Singh's (1988) index, or an adapted version, as a measure of cultural distance (e.g., Agarwal, 1994; Barkema et al., 1996; Morosini et al., 1998; Padmanabhan and Cho, 1996; Park and Ungson, 1997; Luo and Park, 2004). However the use of a composite index has been questioned due to the contradictory findings associated with cultural distance. According to Barkema et al. (1997), culture is a complex phenomenon and embodies a host of values, beliefs, and norms, many of which are subtle, intangible, and difficult to measure. Consequently, the interpretation of culture as a unidimensional aggregate phenomenon, although popular in the foreign trade literature, oversimplifies the complex construct and may explain the mixed results studies have yielded regarding the impact of cultural distance on foreign expansion. It is not the simple presence of environmental factors which determines the distance between cultures. Rather, it is the individual's perception and understanding of the differences between the individual's culture and a foreign culture that forms the basis of cultural distance (Evans et al., 2000; O'Grady and Lane, 1996).

In this study, the subjective perceptions of respondents were utilized to overcome the limitations of the cultural distance index developed by Kogut and Singh (1988). All five of the Hofstede (1980; 1991) dimensions were used in this study

to measure how similar/different the IJV partners are in terms of their national cultures.

c) Organizational culture fit: Managing an IJV involves handling the differences in national and organizational culture. Differences in the organizational cultures of two IJV partners are manageable, since a firm's organizational culture can always be modified. But the national culture is a given fact and is ingrained in a firm's practices as well as individuals' behavior.

Hofstede et al.'s (1990) organizational culture dimensions were adopted in this study to measure the similarities of the partner companies in an IJV in terms of their organizational cultures. Hofstede et al. (1990) asserted that organizational culture is best measured by organizational practices instead of more abstract assumptions and values. Hofstede et al. (1990) empirically found six independent dimensions that describe the numerous organizational practices.

- ***Process-oriented vs. results-oriented culture*** is related to the risk attitude of organizations. Employees of a process-oriented culture tend to avoid uncertainty; whereas people belonging to a results-oriented culture accept and view uncertainty as a challenge.
- ***Employee-oriented vs. job-oriented culture*** is about how the employees are valued. Employees' feelings, thoughts and problems are of concern in an employee-oriented culture; whereas completing the work is the only goal in a job-oriented culture.
- ***Professional vs. parochial approach*** is related to how employees are identified. A professional culture is one in which people identify with their job, compared to a parochial culture in which employees derive their identity largely from the organization.
- ***Open system vs. closed system*** refers to the perceived communication climate within the organization. A closed system culture is seen as

closed, exclusive and secretive, and an open system is seen as open and inclusive to newcomers and outsiders.

- ***The loose control vs. tight control*** dimension refers to the degree of internal structuring in the organization. In units with loose control, hardly anybody thinks of costs and to be punctual is not a virtue. However, in a tight control unit, employees emphasize cost-consciousness first and everybody has a strong sense for punctuality.
- ***The normative vs. pragmatic dimension*** considers the popular notion of customer orientation. Pragmatic units are market-driven; normative units perceive their task towards the outside world (customers and clients) as the implementation of inviolable rules.

Similar to the national culture dimensions, differences in organizational cultures of the IJV partners are measured using the perceptions of the respondents on a 1-5 point Likert scale.

4.4.3.2. Inter-partner relations

The nature of the relationship between IJV partners is likely to affect IJV operations (Buckley and Casson, 1988; Parkhe 1991, 1993). In this study, it is proposed that inter-partner relations are a significant determinant of IJV performance. In addition, it is hypothesized that the quality of inter-partner relations is influenced by the level of partner fit. Survey respondents are asked to evaluate the quality of the relationship in their IJV on a 1-5 point Likert scale. "Inter-partner relations" is defined by the following factors:

a) Commitment: Commitment can be described as the willingness of IJV partners to exert effort on behalf of the IJV (Mohr and Spekman, 1994). Committed partners are likely to consider long-term gains rather than short-term advantages. Committed partners are interested in creating and maintaining a good relationship with the other partners and thus less likely to let differences in functional approaches result in conflicts and negatively affect IJV performance.

b) Communication: Effective communication between the IJV partners is important for good inter-partner relations (Cummings, 1984) since partners do not usually start an IJV with a full understanding of each other's goals, capabilities and behaviors; these are revealed when the IJV starts operating (Doz, 1996). Communication allows the partners to understand the goals of the alliance, and the roles and responsibilities of all the actors. It also helps with the sharing and dissemination of individual experiences (Inkpen, 1996). More successful alliance relationships are expected to exhibit higher levels of communication quality and more information sharing between partners. Failure by partners to communicate effectively and to quickly learn about each other may lead to misunderstandings and suspicion, and eventually to poor economic results and dissolution (Doz, 1996; Shenkar and Zeira, 1992).

c) Cooperation: Cooperation is the key dimension of inter-partner relations. Cooperation is required to overcome the potential misunderstandings and coordination difficulties that can arise from differences in managerial or organizational practices (Das and Teng, 1998). Partner cooperation that is being truthful and committed to agreements is critical in meeting formal and informal obligations and in avoiding conflicts (Luo and Park, 2004). According to Das and Teng (1998), cooperation implies that the partners are willing to pursue mutually compatible interests rather than act opportunistically. Previous studies have demonstrated that cooperation is positively and linearly associated with IJV performance (Parkhe, 1993).

d) Previous cooperation: Experience earned from prior engagement between the partners serves as evidence to justify subsequent risky steps (Das and Teng, 1998). In addition, prior relationships indicate a history of repeated interaction, which may lead to relational advantages and stability. Previous contact between partners also leads to the development of specialized skills and routines adapted to the exchange. These include specific knowledge about the structure and operation of the partner organization as well as familiarity with its executives and managers (Shenkar and Zeira, 1992). Previous cooperation also fosters a

climate of openness that is essential for discussing behavioral problems that may be a barrier to learning (Doz, 1996).

e) Conflict resolution: Building on Hebert's (1994) definition, Fey and Beamish (1999) define IJV conflict as the interaction between IJV partners, where the actions of one partner prevent or compel some outcome against the resistance of another partner. Beginning with early IJV research, IJV scholars such as Harrigan (1985), Killing (1983), and Reynolds (1984) have suggested that extensive conflict negatively affects IJV performance. Anderson (1990) argues that it is difficult to imagine a venture that enjoys lasting success if partners are suspicious and conflicting since conflict among partners tends to cause frustration and unpleasantness which in turn results in dissatisfaction.

f) Trust: The literature suggests that one of the most critical factors affecting inter-partner relations is the degree of trust between the partners because it provides for greater adaptability in an IJV, as well as improves the exchange of knowledge, a key component of organizational learning and IJV success (Parkhe, 1993; Park and Ungson, 1997; Das and Teng, 1998; Mohr and Puck, 2005; Dodgson, 1996). Distrust among the staff of different partners was found to be a critical risk factor for IJVs by Bing et al. (1999). There is an indispensable need for mutual trust, sharing of information, and confidentiality (Sridharan, 1997).

4.4.3.3. Structural IJV characteristics

Structural IJV characteristics, which can also be labeled managerial factors, include the extent of control (how management control is imposed within the IJV), ownership distribution, and satisfaction with the contract conditions.

a) Extent of control mechanisms: The issue of control is one of the most tested determinants of performance in the research on JVs. Control is defined as the influence exercised by the IJV partners over the management of the IJV (Killing, 1983; Schaan, 1983; Beamish, 1985; Geringer and Hebert, 1989). The exercise of managerial control has been one of the most important subjects in the IJV

literature (Beamish, 1984; Parkhe, 1993; Yan and Gray, 1994; Mjoen and Tallman, 1997). In this study, adopting the approach of Choi and Beamish (2004), management control is divided into three categories such as shared management for all activities, dominant management for all activities by one of the partners, and split management of activities for which each partner has competence. A small number of JV researchers (Schaan, 1983; Beamish, 1985, 1993; Geringer, 1988; Geringer and Hebert, 1989; Yan and Gray, 2001b; Yan and Child, 2002) have reported the phenomenon of split control in JVs. It is proposed that the activities controlled by each partner should be matched with their respective firm-specific advantages as suggested by (Mjoen and Tallman, 1997) so that the IJV performance can be improved (Choi and Beamish, 2004).

b) Distribution of ownership: An IJV's equal or unequal division of ownership has been found to affect its performance (Killing, 1983; Beamish, 1985; Beamish and Banks, 1987; Geringer and Hebert, 1989; Blodgett, 1992; Luo, 2001). Distribution of ownership within the IJV is divided into three groups in this study namely, foreign partner dominant, equally shared, and Turkish company dominant. According to Killing (1983) the dominance of one partner will increase stability avoiding the managerial costs inherent in an IJV and potential conflicts between partners. However, Beamish (1985) and Blodgett (1992) argue that roughly equal equity shares will result in greater stability because the partners are equally committed to the JV. Taking into account the host country where the project is undertaken, it is proposed that it is the most advantageous case when the partner from the host country has dominant ownership, there is no difference in an ownership structure if the host is a third country.

c) Contract satisfaction: A good JV agreement is an essential success factor, which can avoid a great deal of trouble and conflict in future JV operations (Bing and Tiong, 1999). Since there are many potential problems in construction projects, the contract between the IJV partners should define the rights and responsibilities of each party clearly, which has been noted by previous researchers as vital for success in IJV literature (Beamish, 1988; Geringer, 1988;

Lee and Beamish, 1995; Luo, 2002). Survey respondents are asked to evaluate the level of satisfaction with the IJV on a 1-5 point Likert scale.

4.4.3.4. Host country conditions

Despite the benefits associated with IJVs, the failure rate of IJVs is high (Makino and Beamish, 1988); higher than are those for domestic joint ventures because IJVs generally face greater challenges. For example, many IJV partners must monitor operations in settings with which they have little familiarity (e.g. markets, distribution systems, political and legal systems); they must often cope with significant geographical separation; and they must bridge cultural boundaries (Brown et al., 1989).

a) Host country risk: International construction projects involve multinational participants from different political, legal, economic, and cultural backgrounds (Chan and Tse, 2003). When firms enter an international market they are likely to face a high level of uncertainty. Those uncertainties are caused by political, economic, structural, policy, environmental, market, production and social risks (Bing et al., 1999; Ostler, 1998) as well as completion, operational and regulatory risks (Gunhan and Arditi, 2005). The environment under which IJVs operate was found to influence their performance (Boateng and Glaister, 2002). Considering the overlaps among these factors, "host country risks" in this study was defined by political risk, macroeconomic conditions, strength of the legal system and relations with the host government. These factors cover all the factors mentioned in the literature.

- ***Political risk*** is defined as the occurrence of politically motivated events that affect the IJV's ability to operate effectively in the host country (Ashley and Bonner, 1987). It includes inconsistency in policies, changes in laws and regulations, restrictions on fund repatriations, and import restrictions.

- ***Macroeconomic conditions*** such as fluctuations in economic conditions, inflation, and foreign exchange rates affect the overall performance of the construction industry, and are also critical to the performance of IJVs.
- The ***strength of the legal system*** in the host country is important in the formation and operation of an IJV as it is the legal system that regulates the management of claims, disagreements, conflicts, disputes, and any contract related problems.
- The ***quality of the relations between IJV partners and the host government*** may be critical for the success of an IJV, especially for government projects, since one of the principal market characteristics frequently cited as influencing IJV performance is how policies are implemented by host country governments (Osland, 1994).

b) Familiarity with conditions in host country: Psychic distance, used by as synonymous with cultural distance, is defined as "...a firm's degree of uncertainty about a foreign market resulting from cultural differences and other business difficulties that present barriers to learning about the market and operating there" (O'Grady and Lane, 1996). According to Makino and Beamish (1998), the trinational IJVs are formed between home-country based firms and third-country based firms. Trinational IJVs lead to a double-layered acculturation perspective that suggests operational challenges from differences between partners' cultures and the culture of the host country in addition to differences in partners' cultures (Hanvanich et al., 2003). The psychic distance may affect the performance of an IJV adversely because the IJV partner is not familiar with the local environment in terms of legal, political, and economic conditions. Evans and Mavondo (2002) suggest that the true explanatory power of psychic distance can only be revealed when all the individual elements are fully measured. In order to capture the whole meaning of this parameter, psychic distance has been renamed as "familiarity with conditions in the host country". Following the recommendations of Lee (1998) and Nordstrom and Vahlne (1994), six dimensions were investigated, namely familiarity with the language, business

practices, political and legal system, economic environment, industry structure, and national culture of the host country. Survey respondents were asked to rate the extent of familiarity with host country conditions on a 1-5 point Likert scale.

4.4.3.5. Project-related factors

Although some companies may cooperate with the same partner in several projects, IJVs in the construction industry are considered to be project-based rather than continuous collaborations. Unlike many other industries, construction is a complex blend of disparate needs, skills, and techniques that are difficult to coordinate. It is widely accepted that a construction project is subject to more risks than other business activities because of its complexity (Shen et al., 2001). The risks associated with construction businesses may be split into those that are related to the management of internal resources and those that are prevalent in the external environment. Internal factors are relatively more controllable and vary from project to project. External risks are relatively uncontrollable, but they need to be continually scanned and forecasted in order to develop company strategies for managing their impact (Tah and Carr, 2000). While host country conditions (preceding section) constitute external risks, project-related factors (this section) represent internal risks.

In this study, project-related factors cover project risks that are frequently reported in the literature as significant (Bing et al., 1999; Choudhury, 2000). These include completeness of payments by the client; tolerance/flexibility of the client; relations with other project parties; competence of other project parties; completeness of project definition; availability of resources; technical complexity of the project; impact of factors such as weather and soil conditions; completeness of the design; completeness of the contract documents; handling the project requirements in terms of quality, environment, health and safety; penalty sanctions concerning duration; and effectiveness of the project management functions such as planning, coordination, monitoring, and

controlling. Survey respondents evaluated these factors on a 1-5 point Likert scale.

4.5. Hypotheses of the research

There are a total of 18 hypotheses regarding the whole model proposed to measure the ICJV performance. One of these is related to the suggested performance construct; nine of them are based on the interrelationships among the determinants of performance; and eight of them are based on the relationship between the determinants and the performance construct.

4.5.1. Hypothesis regarding the performance construct

H1: A four-dimensional construct was proposed to measure IJV performance. "Project performance", "partner performance", "performance of IJV management", and "perceived satisfaction with IJV" correspond to different components of an IJV, namely the project, the IJV partner, and the IJV organization itself. The validity of the proposed construct should be tested in terms of convergent and discriminant validity using some statistical methods including SEM.

4.5.2. Hypotheses among the determinants of performance

H2: The extent of "strategic and organizational fit" has a positive effect on "inter-partner relations".

H3: Large differences in the "national cultures of IJV partners" have an adverse effect on "inter-partner relations".

H4: Large differences in the "organizational cultures of IJV partners" have an adverse effect on "inter-partner relations".

H5: The favorability of "structural IJV characteristics" has a positive effect on "inter-partner relations".

H6: The extent of "strategic and organizational fit" has a positive effect on "structural IJV characteristics".

H7: Large differences in the "national cultures of IJV partners" have an adverse effect on "structural IJV characteristics".

H8: Large differences in the "organizational cultures of IJV partners" have an adverse effect on "structural IJV characteristics".

H9: The level of "host country risk" has an adverse effect on "structural IJV characteristics".

H10: The level of "familiarity with conditions in the host country" has a positive effect on "structural IJV characteristics".

4.5.3. Hypotheses between the determinants and the performance construct

H11: The extent of "strategic and organizational fit" has a positive effect on "overall ICJV performance".

H12: Large differences in the "national cultures of IJV partners" have an adverse effect on "overall ICJV performance".

H13: Large differences in the "organizational cultures of IJV partners" have an adverse effect on "overall ICJV performance".

H14: The quality of "inter-partner relations" has a positive effect on "overall ICJV performance".

H15: The favorability of "structural IJV characteristics" has a positive effect on "overall ICJV performance".

H16: The level of "host country risk" has an adverse effect on "overall ICJV performance".

H17: The level of "familiarity with conditions in the host country" has a positive effect on "overall ICJV performance".

H18: The favorability of "project-related factors" has a positive effect on "overall ICJV performance".

In the next chapter, results of statistical analysis will be presented and the results of hypothesis testing will be discussed.

CHAPTER 5

ANALYSIS OF THE PERFORMANCE MODEL

As mentioned previously, a total of 68 completed questionnaires were returned for data analysis, 48 of which were administered through face-to-face interviews and 20 via e-mail to the Turkish partners of IJVs.

At this part of the study, first of all statistical findings will be summarized and descriptive statistics will be mentioned. The following sections of the chapter include the basics of SEM, the steps of SEM, and discuss how SEM will be used to analyze the performance model. Then, the validity of the performance measures will be investigated, which is followed by the validity of the determinants of performance. Finally, the whole model will be analyzed and the hypotheses given in Chapter 4 will be tested. A discussion on the analysis results can be found in Chapter 6.

5.1. Descriptive statistics

Within this study, 68 responses are collected from 28 construction companies. The questionnaire is composed of a total of 160 questions. The first step in the analysis of these data is to search for some descriptive statistics, so as to identify the general characteristics of the companies and to recognize the overall picture of the ICJV projects carried out by Turkish contractors with their foreign partners. The following part discusses the descriptive statistics about the characteristics of the companies and the projects.

5.1.1. General information about the respondent companies

Demographic information about respondent companies provides some facts regarding the profile of the companies participated in the survey. In search of descriptive statistics about the respondents' characteristics, the mean, standard error, median, mode, standard deviation, sample variance, kurtosis, skewness, range, minimum, and maximum values of the gathered data are calculated. For each variable, descriptive statistics can be found in corresponding tables in Appendix B. Following are some important information about the profile of respondents and characteristics of the projects.

- **Number of years of operation in construction sector**

The average age of the respondent companies is 39.08 years. The maximum age arises in the study as 68 years and minimum as 2. The distribution of the ages of the respondent companies can be seen in Figure 5.1.

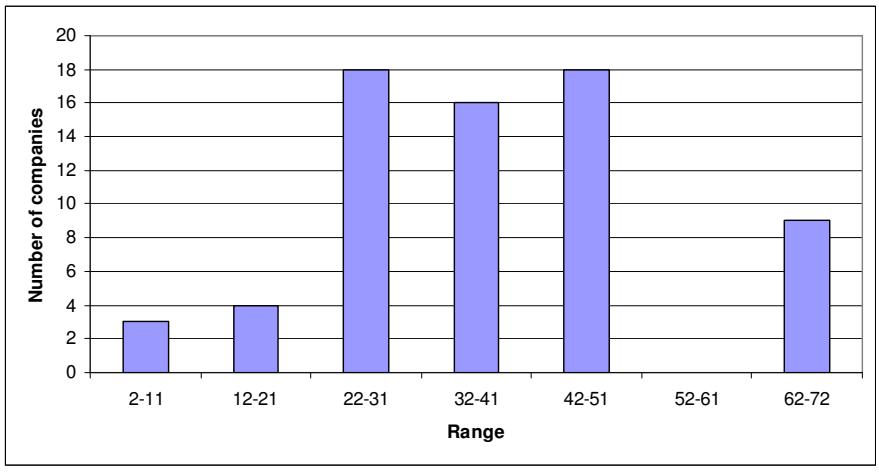


Figure 5.1: Distribution of companies in terms of their ages

- **Areas of expertise**

Respondent companies have expertise mainly on general contracting (38.23%), infrastructure (20.58%), water structures (14.71%), housing (11.76%) and industrial construction (10.29%). Figure 5.2 shows the distribution of companies in terms of their expertise.

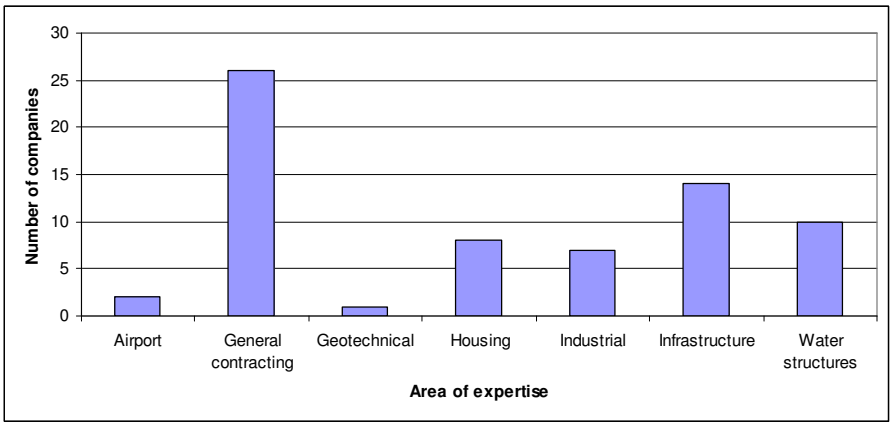


Figure 5.2: Distribution of companies in terms of expertise areas

- **First experience in international markets**

First experience of Turkish companies in international market occurred in 1970. Although some companies started to operate in international markets in the early 1970s, there are also some respondents that newly entered international markets. Figure 5.3 shows the distribution of companies in terms of their first international expertise on yearly basis.

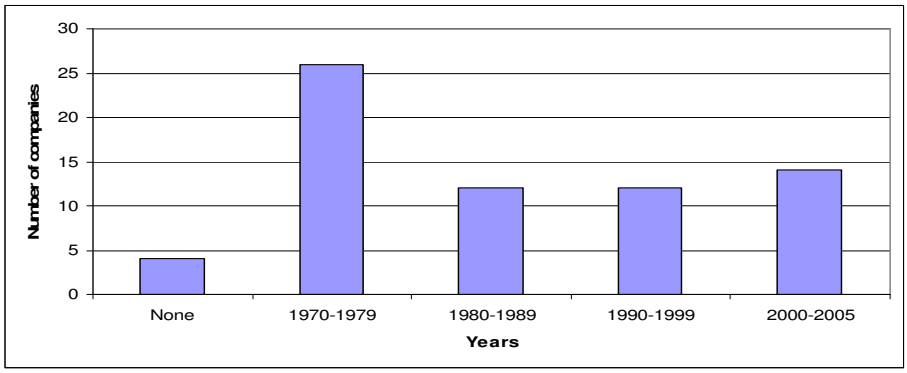


Figure 5.3: Distribution of companies in terms of first international experience

- **Domestic turn over**

The average domestic turn over of the respondent companies is 2493 US$M. the maximum value for domestic turnover is 30 Billion USD. 50% of the total sample has a domestic turn over above 2150 US$M. Figure 5.4 shows the distribution of companies in terms of their domestic turn over.

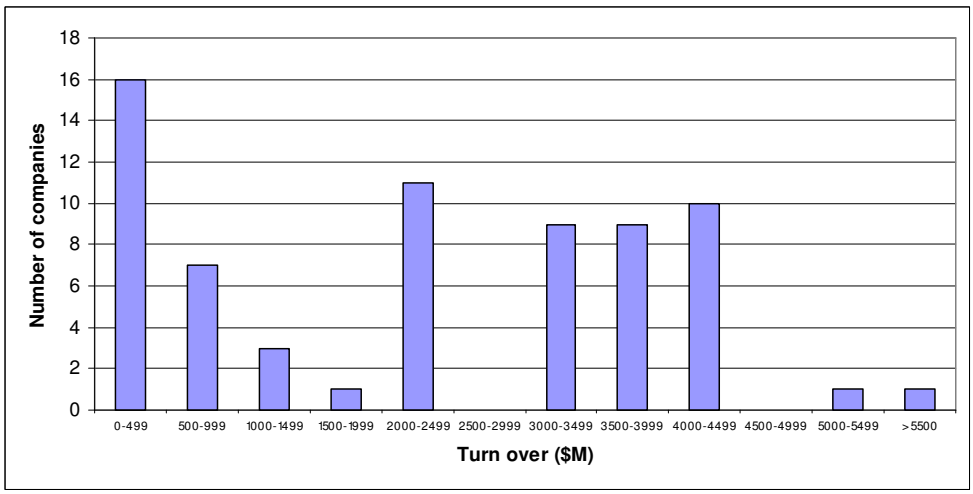


Figure 5.4: Distribution of companies in terms of domestic turn over

- **Overseas turnover**

The average overseas turn over of the respondent companies is 1564 US$M. the maximum value for overseas turnover is 8 Billion USD. 50% of the total sample has an overseas turn over above 616.5 US$M. Figure 5.5 shows the distribution of companies in terms of their domestic turn over.

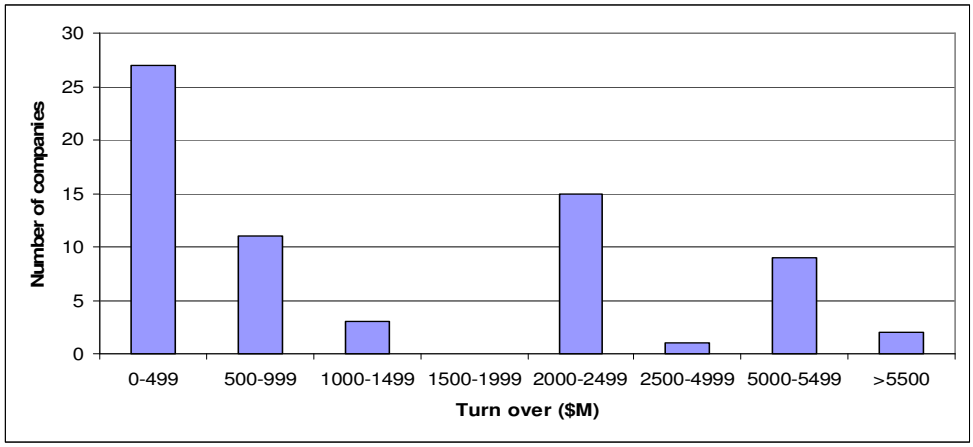


Figure 5.5: Distribution of companies in terms of overseas turn over

- **Frequency of venturing with foreign partners**

The respondent companies turned out to have high frequency of venturing with foreign partners. The average rate of partnering was found to be 3.75 and 50% of the respondents had a rate of above 4 in 1-5 Likert scale. Distribution of companies in terms of their partnering frequencies is shown in Figure 5.6.

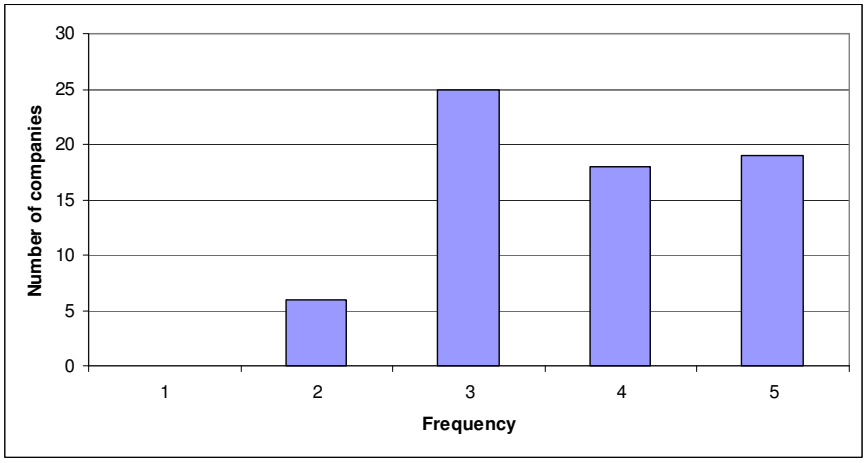


Figure 5.6: Distribution of companies in terms of frequency of partnering

- **Diversity in international markets**

Respondent companies have a large diversity in international markets. The average number of countries of operation was found to be 8.03, whereas the maximum number was 22. Distribution of companies in terms of their diversity in international markets is shown in Figure 5.7.

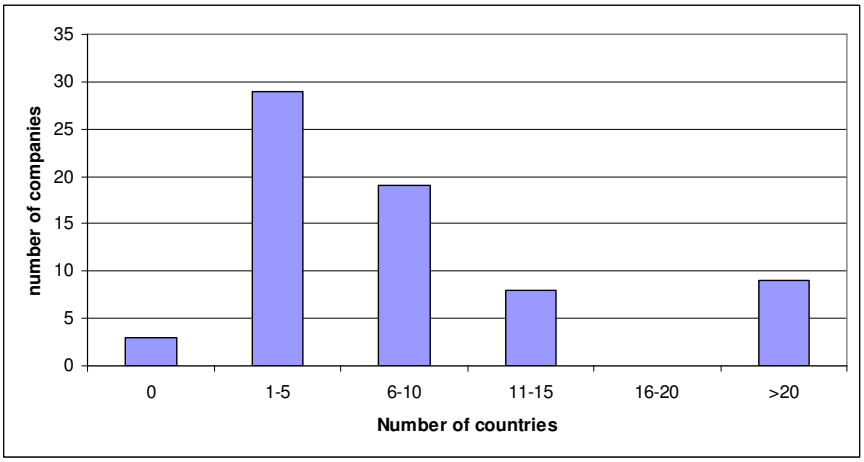


Figure 5.7: Distribution of companies in terms of diversity in international markets

5.1.2. General information about the projects

Information about the IJV projects gives information regarding the profile of the projects under consideration in the survey. Some statistics can be found for each variable in below figures.

- **Country of operation**

The projects under consideration were carried out all around the world, including Afghanistan, Bulgaria, Jordan, Russia, Turkey, the USA, etc. Almost half of the projects were carried out in Turkey.

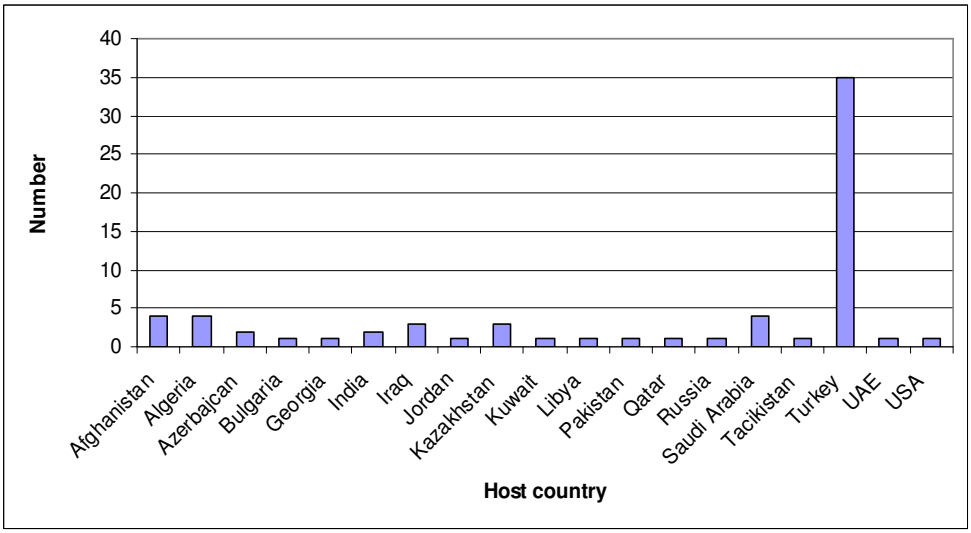


Figure 5.8: Distribution of projects in terms of country of operation

When the projects are grouped according to the host countries, it is found that Turkey holds 51%, the partner's home country holds 21%, and third countries have 28% share.

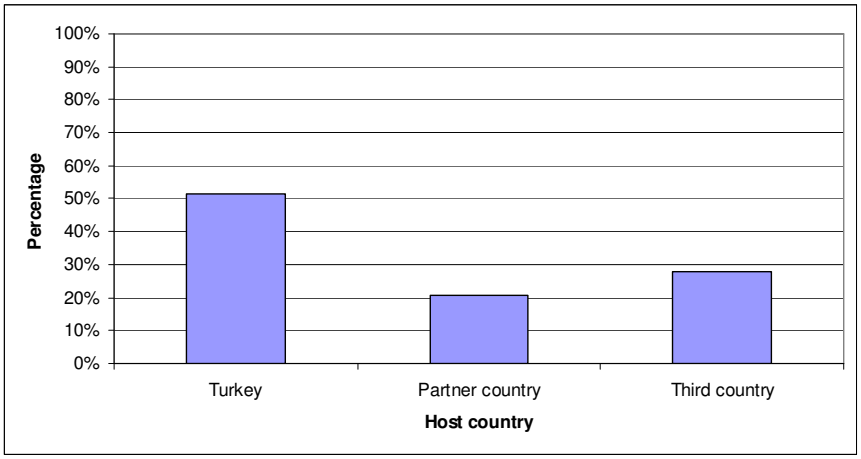


Figure 5.9: Distribution of projects in terms of host countries

- **Nationality of the foreign partner**

When the nationalities of the partner firms are searched, a wide range is observed from Austria, Egypt, and England to India, Canada, and UAE.

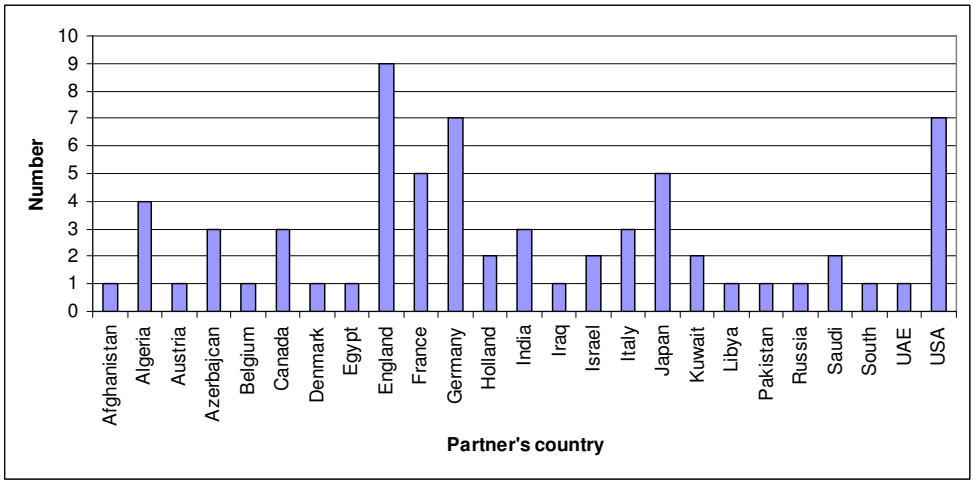


Figure 5.10: Distribution of partners in terms of their nationalities

- **Size of the foreign partner**

When the size of the partner firms are searched, it is observed that almost 50 of them were large; 5 were small and 15 were medium-sized companies.

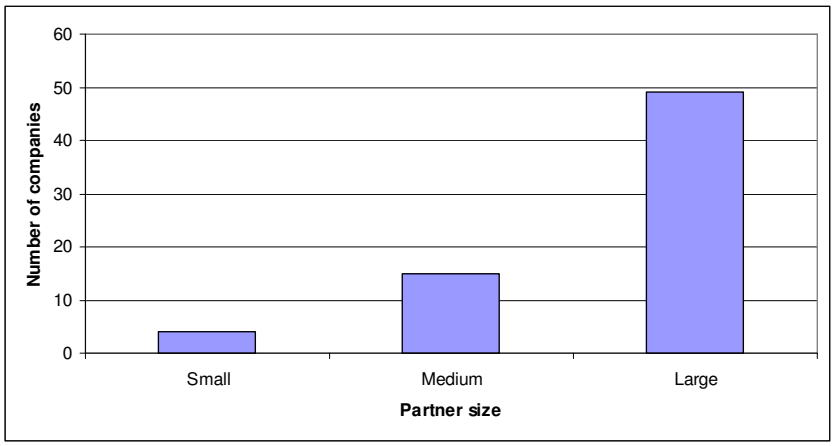


Figure 5.11: Distribution of partners in terms of their sizes

- **Previous cooperation with the partner**

47 Turkish contractors had previous cooperation with their foreign partners whereas 21 of them had their first experience with their partners.

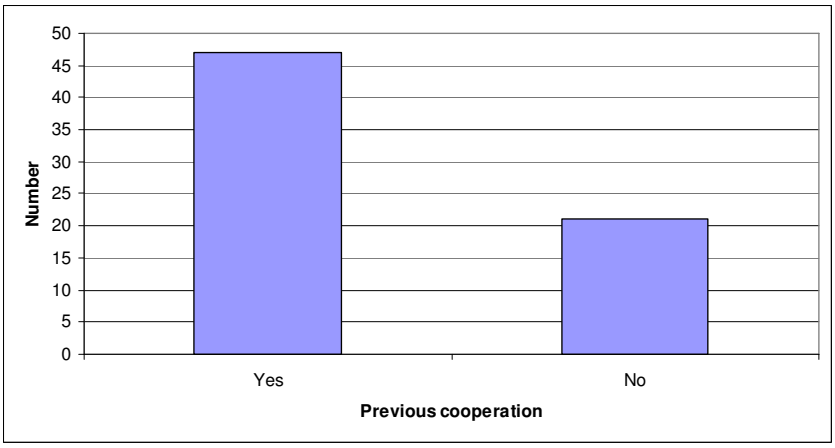


Figure 5.12: Distribution of partners in terms of previous cooperation

- **Project duration**

Figure 5.13 shows the project durations in years. When the statistics are analyzed, it is observed that the mean project duration is 3.7 years. The minimum duration was 6 months, whereas the maximum duration was 17 years.

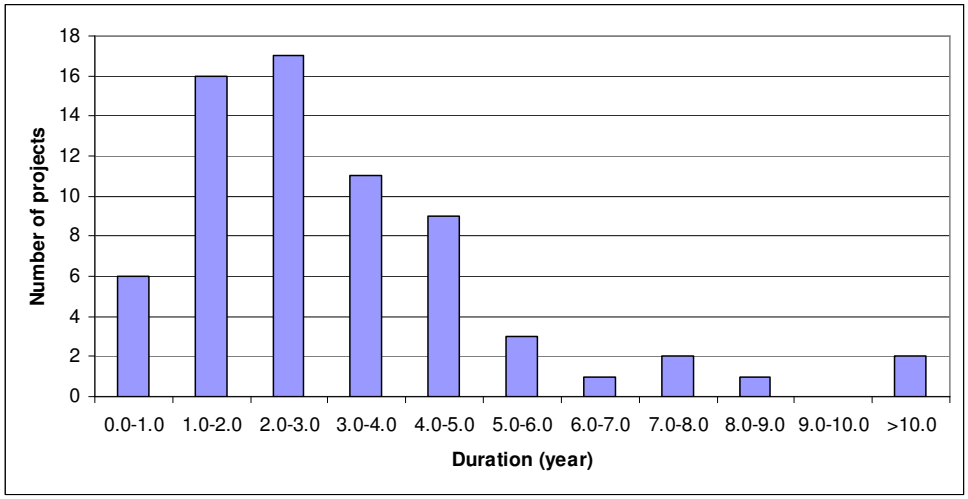


Figure 5.13: Distribution of projects in terms of duration

- **Type of the project**

Figure 5.14 shows the distribution of the type of IJV projects. The dominant project type is infrastructure, followed by transportation and water structures.

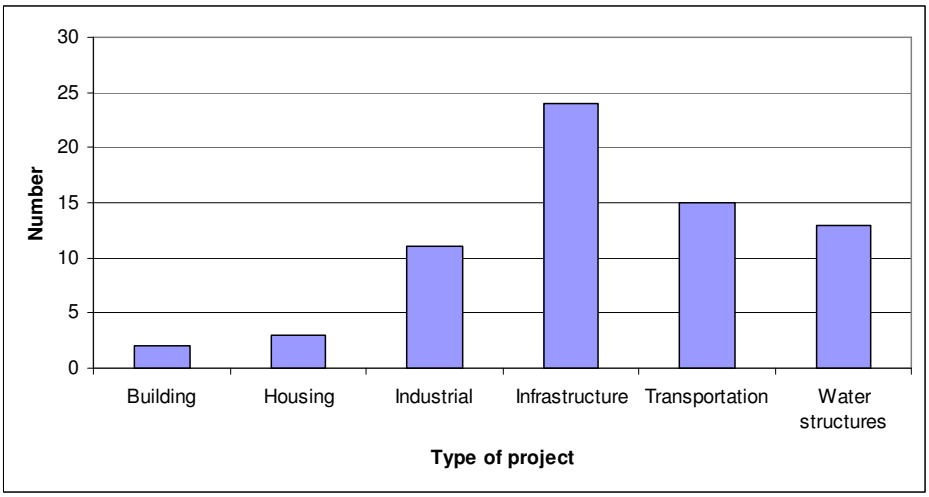


Figure 5.14: Distribution of projects in terms of type

- **Size of the project**

Figure 5.15 shows the project size in million USD. When the statistics are analyzed, it is observed that the mean project size is 194 million USD. The minimum size was 3 millions, whereas the maximum size was 1.62 billion USD.

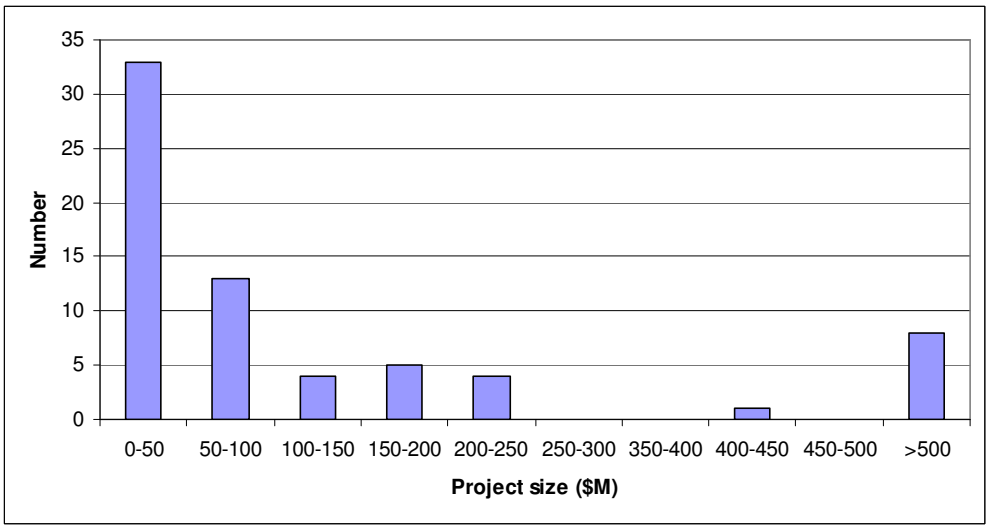


Figure 5.15: Distribution of projects in terms of size

- **Contract type**

Figure 5.16 shows the distribution of the contract types of IJV projects. The dominant contract type is turnkey, followed by unit price and lumpsum.

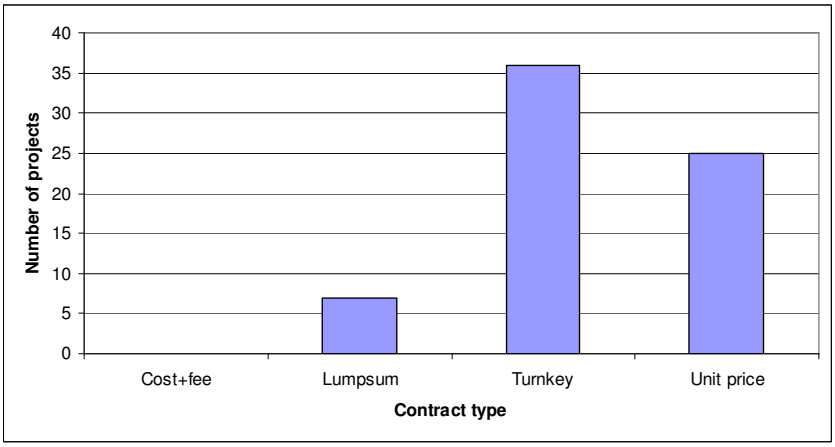


Figure 5.16: Distribution of projects in terms of contract type

- **Collaboration with the partner after this IJV**

37 Turkish contractors had further collaboration with their foreign partners whereas 31 of them did not engage in other projects with their partners.

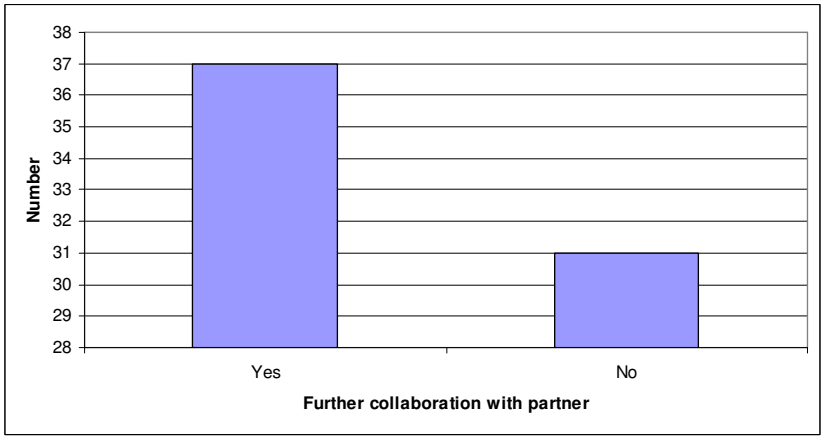


Figure 5.17: Distribution of partner in terms of further collaboration

- **Disputes**

Only 5 Turkish contractors had some disputes with their foreign partners whereas 65 of the IJVs were terminated without any problems between the partners.

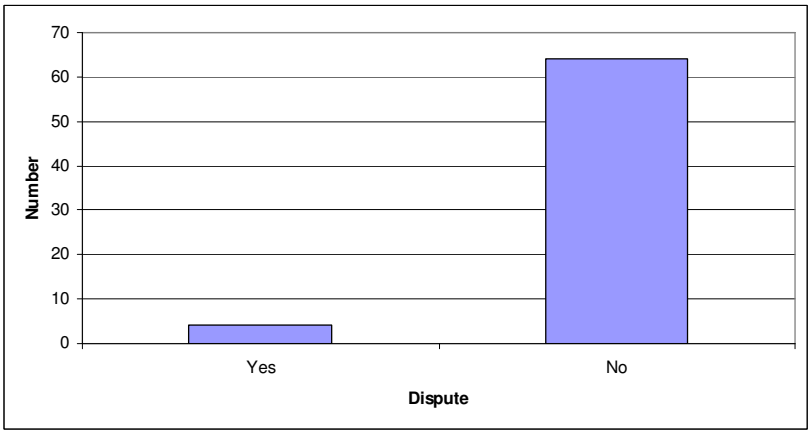


Figure 5.18: Distribution of ICJVs in terms of disputes

- **Type of the client**

Client of 20 IJVs were private organizations, whereas government was the owner of 48 IJVs.

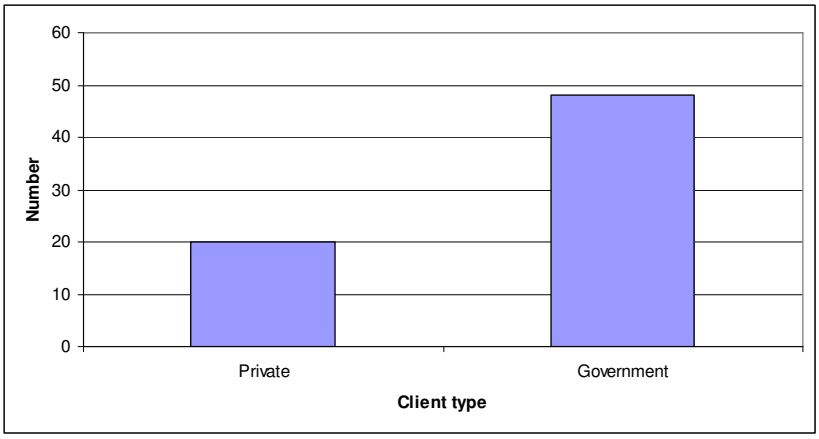


Figure 5.19: Distribution of projects in terms of client type

5.1.3. Overview of the performance level of ICJVs

Statistical information on each performance dimension is given in Figures 5.20, 5.21, and 5.22. Both importance weights and ratings for each performance measure are presented in these figures. Almost all project objectives are found to be very important based on the respondents' perceptions; however, IJVs were observed to be not good at completing the projects on time. Making more profit was the most important company objective as the partners reported; learning management skills from IJV partner was the least realized objective among the others.

Legend for Figures 20-31:	
Abbreviation	Description
PROJPERF1	First indicator of "project performance" construct
PARTPERF1	First indicator of "partner performance" construct
MANPERF1	First indicator of "performance of IJV management" construct
SOF1	First indicator of "strategic and organizational fit" construct
NC1	First indicator of "national culture fit" construct
OC1	First indicator of "organizational culture fit" construct
PR1	First indicator of "inter-partner relations" construct
HCR1	First indicator of "host country risk" construct
HCC1	First indicator of "familiarity with conditions in the host country" construct
PC1	First indicator of "project-related factors" construct
Second, third, etc. indicators of the constructs are numerated using the same style.	

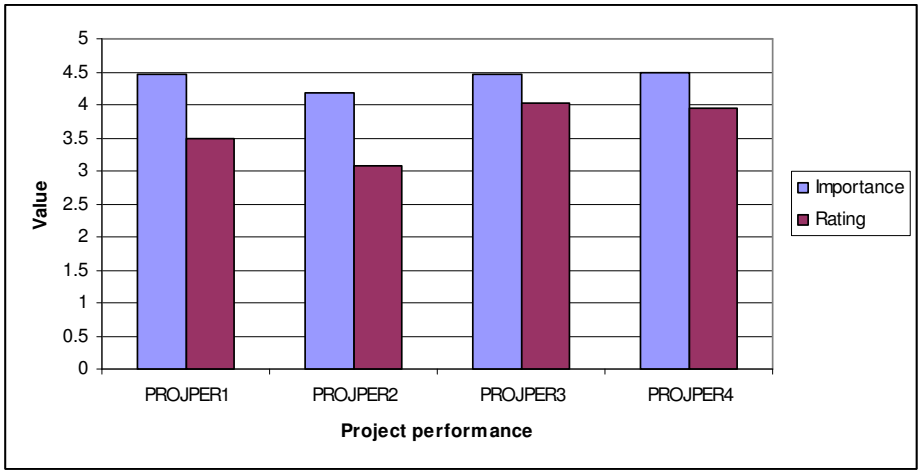


Figure 5.20: Distribution of importance and rating values of project performance

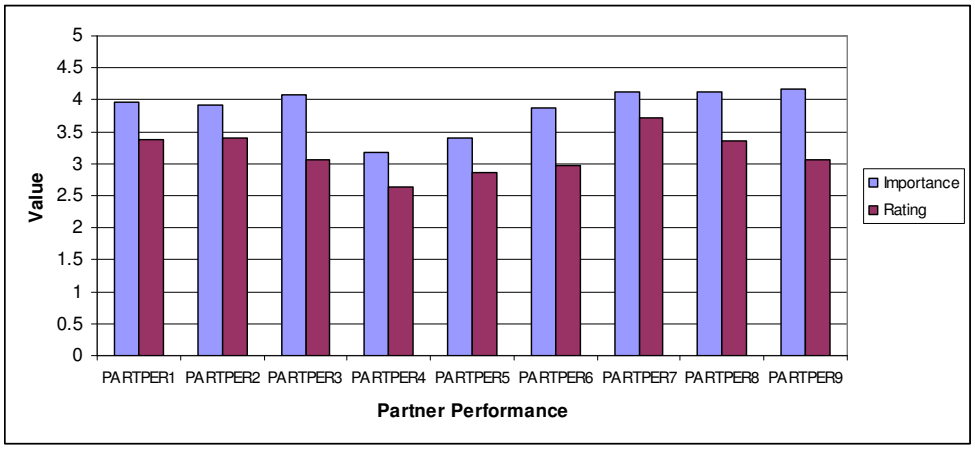


Figure 5.21: Distribution of importance and rating values of partner performance

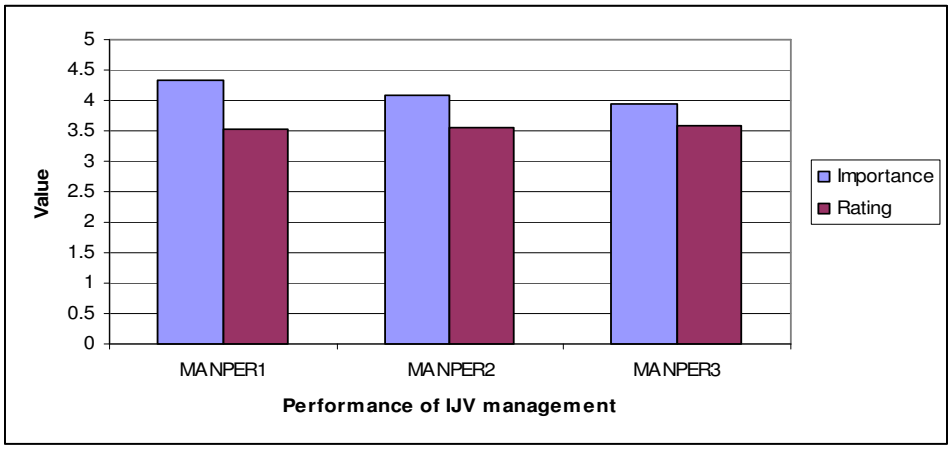


Figure 5.22: Distribution of importance and rating values of performance of IJV management

Dimensions of performance of IJV management were almost equally perceived to be important and effectiveness of each activity was at a moderate level. The mean value of perceived satisfaction was found to be 3.529.

5.1.4. Overview of the facts of ICJVs

Statistical information on each performance attribute is given in Figures 5.23-5.31. Both importance weights and ratings for each performance determinant are presented in the figures.

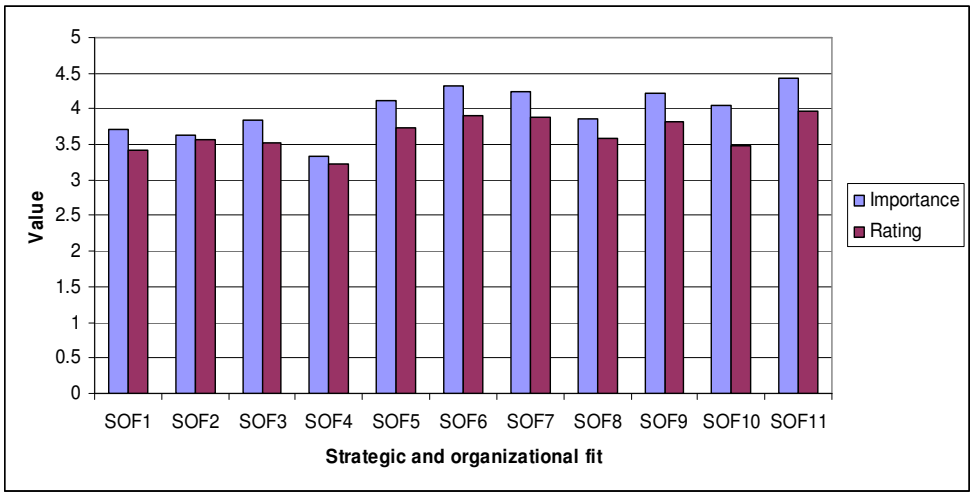


Figure 5.23: Distribution of importance and rating values of strategic and organizational fit

Among strategic and organizational assets, partners found the most important attributes as workload of partners and human resources. Compatibility of partners in terms of managerial skills was lowest among others.

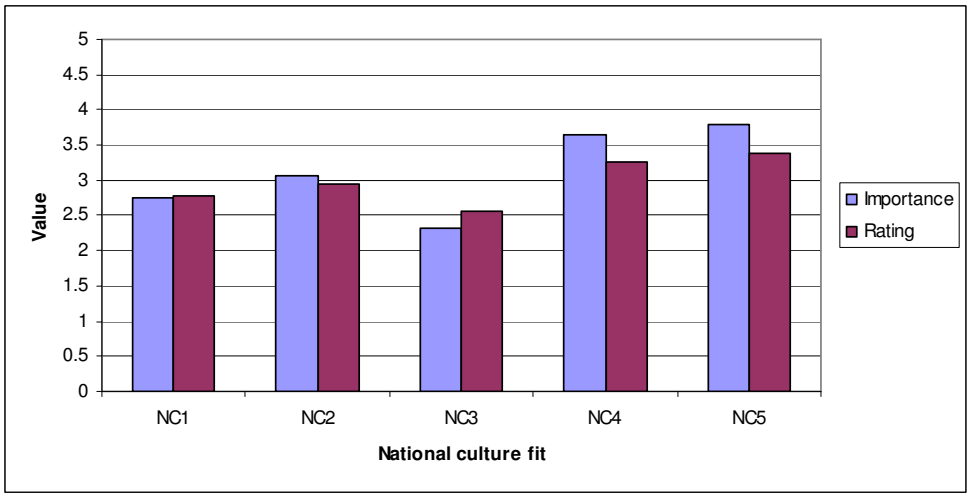


Figure 5.24: Distribution of importance and rating values of national culture fit

Uncertainty avoidance and long-term orientation were the most important dimensions of national culture; partners were found to be dissimilar especially in terms of masculinity.

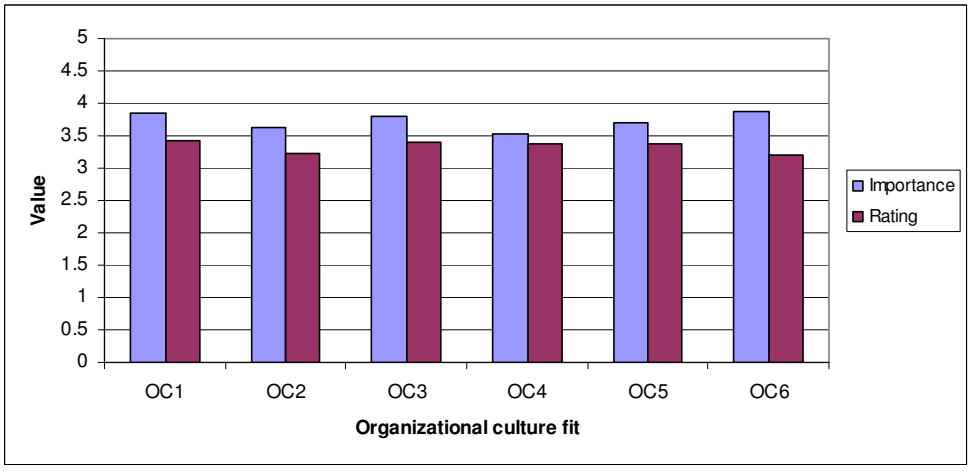


Figure 5.25: Distribution of importance and rating values of organizational culture fit

Almost all dimensions of organizational culture were found to have equal importance weights and level of similarity between the partners in terms of each dimension was found to be nearly equal.

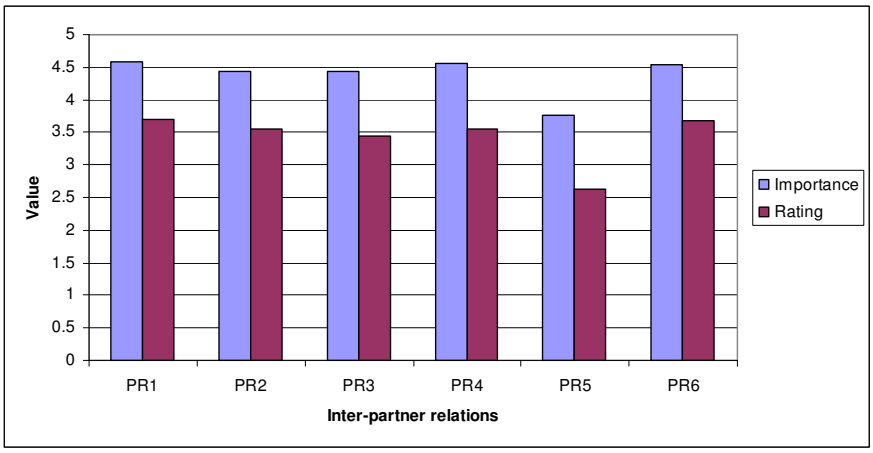


Figure 5.26: Distribution of importance and rating values of inter-partner relations

All dimensions of partner relations were perceived to be important extensively; however, partners were found to be least successful at conflict resolution and cooperation.

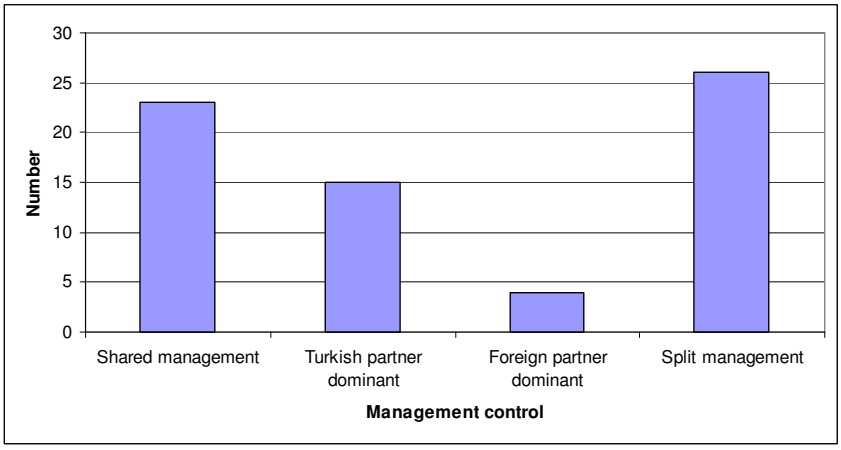


Figure 5.27: Distribution of ICJVs in terms of management control

In 26 IJVs, the management activities are split between the partners, in 23 of them, the activities are equally shared and the rest were dominantly controlled by the partners.

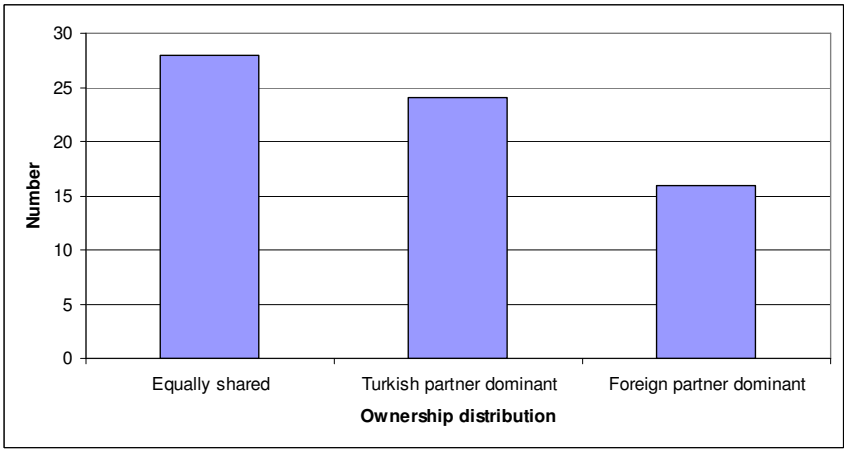


Figure 5.28: Distribution of ICJVs in terms of ownership distribution

Ownership is equally distributed in 28 of the IJVs, Turkish partner was dominant in 24 of them, and in 16 IJVs ownership was dominantly held by the foreign partner. The mean value of contract satisfaction was found to be 3.867.

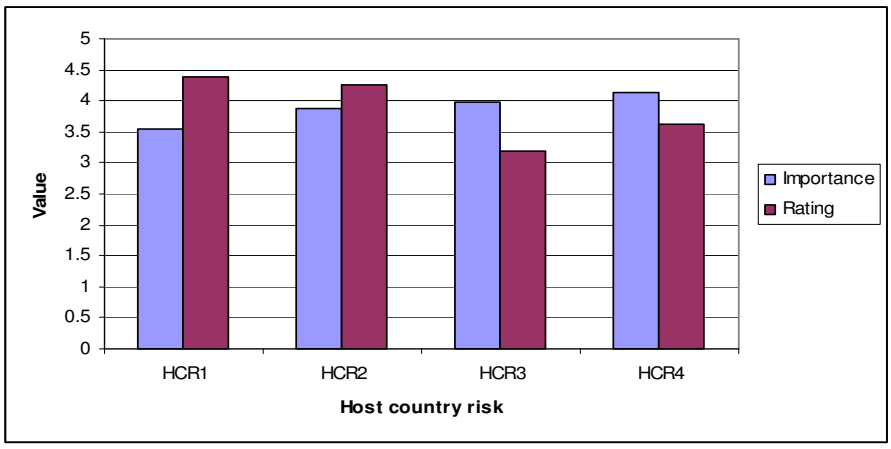


Figure 5.29: Distribution of importance and rating values of host country risk

Companies perceive the strength of the relations between IJV partners and the host country to be the most important component of host country risk; however, low strength of the legal system in the host country was the most important threat.

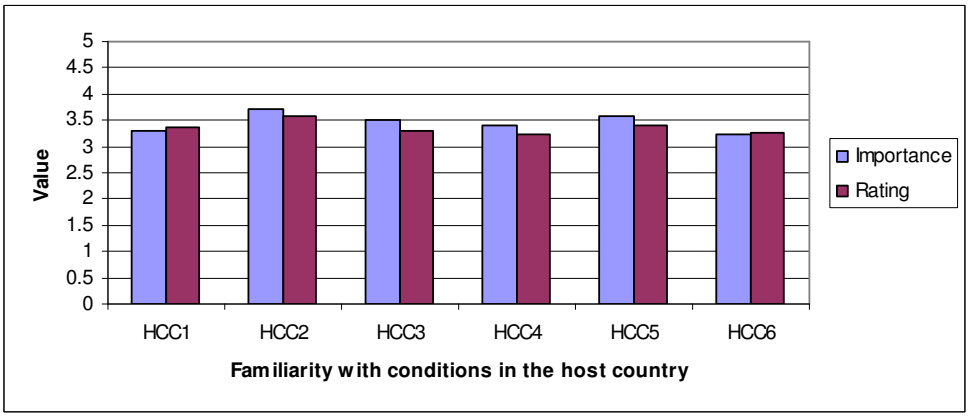


Figure 5.30: Distribution of importance and rating values of familiarity with conditions in the host country

Both importance weights and rating values for familiarity with conditions in the host country are around moderate levels.

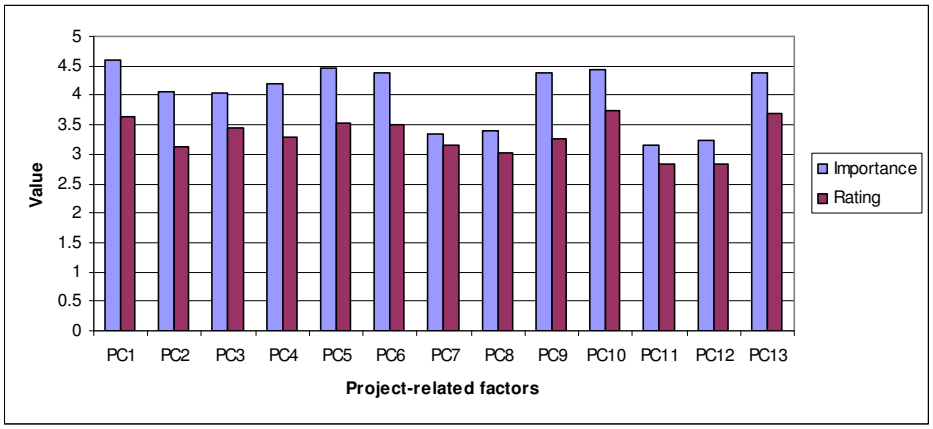


Figure 5.31: Distribution of importance and rating values of project-related factors

Completeness of payments by the client was the most important project-related factor for the success of an IJV; whereas the companies mostly complained of high penal sanctions for duration.

After presenting the general findings on importance and performance ratings, the statistical method, namely Structural Equation Modeling (SEM) that is used to test previously stated hypothesis will be explained in the next section.

5.2. Structural equation modeling (SEM)

SEM is a multivariate statistical technique used to examine direct and indirect relationships between one or more independent variables and one or more dependent variables. The variables in the model may be continuous or discrete. SEM is also referred to as causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structures, path analysis, dependence analysis, or confirmatory factor analysis (Kline, 1998).

Most theories and models in the social and behavioral sciences are formulated in terms of theoretical concepts or constructs that are not directly measurable or observable. These latent concepts or constructs are inferred from direct measurements. SEM deals with measured and latent variables. A measured variable is a variable that can be observed directly and is measurable. Measured variables are also known as observed variables, manifest, or indicator variables. A latent variable is a variable that cannot be observed directly and must be inferred from measured variables. Latent variables are also known as factors, constructs or unobserved variables.

As a statistical tool, SEM goes beyond conventional multiple regression, factor analysis and analysis of variance. Structural equations are more appropriate than regression parameters when important observed variables have not been measured, the observed variables contain measurement errors and the interesting relationship is among the true variables, and when there is interdependence or

simultaneous causation among the observed response variables (Gefen et al., 2000). In addition, constant intercept terms, mean values of latent variables and interaction effects may be estimated using structural equations.

The general form of a SEM consists of two parts (Kline, 1998): the measurement model and the structural model. The measurement model specifies how the latent variables or the hypothetical constructs are measured in terms of the observed variables, and it describes the measurement properties, such as the validities and reliabilities, of the observed variables. The structural equation model specifies the causal relationships among the latent variables and describes the causal effects and the amount of unexplained variance. The SEM assumes there is a "causal" structure among a set of latent variables, and that the observed variables are indicators or symptoms of the latent variables. Latent variables may also be linear composites of observed variables or as intervening variables in a "causal chain." The methodology is designed to accommodate models that include latent variables, measurement errors, reciprocal causation, interdependence, and simultaneity. SEM is excellent for examining complex and multidimensional relationships and is the only analysis that provides complete and concurrent tests of all the relationships.

5.2.1. Definition of the terms

1. Path Diagram: Even tough they are not strictly necessary in structural equation modeling, path diagrams provides investigator with a visual way to examine the outputs.

2. Measurement models: Models that represent a priori hypothesis about relations between observed variables and latent variables. CFA can be used for measurement models. Purposes of them are to describe how well the observed variables serve as a measurement instrument for latent variables. Measurement models are useful in social sciences when researchers want to measure

abstractions such as attitudes, behaviors, etc. and are available both for independent and dependent variables.

3. Structural models: They include the relationships among the latent constructs. These relationships are chiefly linear, although flexible extensions to the basic SEM system allow for the inclusion of nonlinear relations, as well. In the diagram, one-headed arrows represent regression relationships, while two-headed arrows represent correlational relations – that is, shared variation that is not explained within the model.

4. Observed Variables: These are also called indicator or manifest variable. These are variables that can be manipulated by researchers and their effects can be observed. Observed variables of independent and dependent latent variables are designated by X and Y, respectively.

5. Latent Variables: These variables can only be measured indirectly. They are unobservable, hypothetical constructs. Their effects can not be observed directly. Rather, effects of observed variables are used to represent the latent variables' effects.

6. Latent endogenous variables: Also called latent dependent variables and comes from Greek meaning 'of internal origin'. These are represented as the effects of other latent variables. Measurements of these variables are made on observed dependent variables. They are designated by η (lowercase eta).

7. Latent exogenous variables: Also called latent independent variables and meaning 'of external origin'. These variables affect other variables in the model. Their causes are not presented in the model. Measurements of these variables are made on observed independent variables. They are designated by ξ (lowercase ksi).

8. Direct effect: In a model, it depicts causal effects that are presumed to flow from one latent variable to another. Statistical estimates of direct effects are called path coefficients.

9. Indirect effect: Also called mediator effect. This is the effect involving one or more intervening variables that transmit some of the casual effects of prior variables onto subsequent variables.

10. Diagrammatic syntax: The latent variables or factors are indicated by circles. The observed variables are indicated by squares. The observed exogenous variables are labeled X. The latent exogenous variables are labeled ksi (ξ). The observed endogenous variables are labeled Y; the latent endogenous variables are labeled eta (η). The paths from the latent to the observed variables are labeled lamda (λ). The paths from the exogenous to the endogenous variables are labeled gamma (Γ). The paths from the endogenous variables to other endogenous variables are labeled beta (β). The correlations among the exogenous variables are labeled phi (ϕ). Finally, there are three kinds of errors. One kind of error is a stray cause of the latent endogenous variables, called psi (ζ). There are also errors of the observed variables. For the observed exogenous variables, these errors are called delta (δ) and for the observed endogenous variables, these errors are called epsilon (ε).

Structural equation models are most often represented graphically. Figure 5.32 shows a graphical representation of a structural equation model.

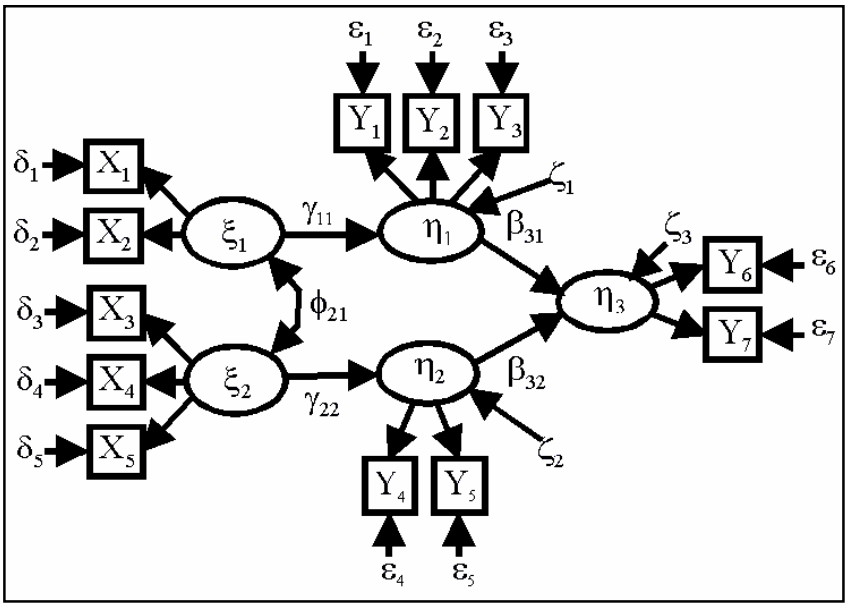


Figure 5.32: Graphical representation of a structural equation model (Gefen et al., 2000)

5.2.2. Steps of SEM

There are four steps in structural equation model construction: 1) model specification, 2) model identification, 3) test of model fit, and 4) model modification.

5.2.2.1. Model specification

Model specification is the formal statement of a model. Relationships between variables are determined by setting parameters fixed or free. The choice of which parameters are fixed and which are free should be consistent with the researcher's a priori hypothesis. A theory based model produces its own unique covariance matrix.

5.2.2.2. Model identification

Model identification and estimation depend on the choice of model and the specification of fixed, free or constrained parameters. A unique value should be obtained for each free parameter from the observed data. There are several methods of model estimation. Some frequently utilized methods include maximum likelihood (MLS), generalized least squares (GLS), asymptotically distribution free (ADF) estimator, weighted least-squares (WLS), unweighted least-squares (ULS), and two-stage least-squares (TSLS). The choice of method depends on the sample size and distribution of the data.

5.2.2.3. Model fit

Model fit or goodness of fit may be assessed by examining the results of the analysis, in particular the solution (parameter estimates, standard errors, correlations of parameter estimates, squared multiple correlations, coefficients of determination), the overall fit (chi-square based and non chi-squared comparative fit indices), and the detailed assessment of fit (standardized residuals and modification indices).

Chi-Square (χ^2): This statistics is based on generalized likelihood ratio. In larger samples it is interpreted as a Pearson chi-square statistics with the degrees of freedom that are equal to the difference between the number of observations and number of parameters. Low and non-significant chi-square values are desired. It has two drawbacks. First, since its lower bound is zero, there is no upper level, therefore there is no standardized way to interpret it. Second it is very sensitive to sample size. With larger samples, it tends to give significant values.

Goodness of Fit Index (GFI): One of the indices which are less sensitive to sample sizes and which are more standardized is GFI. Its values theoretically range between 0 (poor fit) and 1 (perfect fit). GFI, which was developed by Joreskog-Sorbom, is similar to a squared multiple correlation in that it indicates

the proportion of the observed covariances explained by the model-implied covariances. Values greater than 0.9 are acceptable for GFI.

Comparative fit index (CFI): CFI is also known as the Bentler CFI. CFI compares the existing model fit with a null model which assumes the latent variables in the model are uncorrelated (the "independence model"). That is, it compares the covariance matrix predicted by the model to the observed covariance matrix, and compares the null model with the observed covariance matrix, to gauge the percent of lack of fit which is accounted for by going from the null model to the researcher's SEM model. CFI varies from 0 to 1. CFI close to 1 indicates a very good fit. CFI should be equal to or greater than 0.9 to accept the model, indicating that 90% of the covariation in the data can be reproduced by the given model.

Normed fit index (NFI): NFI is also known as the Bentler-Bonett normed fit index. It varies from 0 to 1, with 1=perfect fit. NFI reflects the proportion by which the researcher's model improves fit compared to the null model (random variables). By convention, NFI values below 0.9 indicate a need to respecify the model.

Non-normed fit index (NNFI): NNFI is also called the Bentler-Bonett non-normed fit index, the Tucker-Lewis index, TLI. NNFI is similar to NFI, but penalizes for model complexity. NNFI is not guaranteed to vary from 0 to 1. It is one of the fit indexes less affected by sample size.

Adjusted Goodness of Fit Index (AGFI): This index is used in more complex models, and those with more values, which tend to fit the same data better than the simpler ones do. AGFI corrects downward the value of GFI as the number of parameters increases. Like GFI, its range is between 0 and 1 and values greater than 0.9 are acceptable for GFI.

Root Mean Square Error of Approximation (RMSEA): This is an index which was developed by Steiger and it provides a measure for discrepancy per degree

of freedom based on the analysis of residuals. Values lower than 0.10, 0.05, and 0.01 indicate a good fit, a very good fit and perfect fit, respectively.

Standardized Root Mean Square Residual (SRMR): Root mean square is the squared root of the mean of differences between the implied and observed covariance matrices. S-RMR is a standardized summary of the average covariance residuals. S-RMR was developed by Joreskog-Sorbom. It ranges between 0 and 1. Values lower than 0.05 are said to be acceptable.

5.2.2.4. Model modification

If the estimated covariance matrix does not provide a reasonable and parsimonious explanation of the data, the model may be re-specified by changing model parameters. When analyzing samples from several populations simultaneously, some or all of the parameters may be constrained to be equal across groups.

5.2.3. SEM software packages

There are many excellent SEM software programs, including LISREL, SIMPLIS LISREL, SAS CALIS, AMOS, and EQS. The syntax and output for each program is different. Demo versions all software packages were tested to observe their analysis capabilities. In this research, EQS (Multivariate Software, Encino, CA) is planned to be used since it is a user-friendly program and it is easy to follow the processes.

In addition to the statistical analysis, in order to test the model with another tool, one of the AI tools will be employed, such as neural networks or case-based reasoning. By this way, different outputs will be observed and those findings will enable us to compare the results of different methods.

5.2.4. SEM approach in modeling ICJV performance

SEM is a powerful statistical technique that combines the measurement model (CFA) and the structural model (regression or path analysis) into a simultaneous statistical test. As a tool to test logistics theory, SEM offers many distinct advantages over more traditional statistical techniques (Bagozzi, 1980). For example, SEM accounts for measurement error in latent variables when estimating path relationships between latent variables. Furthermore, SEM is ideal for testing and comparing rival theoretical models (Bollen, 1989). Allowing the validation of the constructs used in the proposed performance model, and analysis of relations between them, SEM is found to be suitable in modeling ICJV performance.

Advantages over other techniques: There are two shortcomings of multiple regression. First, in multiple regression, there is only one dependent variable. Second, a variable can be either a predictor (an independent variable) or an outcome (a dependent variable) in multiple regression. Contrary to first generation statistical tools such as regression, SEM enables researchers to answer a set of interrelated research questions in a single, systematic, and comprehensive analysis by modeling the relationships among multiple independent and dependent constructs simultaneously (Anderson and Gerbing, 1988). This capability for simultaneous analysis differs greatly from most first generation regression models such as linear regression, LOGIT, ANOVA, and MANOVA, which can analyze only one layer of linkages between independent and dependent variables at a time. SEM permits complicated variable relationships to be expressed through hierarchical or non-hierarchical, recursive or non-recursive structural equations, to present a more complete picture of the entire model (Bullock et al., 1994, Hanushek and Jackson, 1977). Unlike first generation regression tools, SEM not only assesses the structural model (the assumed causation among a set of dependent and independent constructs) but, in the same analysis, also evaluates the measurement model (loadings of observed items on their expected latent variables). The combined analysis of the

measurement and the structural model enables measurement errors of the observed variables to be analyzed as an integral part of the model, and factor analysis to be combined in one operation with the hypotheses testing. The result is a more rigorous analysis of the proposed research model and, very often, a better methodological assessment tool (Bollen, 1989, Bullock et al., 1994, Joreskog and Sorbom, 1989).

Advantages of CFA over EFA: SEM both incorporates CFA and extends path analysis, by allowing the user to examine the relations among latent that is, unseen but hypothesized variables. CFA is different from exploratory factor analysis (EFA) in some aspects. EFA could be described as orderly simplification of interrelated measures. By performing EFA, the underlying factor structure is identified. EFA is a variable reduction technique which identifies the number of latent constructs and the underlying factor structure of a set of variables; hypothesizes an underlying construct, a variable not measured directly; estimates factors which influence responses on observed variables; allows you to describe and identify the number of latent constructs (factors); includes unique factors, error due to unreliability in measurement; traditionally has been used to explore the possible underlying factor structure of a set of measured variables without imposing any preconceived structure on the outcome (Child, 1990).

CFA on the other hand is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists. The researcher uses knowledge of the theory, empirical research, or both, postulates the relationship pattern a priori and then tests the hypothesis statistically. CFA approach proceeds through the following process: review of the relevant theory and research literature to support model specification, specification of a model (e.g., diagram, equations), model identification (e.g., if unique values can be found for parameter estimation; the number of dof, for model testing is positive), data collection, preliminary

descriptive statistical analysis (e.g., scaling, missing data, collinearity issues, outlier detection), parameters estimation in the model, assessment of model fit, and presentation and interpretation of the results.

There are basic differences between CFA and EFA. CFA requires specification of a model a priori; the number of factors; which items load on each factor; a model supported by theory or previous research; and error explicitly. EFA determines the factor structure (model) and explains a maximum amount of variance.

New applications of CFA make this technique ideal for refining and testing construct validity (Anderson and Gerbing, 1988). CFA delivers a more rigorous test of construct validity compared to more traditional techniques and many new applications and standards are currently being researched. Anderson and Gerbing (1988) put forth a two-step procedure for employing SEM. While this procedure is not without debate, the majority of SEM researchers advocate the "two-step" approach. In the first step, the researcher validates the measurement model through CFA. In this step, the researcher also tests for construct validity by testing construct unidimensionality, reliability, convergent validity, discriminant validity, and predictive validity. Once the measurement model is validated, the researcher conducts the second step, estimating the structural relationships (regression or path analysis) between latent variables (Medsker et al., 1994). It is in the second step where the theoretical model can be tested (Anderson and Gerbing, 1988).

Advantages of covariance-based analysis over PLS: There are two distinct SEM techniques, namely covariance analysis (employed in LISREL, EQS and AMOS) and partial least squares (employed in PLS and PLS-Graph). These two distinct types of SEM differ in the objectives of their analyses, the statistical assumptions they are based on, and the nature of the fit statistics they produce.

PLS is more suited for predictive applications and theory building, in contrast to covariance-based SEM. Rather than using the factor analytic measurement model

associated with SEM, PLS more often uses a principal components measurement model, where the "latent constructs" are defined as linear composites of the measures associated with them. Some researchers, thus, suggest that PLS should be regarded as a complimentary technique to covariance-based SEM techniques possibly even a forerunner to the more rigorous covariance-based SEM. PLS is especially suited for the analysis of small data samples and for data that does not necessarily exhibit the multivariate normal distribution required by covariance-based SEM (Chin, 1998; Thompson et al., 1995).

PLS does not yield consistent estimates of what are called latent variables in formal SEM (Dykstra, 1983). Covariance-based SEM permits both CFA and the analysis of path models with multiple sets of data in a simultaneous analysis. The objective of this study was confirmatory analysis rather than exploratory analysis and so PLS does not suit this goal. In addition, PLS is not yet fully developed and hence is not implemented in EQS. EQS supports least squares (LS), maximum likelihood (ML), and generalized least squares (GLS) estimation methods (Bentler, 2006).

Non-normality and sample size: Normality is tested within EQS program through Mardia's coefficient; the value should be in the +3 to -3 range if the data is multivariate normal. Data in this study was found to be non-normal (Mardia's coefficient = -14). In this research, due to the small sample size and non-normality conditions, robust methodology was used. When the data are not normal, the Satorra-Bentler (1994) robust methodology that is developed in EQS 6.1 is recommended. Robust analysis works with ML, LS and WLS. Using robust methodology means to accept the parameters estimations based on the selected estimation method but correcting the standard errors. This methodology gives a variety of new test statistics. The so-called Satorra-Bentler χ^2 correction appears to work well; it is currently the most promising method to accommodate non-normal data (Bentler, 2006). Moreover, the robust NNFI, CFI and RMSEA are provided in the analysis report.

5.3. Validity of the measures of ICJV performance

The construct validity of measures that define IJV performance in construction is evaluated using data obtained through the questionnaire survey. The validity of the performance measures is evaluated by means of tests that assess content validity, reliability, and convergent and discriminant validity.

Validity is the degree to which an instrument measures the construct under investigation. Construct validity can be tested by means of numerous methods. Construct validity is achieved when a construct passes all these tests, including content validity, reliability, convergent and discriminant validity tests. Content validity is a qualitative method whereas the other methods can be categorized as empirical methods.

5.3.1. Content validity of the measures of ICJV performance

Content validity refers to the degree that the construct is represented by items that cover the domain of meaning for the construct (Dunn et al., 1994). The domain of a concept is bound by its theoretical definition, which should reflect the meanings associated with the concept in prior research and make its dimensions clear (Bollen, 1989). Since there is no formal statistical test for content validity, researcher judgment and insight must be applied (Garver and Mentzer, 1999). A four-dimensional construct was proposed in this study to measure IJV performance. “Project performance”, “partner performance”, “performance of IJV management”, and “perceived satisfaction with IJV” were used as performance indicators, which correspond to subjective and objective aspects of all components of an IJV, namely the project, the IJV partner, and the IJV organization itself. The content validity of the measures depends upon the extent to which academic and professional experts have discussed or conducted studies that made use of the measures of IJV performance. Some variables are added or deleted based upon expert opinions.

5.3.2. Empirical validity of the measures of IJV performance

In order to test the empirical validity of the measures of IJV performance, data collected from a total of 68 questionnaires were analyzed using a software package called EQS 6.1, an SEM tool. SEM is a multivariate statistical technique used to examine direct and indirect relationships between one or more independent variables and one or more dependent variables, which may be continuous or discrete. SEM is also referred to as causal modeling, causal analysis, simultaneous equation modeling, analysis of covariance structures, path analysis, dependence analysis, or confirmatory factor analysis (Kline, 1998).

5.3.2.1. Reliability of the measures

Reliability is traditionally defined as the consistency of measurement. From a structural perspective, the reliability of a measure is the magnitude of the direct relations that all variables (except the error terms) have on that measure (Bollen, 1989). Internal consistency, which estimates how consistently individuals respond to the items within a scale, is measured by Cronbach's alpha coefficient that is an index of reliability associated with how well a set of variables measures a single unidimensional latent construct.

Cronbach's alpha values of the first-order constructs were calculated as 0.858, 0.819, and 0.837 for "project performance", "partner performance", and "performance of IJV management", respectively. Since the proposed performance construct is of second-order (Figure 5.33), the reliability of "overall IJV performance" should also be considered and it is calculated as 0.913. These reliability values are satisfactory since the Cronbach's alpha coefficients are all above 0.70, the minimum value recommended by Nunally (1978). The reliability coefficient rho, which is the square of the multiple correlation coefficient was found to be 0.927 for the second-order IJV performance construct "overall IJV performance".

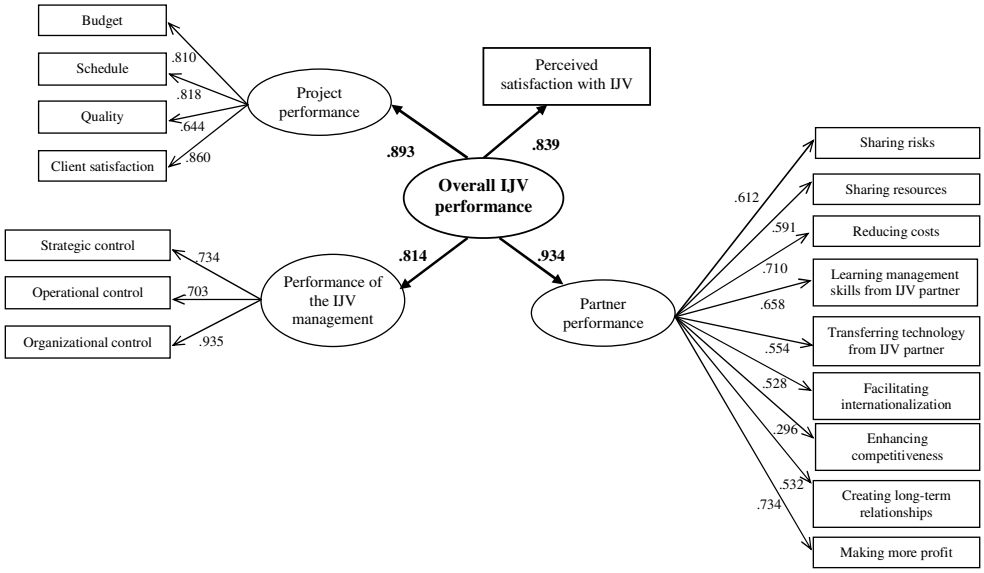


Figure 5.33: The second-order "overall IJV performance" construct

5.3.2.2. Convergent validity of the measures

Convergent validity tests if all the items measuring a latent variable cluster together and form a single latent variable. Three methods are utilized to examine convergent validity; assessment of overall goodness of fit, examination of factor loadings, and comparison of the model with more restricted models.

- The overall fit of the model can be assessed by examining ***goodness-of-fit indices***. The results are presented in Table 5.1. A structural equation model is considered adequate if the p-value for χ^2 is greater than 0.05 (Joreskog and Sorbom, 1989), indicating a value that is not statistically significant. However, when the sample size is small, it is difficult to obtain a χ^2 that is not statistically significant; in such situations, the ratio of χ^2 to dof is to be examined and this ratio needs to be between 1 and 2 (Hair et al., 1998). In the proposed model, a significant χ^2 was obtained with a value of 173.06 and 112 dof, but the χ^2 to dof ratios (bottom row in Table 5.1) were well within the acceptable range. A comparative fit index (CFI) and a non-normed fit index (NNFI) of around 0.9 demonstrate a good fit of the model to the data

(Bentler, 1992). As seen in Table 5.1, both the CFI and NNFI comply with these recommendations. All in all, the measurement model shows a good fit to the data.

Table 5.1: Fit indices for the "overall IJV performance" model

	Recommended value	**Proposed model**
Non-normed fit index (NNFI)	0 (no fit) to 1 (perfect fit)	0.913
Comparative fit index (CFI)	0 (no fit) to 1 (perfect fit)	0.934
Root mean square error of approximation (RMSEA)	< 0.10 indicates good fit	0.060
χ^2/dof	< 3	173.06/112= 1.545

- Convergent validity could also be examined by investigating the statistical significance of the ***factor loadings*** of each construct (Anderson and Gerbing, 1988). According to Dunn et al. (1994), if the factor loadings are statistically significant, then convergent validity exists. The numbers on the arrows in Figure 5.32 represent the factor loadings of the respective variables of the three performance constructs (project performance, partner performance, and performance of IJV management). All of the corresponding factor loadings are significant at 5%. The second-order "overall IJV performance" construct has four indicators including the "perceived satisfaction with IJV" that is a standalone performance indicator measured directly through respondents' ratings. The statistically significant and substantial factor loadings for "overall IJV performance" are also evidence of convergent validity.
- Finally, the baseline model is compared with the same model in which factor loadings are set to be equal to each other (Hoskisson et al., 1993). An insignificant increase in χ^2 provides evidence for convergent validity. The test

results indicate that when factor loadings of the four measures, "partner performance", "project performance", "performance of IJV management", and "perceived satisfaction with IJV" are forced to be equal, the increase in χ^2 does not turn out to be statistically significant (6.269 with p= 0.099). This suggests that the model possesses convergent validity.

5.3.2.3. Discriminant validity of the measures

Discriminant validity refers to the principle that the indicators for different constructs should not be so highly correlated as to lead one to conclude that they measure the same thing. Discriminant validity analysis refers to testing statistically whether two measures differ (as opposed to testing convergent validity). The correlations between the measures need to be lower than unity in order to achieve discriminant validity. The correlation matrices calculated for all constructs show that all intercorrelations are below 0.90, suggesting that there is no multicollinearity (Hair et al., 1998) but indicating that the constructs have discriminant validity. These correlations provide evidence that the measures of first and second-order constructs are different from each other (Table 5.2).

Table 5.2: Intercorrelations for the measures of "overall IJV performance"

	PROJPERF	**PARTPERF**	**MANPERF**	**PERSAT**
PROJPERF	1.000	0.834	0.707	0.758
PARTPERF	0.834	1.000	0.785	0.775
MANPERF	0.707	0.785	1.000	0.677
PERSAT	0.758	0.775	0.677	1.000

Another method to test discriminant validity of the measures requires an alternative first-order model where all constructs were correlated. In this more rigorous (and more widely accepted) SEM-based alternative approach, first the

unconstrained and correlated model is run and then this model is compared with the same model but this time constraining the correlation between variables to 1.0 (Joreskog, 1971). If the two models differ significantly on a χ^2 difference test, the researcher can conclude that the constructs differ (Bagozzi et al., 1991). In this procedure, if there are more than two constructs, one must employ a similar analysis on each pair of constructs at a time, constraining the constructs to be perfectly correlated and then freeing the constraints. Discriminant validity was assessed for each pair of measures in our model. For all the pairs of measures, the χ^2 of the unconstrained model was significantly ($p<0.05$) less than the χ^2 of the constrained model. The results are shown in Table 5.3. A significantly lower χ^2 for the unconstrained model indicates that the measures are not perfectly correlated, which supports the discriminant validity of the "overall IJV performance" construct, that the proposed performance measures represent different aspects of performance and that they are complementary.

Table 5.3: Test results for discriminant validity for "overall IJV performance"

	$\chi^{2\,diff}$	p
Correlations between pairs are set to be equal to 1. Differences between this model and the unconstrained model are assessed.		
Perceived satisfaction with IJV = Project performance	10.592	0.001
Perceived satisfaction with IJV = Partner performance	34.727	0.000
Perceived satisfaction with IJV = Performance of IJV management	35.621	0.000
Project performance = Partner performance	23.477	0.000
Project performance = Performance of IJV management	28.597	0.000
Partner performance = Performance of IJV management	59.272	0.000

5.4. Analysis of the measurement model

The first step in constructing a structural equation model involves specifying the relationships among the latent variables and determining how the latent variables

will be measured. Also, the validity of the hypothesized constructs is tested in this step. Validity is the degree to which an instrument measures the construct under investigation. Construct validity is achieved when a construct passes both qualitative and empirical validity tests.

- ***Content validity*** is a qualitative test for which there is not a formal statistical test. The indicators of each proposed construct were initially derived from the literature; they were then revised by professional and academic experts who participated in pilot studies to establish content validity for these constructs.
- ***Convergent validity, discriminant validity, and reliability*** are the empirical components of construct validity. Convergent validity tests if all the items measuring a latent variable cluster together and form a single latent variable. It can be assessed by examining factor loadings and goodness-of-fit indices. Discriminant validity, as opposed to convergent validity, refers to testing whether two measures differ statistically. It is assessed by evaluating the intercorrelations between the measures of a construct. Also, factor loadings are important in CFA because indicators that do not have statistically significant loadings are to be deleted from the model. This process improves the internal reliability and the fit indices as well. Table 5.4 shows factor loadings corresponding to the eight input constructs of the model. Note that some of the factor loadings are not significant at α=0.05. These variables were removed from the initial model.
- The goodness-of-fit for each construct was assessed through non-normed fit index (NNFI), comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the ratio of χ^2 to degrees of freedom (dof). Having obtained significant, convergent, and discriminant indicators for all the constructs, the reliability of the constructs was assessed next.
- Reliability is the consistency of measurement. Internal consistency, which estimates how consistently individuals respond to the items within a scale, is measured by Cronbach's alpha coefficient. Table 5.5 shows the reliability values and fit indices for the constructs of the model.

Table 5.4: Latent and constituent variables of the model

Variables	Factor loading
Strategic and organizational fit	
Goal congruency	0.336
Host country experience	0.454
Similar project experience	0.734
Managerial skills	0.733
Technical skills	0.892
Human resources	0.674
Client relations	0.622
Financial capability	0.693
Size of partners	0.786
Management systems	0.622
Workload of partners	0.685
National culture fit	
Power distance	0.865
Individualism	0.541
Masculinity	0.688
Uncertainty avoidance	* (0.054)
Long-term orientation	* (0.138)
Organizational culture fit	
Process vs. results-oriented culture	0.668
Employee vs. job-oriented culture	0.545
Parochial vs. professional practice	0.712
Open vs. closed system	0.799
Loose vs. tight system	0.780
Normative vs. pragmatic orientation	0.674
Inter-partner relations	
Commitment	0.901
Communication	0.751
Cooperation	0.796
Previous cooperation	0.939
Conflict resoultion	0.651
Trust	0.730

* Factor loading not significant at α=0.05.

Table 5.4: Latent and constituent variables of the model (continued)

Variables	Factor loading
Structural IJV characteristics	
Extent of management control	0.665
Distribution of ownership	0.620
Contract satisfaction	0.533
Host country risks	
Level of political stability in the host country	0.915
Strenght of macroeconomic conditions in the host country	0.768
Strength of the legal system in the host country	0.535
Strength of the relations between IJV partners and the host country	* (0.236)
Familiarity with conditions in the host country	
Familiarity with language	0.541
Familiarity with business practices	0.823
Familiarity with political and legal system	0.717
Familiarity with economic environment	0.855
Familiarity with industry structure	0.723
Familiarity with national culture	0.745
Project-related factors	
Completeness of payments by the client	0.517
Tolerance/flexibility of the client	0.648
Relations with other project parties	0.321
Competence of other project parties	0.550
Completeness of project definition	0.881
Availability of resources	0.710
Technical complexity of the project	* (0.129)
Impact of external factors such as weather and soil conditions	0.395
Completeness of design	0.757
Completeness of the contract	0.924
Handling the project requirements such as quality, environment, health and safety	0.395
Penal sanctions for duration	0.499
Effectiveness of the project management functions (planning, coordinating, monitoring, controlling, etc)	0.734

* Factor loading not significant at α=0.05.

Table 5.5: Reliability values and fit indices for the constructs of the model

	Drivers of IJV performance								Dimensions of IJV performance			
	Strategic and organizational fit	**National culture fit**	**Organizational culture fit**	**Inter-partner relations**	**Structural IJV characteristics**	**Host country risks**	**Familiarity with conditions in the host**	**Project-related factors**	**Project performance**	**Partner performance**	**Performance of IJV management**	**Overall IJV performance**
Cronbach's alpha	0.824	0.731 (0.598)	0.849	0.901	0.717	0.774 (0.719)	0.864	0.885 (0.877)	0.858	0.818	0.835	0.913
NNFI	0.872	0.975 (0.812)	0.833	0.986	0.941	0.985 (0.937)	0.837	0.801 (0.750)	0.906	0.801	0.987	0.913
CFI	0.921	0.977 (0.801)	0.911	0.992	0.954	0.989 (0.984)	0.913	0.840 (0.795)	0.984	0.851	0.988	0.934
RMSEA	0.100	0.060 (0.075)	0.095	0.063	0.097	0.085 (0.095)	0.101	0.084 (0.090)	0.082	0.073	0.064	0.060
χ^2/dof	22.33/13=1.72	5.22/3=1.74 (74.109/10=7.41)	20.93/8=2.62	10.11/8=1.26	5.22/3=1.74	1.48/1=1.48 (5.22/3=1.74)	15.61/8=1.95	103.24/53=1.95 (134.76/64=2.11)	5.22/3=1.74	53.82/27=1.99	5.22/3=1.74	173.506/112=1.55

Numbers in parentheses belong to initial analysis before the model improvement.

Note: The reliability of all constructs meet Nunally's (1978) recommendation, as the Cronbach's alpha values exceed 0.7 for all of them. Fit indices are also within acceptable ranges. All in all, the measurement model shows a good fit to the data.

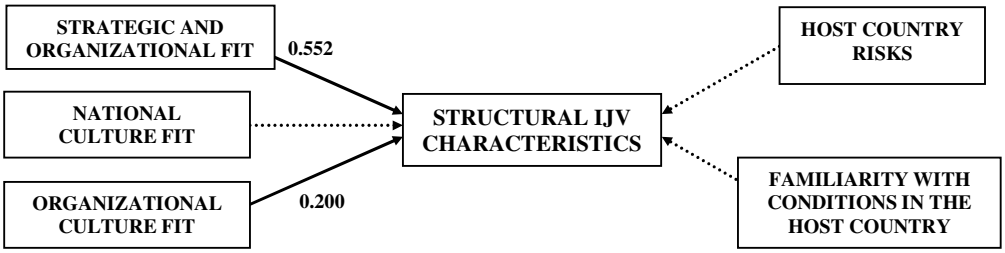
5.5. Analysis of the structural model

SEM tests the hypotheses between the validated constructs. Based on the hypotheses of the model, interrelations between the determinants of IJV performance and influences of these determinants on performance are analyzed.

5.5.1. Inter-relationships among the determinants of ICJV performance

In the first step, relationships among the determinants of "overall IJV performance" are analyzed. The hypothesized relationships for "inter-partner relations", and "IJV structural factors" are shown in Figure 5.34.

Inter-partner relations = 0.309*Org.Cul.Fit + 0.295*Str.Org.Fit + 0.287*Str.Char + 0.215*Nat.Cul.Fit + 0.201D (R^2=0.960)



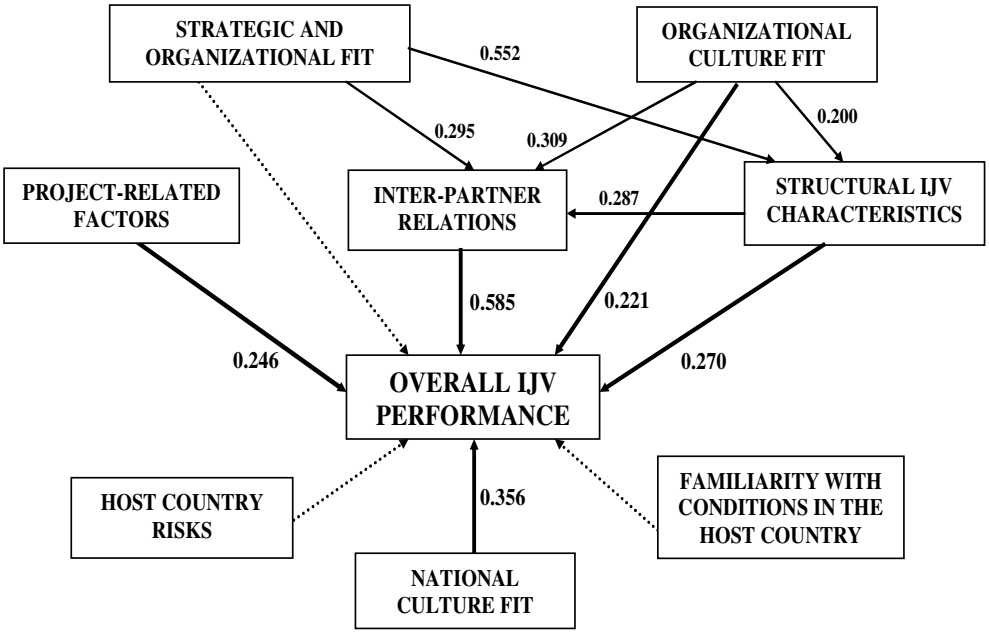
Structural IJV characteristics = 0.552*Str.Org.Fit + 0.200*Org.Cul.Fit + 0.105* Nat.Cul.Fit + 0.102*Nat.Cul.Fit + 0.040*HostCon.Risks + 0.301D (R^2=0.780)

Figure 5.34: Interrelationships among the determinants of ICJV performance

The findings reveal that the level of strategic and organizational fit, organizational culture fit, and the favorability of the structural IJV characteristics have positive and moderate impact on the quality of "inter-partner relations". However, the expected effect of national culture fit is not supported by the data. On the other hand, it is observed that the level of strategic and organizational fit affect the structural IJV characteristics extensively, and the impact of organizational culture fit is moderate. But no significant impact of national culture fit, and host country factors was found. The paths that are not found to be statistically significant at 5% were eliminated from the initial model (shown in dashed lines in Figure 5.34).

5.5.2. Influence of determinants on ICJV performance

In the second step of the structural model, the influences of each driving factor on "overall IJV performance" are computed. Figure 5.35 shows the hypothesized relations between the constructs of the model. The analysis suggests that "inter-partner relations" is the main driver of "overall IJV performance" with a path coefficient of 0.585. "National culture fit" has a moderate effect on performance (path coefficient: 0.356), which is followed by "IJV structural factors" (path coefficient: 0.270), "project-related factors" (path coefficient: 0.246), and "organizational culture fit" (path coefficient: 0.221). On the other hand, no significant influence of "strategic and organizational fit", "host country conditions", and "familiarity with conditions in the host country" on "overall IJV performance" was found. However, "strategic and organizational fit" had an indirect effect on performance through "inter-partner relations", and "IJV structural factors". The most interesting finding is that "host country risks", and "familiarity with conditions in the host country" do not have significant relations with any constructs in the whole model. Links that are not statistically significant at 5% were eliminated from the model (shown in dashed lines in Figure 5.35).



Overall IJV performance = 0.585*Int.Part.Rels + 0.356* Nat.Cul.Fit + 0.270* Str.Char + 0.246*Proj.Factors + 0.211*Org.Cul.Fit + 0.295*HostCon.Risks + 0.287*Fam.Cond.Host + 0.425D (R^2=0.819)

Figure 5.35: The modified structural equation model with path coefficients

Table 5.6 shows the reliability values and fit indices for the initial and modified model. The χ^2 to dof ratios were smaller than 3 as suggested by Kline (1998). The CFI and NNFI values of around 0.9 also demonstrate a good fit of the model to the data. Moreover, the RMSEA values were found to be below the recommended value of 0.10 (Kline, 1998). The correlation matrices calculated for all constructs show that all intercorrelations are below 0.90, suggesting that there is no multicollineraity (Hair et al., 1998).

According to Table 5.6, the Cronbach's alpha coefficient of the final model in Figure 5.35 was found to be 0.958; slightly better than the one obtained with the initial model that took into consideration all variables (0.956). The NNFI and CFI were found to be 0.934, 0.910, respectively for the final model whereas

these were lower (0.902, 0.890) for the initial model. These values provide evidence that the fit between the final model and the data is quite satisfactory.

Table 5.6: Fit indices for the model

	Recommended value	**Initial Model**	**Final Model**
Cronbach's alpha	> 0.7	0.956	0.958
NNFI	0 (no fit) to 1 (perfect fit)	0.902	0.934
CFI	0 (no fit) to 1 (perfect fit)	0.890	0.910
RMSEA	< 0.1	0.137	0.086
χ^2/dof	< 3	5038/2278=2.212	3649/2045=1.784

CHAPTER 6

SUMMARY AND DISCUSSION

In this chapter, major findings will be summarized and how the findings agree or disagree with the previous research findings will be discussed.

6.1. Discussion on the ICJV performance measures

IJV performance may be evaluated using objective or subjective measures. There is a large amount of literature on the applicability of these two sets of measures, some of which claim that there is a positive correlation between the two (Geringer and Hebert, 1991; Beamish and Banks, 1987). However, there has been considerable disagreement about the merits of these alternate measures (Parkhe, 1993). In this study both objective and subjective measures are used as indicators of different constructs measuring different and complementary objectives and aspects.

Content validity of the measures is achieved through an extensive review of the literature and pilot studies that led to a more accurate model. A structural equation model was proposed to evaluate the empirical validity of the measures, including reliability, convergent, and discriminant validity. The internal reliability of the three constructs (project performance, partner performance, and performance of IJV management) and of the proposed model (overall IJV performance) was highly satisfactory. All variables of the model had statistically significant factor loadings on their corresponding constructs that is evidence of convergent validity. The goodness-of-fit indices of the model were examined and

found to be close to perfect fit. χ^2 difference tests performed on constrained and unconstrained models indicated that convergent and discriminant validity was satisfied.

The analysis suggests that "project performance", "partner performance", "performance of IJV management", and "perceived satisfaction with IJV" are all valid indicators that correspond to different and complementary dimensions of "overall IJV performance". Although all these indicators have high factor loadings, "partner performance", and "project performance" are observed to have the highest correlations with "overall IJV performance".

As a consequence of this part of the research, a complete measure of IJV performance has been achieved. Not only can researchers use this in their studies, but practitioners now have a common measure that is empirically validated. This performance construct can be used by construction companies during post-project appraisal after the termination of the IJV, and it may provide guidance for companies to assess multiple aspects of the IJV. It is proposed that partners should concentrate not only on their company and project objectives, but also on the common operation of the IJV and on their perception of what they get out of the IJV.

6.2. Discussion on the relationships within the model

The performance model involves eight constructs, which are proposed to be the drivers of "overall IJV performance". In the measurement model, all constructs of the model were validated; indicators not having significant factor loadings were deleted, satisfactory values for reliability and fit indices were achieved. After validating all constructs within the model, the hypothesized relations between these constructs are tested.

Strategic and organizational fit

Inter-partner consistency in terms of strategic goals and behaviors, cooperative culture, managerial philosophy, innovativeness, and long-term orientation influences mutual trust, commitment and collaboration between parties (Parkhe, 1991). As one of the most important factors of performance, "strategic and organizational fit" extensively influences "structural IJV characteristics" and moderately affects "inter-partner relations". If one relies on the high factor loadings of the variables that constitute the "strategic and organizational fit" construct, one should recommend that for better partner relations and a more successful IJV structure, IJV partners should have compatible technical (factor loading: 0.892) and managerial (0.733) skills and complementary experience in projects similar to the one being undertaken by the IJV (0.734), in addition to being compatible in size (0.786), financial capability (0.693), and workload (0.685). According to Luo (1998), the level of partner match in terms of strategic and organizational assets is critical for managing an IJV (Morris and Cadogan, 2001; Yan and Duan, 2003) as it increases the chance of achieving project objectives and leads to a high level of partner satisfaction. Although the presumed direct effect of "strategic and organizational fit" on IJV performance was rejected, this construct has an indirect influence on IJV success through maintaining good relations among the partners and facilitating a stronger IJV structure.

National culture fit

Cartwright and Cooper (1993), who define culture as a "social glue" that serves to bind individuals and creates organizational cohesiveness, state that "the degree of culture fit that exists between combining organizations is likely to be directly correlated to the success of the combination". By their very nature, international strategic alliances are affected by differences in national cultures (Barkema and Vermeulen, 1997; Park and Ungson, 1997). Prior research has provided mixed empirical evidence regarding the specific influence of cultural distance on IJV

performance (Brouthers and Brouthers, 2001). Although some researchers found that differences in national culture caused conflicts and barriers (Lane and Beamish, 1990; Sim and Ali, 2000), some argue that these differences may help IJV partners learn how to operate with a foreign partner (Barkema and Vermeulen, 1997) and may enhance the firm's learning capabilities (Makhija and Ganesh, 1997). Other researchers like Beamish (1985) and Glaister and Buckley (1999) found no relation between the two variables. In this study, it is found that differences in national cultures of two firms can be measured in terms of power distance, individualism, and masculinity. Similarities in the national cultures of IJV partners were found to affect "overall IJV performance" positively. This finding supports previous research by Harrigan (1988), Mohr and Spekman (1994), and Parkhe (1991) that reported that differences in national culture are associated with dissimilarities of partners' interpretation of and responses to strategic and managerial issues, and that they are a source of poor communication, inadequate cooperation, lack of commitment, and ineffective conflict resolution between the IJV partners.

Organizational culture fit

Similarity in the organizational cultures of partner companies is also found to enhance IJV performance. The positive influence of IJV partners' "organizational culture fit" is supported by other studies in the literature (e.g., Pothukuchi et al., 2002; Brown et al., 1988). When partners in an IJV differ in their organizational culture, these differences may result in conflicting behaviors, leading to misunderstandings and interaction problems, which may lead to lower partner satisfaction and difficulties in achieving project targets. It was also found that "organizational culture fit" has a moderate effect on "inter-partner relations", and "structural IJV characteristics", which shows that this construct has an important role in managing and structuring an IJV.

Inter-partner relations

The dominant influence of "inter-partner relations" on "overall IJV performance" observed in this study may be attributed to the indirect but large influences of "strategic and organizational fit", "organizational culture fit", and "structural IJV characteristics" on the quality of partner relations. The extensive effect of "inter-partner relations" is also supported by many studies such as those by Killing (1983), Buckley and Casson (1988), Anderson (1990), Parkhe (1993), Shenkar and Zeira (1992), Hebert (1994), Doz (1996), Sridharan (1997), Das and Teng (1998), Kwok et al. (2000), Luo and Park (2004), and Mohr and Puck (2005). It appears that a well established IJV structure with partners having compatible resources may enhance inter-partner relations in terms of commitment (factor loading: 0.901), cooperation (0.796), communication (0.751), and trust (0.730) in the operation of an IJV.

Structural IJV characteristics

The influence of "structural IJV characteristics" on "overall IJV performance" was found to be moderate, which is supported by other studies such as those by Bing and Tiong (1999), Luo (2001), and Yan and Gray (2001b). The distinctive characteristic of an IJV, which is shared ownership, was reported to be also its key problem (Killing, 1982; Beamish and Banks, 1987; Hennart, 1988; Geringer and Hebert, 1989). In this study, it was hypothesized that the majority ownership of the partner from the host country creates an advantage. This hypothesis is supported by the analysis. Indeed, as stated by Killing (1983), the dominance of one partner may increase stability and majority ownership can simplify the JV control process, whereas equal equity positions can increase the organizational complexity of managing JVs.

An appropriate control structure allows the partner firms to integrate the IJV's activities with their individual strategies and activities and protects against the loss of the venture's competitive advantage (Geringer and Hebert, 1989). With respect to the relationship between control and performance, research has

produced highly conflicting results (Yan and Gray, 2001b). In this study, it was hypothesized that split management, in which each IJV partner controls its own firm-specific activities, increases IJV performance. Choi and Beamish (2004) found evidence supporting the split management argument, whereas Mjoen and Tallman (1997) found no relation between split management and IJV performance. Findings of this study indicate that split management enhances "overall IJV performance".

Most of the research studies have concluded that a good JV agreement is an essential success factor and can prevent a great deal of trouble and conflict in future JV operations (Bing and Tiong, 1999). A good JV agreement must be drafted in clear terms and conditions that can be easily understood by all partners as well as the working staff. Each partner's authority and responsibility in the JV must be clearly understood, since a complete contract reduces the uncertainty faced by the organizational decision-makers and facilitates cooperation (Luo, 2002). Basically, an IJV should be established based on mutual trust and understanding, but the agreement must be concrete and precise regarding liability (Bing and Tiong, 1999). Findings of this study also support the positive influence of completeness of contact for the successful operation of an IJV.

Host country risks

When firms enter an international market, they are likely to face a high level of uncertainty. Those uncertainties are caused by political, economic, structural, policy, environmental, market, production, and social risks (Bing et al., 1999; Ostler, 1998) as well as completion, operational, and regulatory risks (Gunhan and Arditi, 2005). The environment under which IJVs operate was expected to influence their performance as suggested by Boateng and Glaister (2002). It was also proposed that "host country risks" would have an indirect influence on IJV performance through other variables such as "inter-partner relations", and "structural IJV characteristics". It is surprising that data analysis did not provide any evidence of a significant direct or indirect relationship between "host

country risks" and "overall IJV performance". A similar result was obtained by Mohamed (2003) who found that contrary to what was hypothesized, risks associated with host governments appear to have no significant direct relationship with IJV performance. The reason for this result may lie in the long standing myth that conditions in a foreign country could disrupt the activities of an IJV, whereas given the globalization of business practices that took place in the last decade, foreign country conditions may not have much impact on performance after all.

Familiarity with conditions in the host country

There are disagreements on the influence of the psychic distance between an IJV partner and the host country, which is labeled "familiarity with conditions in the host country" in this research. Despite the general acceptance of a negative relationship between psychic distance and IJV performance, empirical findings are rather inconclusive (Ali, 1995; O'Grady and Lane, 1996). It is true that firms entering a culturally distant market are likely to face a high level of uncertainty. While some researchers mention the adverse effects of large differences between the national culture of an IJV partner and the culture of the host country on the performance of the IJV (Li and Guisinger, 1991; Nordstrom and Vahlne, 1994; Barkema et al., 1997; Hanvanich et al., 2003), some claim that these differences are a source of admiration and may enhance IJV performance (O'Grady and Lane, 1996; Park and Ungson, 1997; Evans and Mavondo, 2002). In this study, no statistically significant relation was found between "familiarity with conditions in the host country" and "overall IJV performance". The findings reveal that an IJV that is not familiar with the business practices, political and legal system, economic environment, industry structure and national culture of the host country, does not necessarily have a low performance level. This finding is supported by Franko's (1971) and Ali's (1995) works and may be attributed to the efforts of some companies to undertake extensive research on the foreign environment in order to reduce the uncertainty originating from this unfamiliarity

and to improve strategic decision making. As a result, this uncertainty does not prevent the IJV from accomplishing its objectives successfully.

Project-related factors

Data analysis reveals that "project-related factors" moderately influence "overall IJV performance". This expected effect is also supported by Mohamed (2000, 2003) who found that project-related risks have strong and negative effects on IJV performance. It is asserted that the more project-related risks the venture has to deal with, the less certain the operating environment becomes, and the worse it will perform. The strong impact of project-related risks on IJV performance reinforces the importance that must be assigned by organizations to the development and adoption of risk management strategies, via which risk sources and factors are identified, evaluated, and addressed in a proactive manner. Among the thirteen project-related variables considered in this study, completeness of the contract, completeness of project definition, and completeness of design are the most significant indicators based on their factor loadings. This finding demonstrates the importance of the quality of contract documents including project definitions, legal terms, specifications, design instructions, and implementation processes. This implies that the clarity and completeness of the contract documentation before a project starts are critical for project success. Therefore, partner companies should make sure that the rights and responsibilities of the partners are fully defined in the contract, project requirements and specifications are complete, and there are no uncertainties associated with the design. Issues concerning the project management team, the other project participants, and the necessary resources to complete the project are of secondary importance, yet ability to coordinate the relations among project parties and effectiveness of management functions help companies achieve success.

CHAPTER 7

CONCLUSIONS AND FURTHER WORK

Due to their increasing strategic importance in global competition, JVs have been an important research topic. Forging a strategic alliance enables the companies to share financial and human resources as well as managerial and technical skills that are critical for achieving a successful project, which they would not afford on their own. One of the ways construction companies are able to exploit business opportunities and enter new markets abroad is through the formation of IJVs. However, such entities are difficult to manage due to their composite structures that entail diverse organizational and managerial styles, and objectives. Considering the high failure rates of IJVs (Makino and Beamish, 1998), the assessment of IJV performance deserves extensive research.

IJV literature includes various studies related to performance issues, such as assessment, determinants and indicators of IJV performance. However, evaluating the success of an IJV is still difficult due to the disagreements on the definition and the measure of performance. It is certain that to obtain a complete understanding of performance, researchers should use multidimensional constructs as performance measures. Performance measurement is a complex task since IJVs involve different participants and aspects. Performance of parent firms as well as the operational success may be defined using financial, objective or subjective measures. Long-term objectives should be considered in addition to the short-term objectives.

A questionnaire survey was administered to the Turkish partners of 68 IJVs and the collected data were analyzed using SEM to examine the interrelationships between the drivers of IJV performance and their impact on IJV performance.

The respondent companies were the members of TCA, those with an average age of 40 years, having extensive and diversified international experience that started at the early 1970s, and frequently partnering with large foreign contractors. Almost half of the projects under consideration were completed in Turkey. A total of 19 countries hosted the large mostly infrastructure and public projects that lasted about 3-4 years having an average size of 194 million USD. Partners of Turkish companies had origins of 25 different countries all around the world and almost no disputes were encountered during the ICJV operation by the partners. It is observed that the performance levels of the ICJVs in terms of project, partner, and IJV management are around 3-3.5 (in 1-5 Likert Scale); similarly, the perceived satisfaction of the partners with their IJVs was around 3.5.

7.1. Major findings and contributions of the study to the literature on ICJVs

In this research, performance of ICJVs is modeled using SEM based on real project data. The validity of the proposed performance construct and its drivers is investigated through several tests; hypotheses regarding the relations among determinants of performance are tested; and their influence on ICJV performance is analyzed.

- Regarding the complex environment and conditions related to the formation and operation of an ICJV, based on an extensive literature survey both partner-related, host country-related and project-related factors are defined within the context of this research. In the proposed conceptual model, considering the inter-dependencies among these factors, several hypotheses are developed.
- SEM has been selected as the most appropriate technique to analyze the complex relationships within the performance model. SEM tools are increasingly being used in behavioral science research for the causal modeling of complex, multivariate data sets in which the researcher gathers

multiple measures of proposed constructs (Hair et al., 1998). As discussed in previous sections, considering the characteristics of the proposed model, SEM is found to be a more suitable technique compared to other statistical methods such as multiple regression and AI tools such as ANN and CBR. However, alternative methods such as ANN and CBR may be utilized to develop prediction models. Based on the factorial structure of the parameters both related to the determinants and indicators of performance, CFA has been utilized as an initial step in SEM analysis; validity of the constructs are achieved; all of the hypothesized relationships are tested at a time; and best model is obtained through some revisions.

- There is no consensus in the literature on the most appropriate criteria (and methods) for the evaluation of IJV success, even if some of them are more widely used than others. Although ICJVs are similar to other IJVs, they are generally project-based. Considering the unique nature of the construction industry, as a part of the conceptual model, a multidimensional performance construct has been defined. In this model, "overall IJV performance" has four dimensions, namely "project performance", "partner performance", "performance of the IJV management", and "perceived satisfaction with IJV". This model is considered to be a more complete measure of IJV performance compared to the methods mentioned in the literature. It constitutes a common measure for researchers and practitioners that is empirically validated. This performance construct can be used by construction companies as a post-project appraisal tool after the termination of the IJV, and/or may provide guidance to companies that wish to assess multiple aspects of the IJV. According to this model, partners should concentrate not only on their company and project objectives, but also on the common operation of the IJV and on their perception of what they get out of the IJV.

- In this study, it is postulated that IJV performance is influenced by internal factors that include (1) the strategic and organizational fit, (2) the national

culture fit, (3) the organizational culture fit between IJV partners, (4) the quality of inter-partner relations, and (5) structural IJV characteristics, and external factors including (1) host country risks, (2) familiarity with conditions in host country, and (3) project-related factors. The major objective of this paper was to explore the direct and indirect impact of both internal and external factors on IJV performance in construction. In addition, the interrelations between these factors were investigated.

- The effects of strategic, organizational, and cultural fit, host country conditions, and familiarity with conditions in the host country were evaluated relative to inter-partner relations and structural IJV characteristics.

- "Inter-partner relations" appears to be the core construct of the model due to its strong linkages with "overall IJV performance" and strategic and organizational fit, organizational culture fit, and structural IJV characteristics. The factor loadings of this construct indicate that previous cooperation between IJV partners, commitment to the IJV, cooperation of IJV partners during strategic decision-making, and communication are the major indicators of inter-partner relations and consequently of IJV performance. "Strategic and organizational fit" and "organizational culture fit" appear to be the key attributes that enhance "inter-partner relations".

- "Structural IJV characteristics" was found to moderately affect "overall IJV performance" revealing the importance of ownership distribution, extent of management control and completeness of the IJV contract. A home country partner that has majority ownership is likely to take the advantage of being familiar with the conditions in the host country. Split management control is also suggested to increase the level of performance since the specific competencies of each partner could be utilized effectively. Finally, clear and complete definition of roles, rights, and responsibilities should be put forward to create a strong foundation of the IJV organization. It should also be noted that "strategic and organizational fit" and "organizational culture fit" have some impact on "structural IJV characteristics" just they did on

"inter-partner relations". While "strategic and organizational fit" does not have a direct impact on "overall IJV performance", it looks like it has an indirect impact on its impact on "inter-partner relations" and "structural IJV characteristics".

- The results also suggest that project-specific factors are highly associated with IJV performance, which supports the view that each construction project is unique and appropriate strategies should be developed to handle the particular risks and problems associated with the project. Given the variables that control the project-related factors construct, this can be achieved by making sure that the owner has a clear idea of the expected product and issues clear instructions to designers, who in turn produce a complete set of design documents. The IJV will benefit if the contract between the owner and the joint venturers is unambiguous and the duties, responsibilities and liabilities of the parties are clearly stated at the start of the project. Strong project management performance and availability of resources also help.
- One of the most interesting findings is that there is no significant relationship between "host country risks" and "familiarity with conditions in the host country", and "overall IJV performance". This may be because partners sharing common managerial behavior, having sufficient resources and skills, working in a cooperative and well-structured organization are able to deal with the operational difficulties and project specific risks successfully in the current global environment.
- Partners having greater cultural similarities (both at national and organizational levels) are observed to perform better since they share common values and practices that help them reduce the risk of conflicts during the formation and operation of the IJV.
- Based on the findings of this study, it may be concluded that the internal factors are the key drivers of performance, whereas the external factors have no or little influence on "overall IJV performance". In addition, factors in the pre-formation stage of the IJV, especially the strategic, organizational, and

cultural fit between partners are critical both for a well-functioning IJV organization and achieving the project and individual company objectives.

- The reliability of each construct and of the whole model is satisfactory. The fit indices of the model are quite high. Since goodness-of-fit indices are affected by sample size (Jackson, 2003), a larger sample than the 68 cases used in the study could yield higher fit indices.

7.2. Recommendations for ICJV partners

Findings of the analysis may be used to formulate a roadmap for the construction companies that are intending to form JVs with foreign partners. Considering the key determinants of overall IJV performance, firstly companies should concentrate on finding compatible partners that could best complement them in terms of strategic, organizational and cultural assets. Secondly, they should establish an appropriate structure for the JV organization in which each partner controls its core competency activities and prepare a complete agreement defining each partner's roles and responsibilities clearly. Project-specific factors should be taken into account as well as managerial issues of the IJV organization in order to achieve project objectives, which in turn determine the success of the IJV.

It is believed that research findings may help professionals during strategic planning process of ICJVs. Figure 7.1 illustrates the steps of strategic planning of construction companies starting from market search and project selection towards completion of a project via a JV. Potential projects are usually evaluated by a team and/or head of the business development department in a company. Strengths Weaknesses Opportunities and Threats (SWOT) analysis is performed for each possible project. Considering also the company's mission and strategies, project/market selection decision is made. Based on the characteristics of the project/market, company's related department assess the benefits, advantages, and disadvantages of entering the market as a single investor or as a JV.

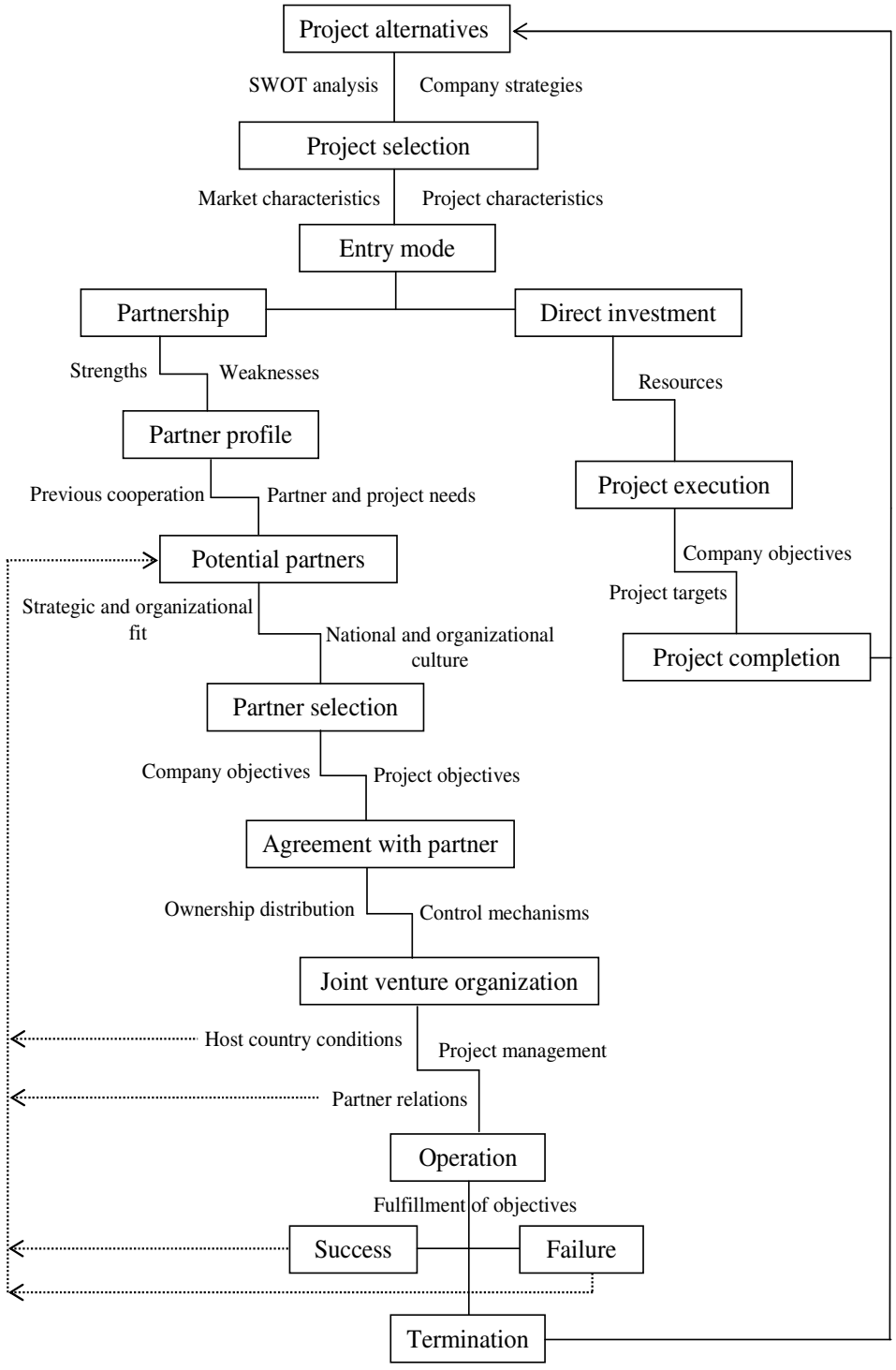


Figure 7.1: Steps in strategic planning of a company in the IJV process

If the resources and experience of the company is not sufficient to complete that specific project, or the company does not have necessary information related to the practices in the host country, it may consider engaging in a JV.

Partner selection is one of the most critical strategic decisions of a company that should be carefully made. A team that is responsible for partner search including the creation of the profile of an ideal partner, list of potential partners, and selection of the most appropriate partner may increase the performance of partnerships in the construction business. Such a team can benefit from the conclusions drawn in this study (inter-partner fit including strategic and organizational fit, national culture fit and organizational culture fit).

Following are some recommendations for practitioners in the light of research findings:

- During ***partner search***, strengths and weaknesses of the company should be reviewed and potential partners that can complement the weaknesses with their competencies should be taken into account. The most appropriate partner should be selected after the expectations are defined. In addition, in the qualification process, strategic and organizational assets and cultural similarities between two companies should be considered in order to have smooth relations. Although findings of this research are related to the process of an IJV after its establishment, it is obvious that those findings are useful in the partner selection phase as well.
- For a successful IJV organization, a complete ***contract*** should be prepared in which company and project objectives are reflected, roles and responsibilities of each party are defined and ownership distribution together with ***control mechanisms*** are arranged based on the specific needs of the project and contribution of partners. Completeness of the contract will lead to smooth operation of the IJV and enhance inter-partner relations as suggested by the findings.

- It is important how host country conditions are handled by the partners, ***project management functions*** are realized, and partners maintain harmonious relations. During operation of the IJV, ***strategic planning*** (Trafford and Proctor, 2006), ***leadership*** (Slater, 2003) and ***human resources management (HRM)*** (Lajara et al., 2003) play key roles.

- As Trafford and Proctor (2006) state that many SAs lack alliance strategies, however partners should adopt coherent alliance strategies that has four main components including a business strategy to shape the logic and design of the alliance; a dynamic view to guide the management and evolution of the alliance; a portfolio approach to enable coordination among the alliance to enhance flexibility; and an internal infrastructure that supports and strives to maximize the value of external collaboration (Gomes-Casseres, 2000). As the findings suggest, structural IJV characteristics, which involve development and implementation of IJV strategies and objectives, impact both partner relations and performance. Therefore, establishment of coherent strategies will help partners realize both company and project objectives successfully.

- Implementation of coherent strategies basically depends on the commitment of IJV management that necessitates a strong, honest, confident, powerful, and decisive ***leadership***. Weak organizational leadership causes lack of clear vision and direction (Trafford and Proctor, 2006). The managers should personally take part in the cooperative management process and show their commitment and enthusiasm both to and in the operation of the alliance. Managerial board may include a financial representative to better track progress of the operations. The participation of senior managers must go beyond the formulation of a strategy based on alliances; they must personally take part in the cooperation management and show their commitment and enthusiasm in the alliance (Hoffmann and Schlosser, 2001; Inkpen and Roos, 2001 cited in Lajara et al., 2003). Trafford and Proctor (2006) reported that failure of a JV was governed by weaknesses in commitment and cooperation within the JV. Strong leadership is important in terms of achieving

commitment that is the most important indicator of partner relations that has a dominant effect on IJV performance.

- Problems on commitment, cooperation and communication could have been resolved through the briefings on the progress of the JV organization, discussions around future financial planning, a full understanding of the contract, mechanisms to discuss issues with the client, and make people become aware of the objectives of the JV, partner and client. These can be achieved through regular weekly and monthly meetings with the managerial board of the IJV and the project manager. Predefined project targets and company objectives can be monitored through progress reports and precautions can be taken to meet the goals. Effective communication tools improve cooperation among the partners, create a more collaborative environment, lead to mutual trust and a painless decision making process.
- Effective and efficient participation of personnel on each level is a prerequisite for success. This may only be achieved by proper HRM. A good ***HRM*** identifies each person's skills, motivates employees to use those skills, and places the appropriate individuals at the key positions. HRM covers human resources practices such as recruitment and selection, training, and performance appraisal (Lajara et al., 2003). All staff in an IJV should be informed and involved in new initiatives and strategies and they should feel a part of a common identity. This will help partners create a cooperative culture and enhance inter-relations. In addition, effective project management helps partners mitigate project risks that moderately influence the overall performance of the ICJV. Considering uniqueness of each construction project, project managers have significant functions. Selection of the project manager is the most critical decision of HRM. Therefore, success of an IJV is governed to a large extent by correct choices of HR department.
- Differences in management styles and organizational cultures may hinder the success of IJVs, however a cultural integration process may be useful in avoiding conflicts among the partners. However, creation of the

corporate/organizational culture for an IJV is not very easy due to the project-based nature of the JVs in construction. Therefore, national and organizational cultures of partners may not be forced to be integrated, rather partners should be aware of the fact that culture is one of the uncontrollable parameters of the IJV process, so mutual understanding will be a better way to avoid future conflicts. According to Parkhe (1991) the process must start by trying to understand the partners' way of thinking and behaving, an effort in which the use of training programs for cultural understanding can provide a valuable help. For example, the joint use of rituals and ceremonies may be an effective way to create a corporate culture. Another way is to hire the services of a consultant that can provide recommendations and programs to sort out conflicts (Lajara et al., 2003). As mentioned in previous sections, manager/personnel choice is critical for IJV success. Swierczek (1994 cited in Lajara et al., 2003) highlights the importance of multicultural skills in the managers working for the alliance. Based on the findings of this research, it is recommended to select partner representatives considering their international/multinational experiences so that they can avoid conflicts due to cultural mismatches and can facilitate communication among partners.

- Since completeness of contract is significant both for a properly designed IJV organization (control and ownership distribution), partner and client relations besides project management, contracts should be more carefully managed compared to handling other factors affecting performance. Partners should enhance their consciousness on ***contract management*** and ***claim management*** as well since contractual issues play a major role in dispute resolution as well. A contract administrator and a claim manager should be responsible throughout the IJV process including negotiation period between partners, contract preparation, operation, termination, and in case of disputes among partners or with the client. It should also be noted that whether a project is undertaken solely by a company or through an IJV, contractual issues may cause or avoid profit/loss.

- Successful alliance projects are highly evolutionary and go through a sequence of interactive cycles of learning, reevaluation, and readjustment. Considering the dynamic nature of the IJV, learning along environment, task, process, skills, and goals helps mediating between the initial conditions and the outcomes of the alliance (Doz, 1996). Effectiveness of ***organizational learning*** within the IJV and adapting the organization based on the changing conditions increases cooperation among partners. Dynamic learning within the IJV will help partners communicate more frequently, increase their commitment to the IJV and create a cooperative environment that significantly contribute to IJV success as far as the influence of inter-partner relations on performance is concerned.
- ***Post-project evaluation*** is also an effective mechanism for the success of future partnerships. The extent the objectives of the partners and projects are fulfilled determine the performance level of the IJV. Based on the success/failure of the IJV, companies become aware of the factors affecting the performance level and using the knowledge gained in each IJV, they can evaluate future potential partners on a sound basis.

7.3. Limitations of the study

As discussed previously, one of the limitations of this research involves collecting data from only one partner for each IJV. However, this choice was expected not to affect the findings of the study based on the findings of Geringer and Hebert (1991) and Glaister and Buckley (1998) who found that perceptions of IJV partners on IJV performance are positively correlated.

Findings based on the proposed framework reflect the experiences of Turkish contractors. The model is bound with the data corresponding to the projects competed in 19 different countries and partners from 25 different countries. This study presents a general framework; the model could produce different results depending on the respondent partner, project size, and the project type.

Since Turkish companies prefer to enter international markets that are culturally similar to them, cultural considerations in the host country did not have a significant impact on the performance level. However, different results could have been obtained if the diversity of Turkish companies was larger.

Sample size was actually small for such a statistical analysis, however satisfactory results were obtained due to the robust method capability incorporated in EQS analysis.

7.4. Recommendations for further work

The proposed model utilized Turkish contractors' current experiences and today's market conditions. In future, in order to track the changes in construction market, a new model may be constructed through new data collection. When the Turkish companies involve in projects in distant markets and they collaborate with culturally more dissimilar partners, new insight may be gained for those new ICJVs and new recommendations may be provided for their success.

Using the same parameters in this study, data from companies of other nationalities can also be collected in order to develop similar models and those models can be compared. Also, in order to reveal the different experiences/perceptions of partners, data can be collected from multiple respondents. When the differences among those models are observed, a more complete and reliable model that can be used for every company may be achieved.

This research will shed light for further research in developing prediction models. If proper data is collected, overall performance of an IJV can be evaluated as a single parameter and companies can benefit from such a model for performance forecasting at the start of a project or performance assessment as a part of post-project appraisal.

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APPENDIX A

A SAMPLE OF THE QUESTIONNAIRE

CONTENTS

ASSUMPTIONS OF THE RESARCH

Please take into account the following assumptions when responding to the questions.

- "ICJVs" defines the projects that are undertaken by a Turkish and a foreign parent operating in Turkey, by a Turkish and a foreign parent operating in the foreign partner's home country or by a Turkish and a foreign parent operating in a third country.
- In order to measure the performance of an ICJV, only completed projects will be considered.
- If the JV has another Turkish parent, then this parent will not be assessed.
- If the JV has more than one foreign parent, the one which has a closer relation with the Turkish partner will be assessed.
- If you have completed more than one project with your partner, it is necessary to evaluate each completed project.
- If you have undertaken projects with different foreign partners, it is necessary to evaluate each project and each partner.

SECTION 1: GENERAL INFORMATION ABOUT THE COMPANY AND THE PROJECT

1. Please state the number of years that your company has been in the construction sector……..

2. Please state the areas of expertise of your company…….....

3. Please state the date of your company's first experience in international markets.....

4. Please state your company's domestic turn over realized so far.....

5. Please state your company's overseas turn over realized so far.....

6. What is the frequency of your company in working with foreign partners?

1=Never 2=Seldom 3=Sometimes 4=Usually 5= Frequently

7. Please state the number of different countries your company has operated in so far....

8. In which country is this project completed?.....

9. Please state the nationality of your partner in this joint venture…….....

10. Please state the size of your foreign partner.

Small Medium Large

11. Is this project your first experience with your foreign partner?.....**Yes No**

12. Please state the actual project duration…….....

13. Please state the type of the project.

Infrastr Transportation Building Housing Industrial Water str Other (state…)

14. Please state the size of the completed project……..…….……..

15. Please state the contract type.....

Unit price Lump sum Turnkey Cost+fee Other (please state.....)

16. Please state whether your have collaborated with your partner after this project or not……..**Yes No**

17. Did you have any disputes (court or arbitration) with your partner as a result of this project…….**Yes No**

18. Please state how management control is imposed within your JV.

Shared management for all activities
Dominant management for all activities by our company
Dominant management for all activities by our partner
Split management of activities for which each partner has competence

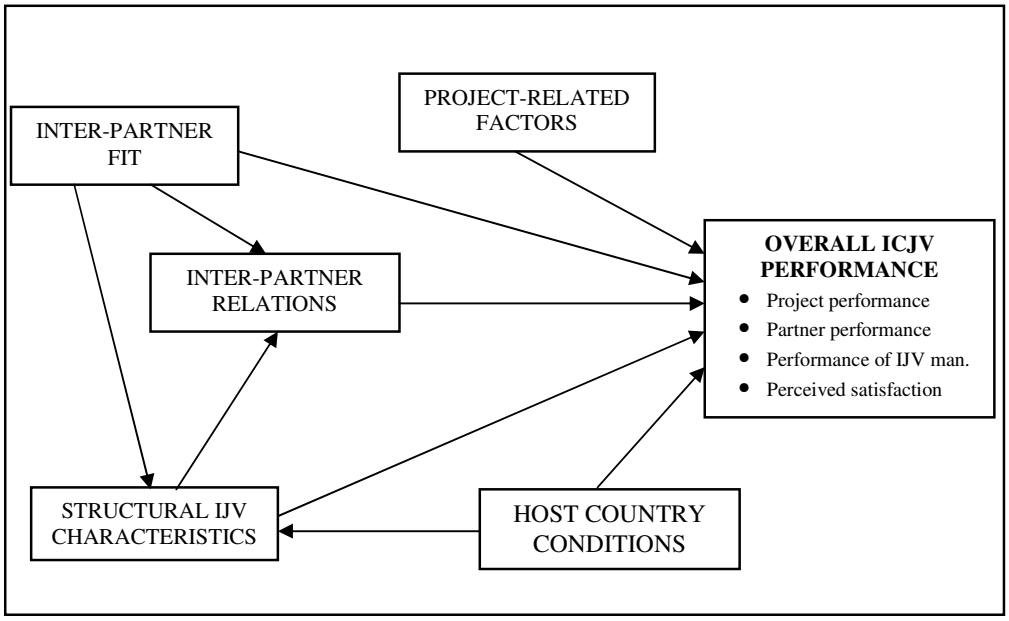
19. Please state how the ownership is distributed within your JV.

Foreign partner dominant **Equally shared** **Our company dominant**

20. Please state the client in this project.....**Private** **Government**

SECTION 2: INTERNATIONAL CONSTRUCTION JOINT VENTURE FRAMEWORK

In this research, an international construction joint venture (ICJV) defines a new organization which is formed between two or more construction companies from different countries to realize some common objectives. In the below framework which is constructed to model the performance of an ICJV, the performance is measured by three indicators such as the organizational performance of the partners, project success and overall satisfaction of the partners. Performance of an ICJV is assumed to be influenced by inter-partner fit, inter-partner working relations, JV's structural characteristics, factors related to the host government and the project characteristics.



Aim of the research study:

The major objective of this study is to analyze the ICJVs which are formed by Turkish companies and the outputs of these JVs. In this respect, determinants of ICJV performance will be explored and the relations between performance indicators and determinants will be investigated.

SECTION 3: PERFORMANCE INDICATORS OF INTERNATIONAL CONSTRUCTION JOINT VENTURES

OBJECTIVES	IMPORTANCE IN ESTABLISHING THE JV					EXTENT IT IS REALIZED BY YOUR COMPANY				
	Very low 1	Low 2	Medium 3	High 4	Very high 5	Very low 1	Low 2	Medium 3	High 4	Very high 5
Project performance										
Complete the project within budget										
Complete the project within schedule										
Achieve required quality										
Satisfy the client										
Partner performance										
Share risks										
Share resources (financial, etc.)										
Decrease costs										
Learn management skills from your partner										
Transfer technology/learn technical skills from your partner										
Facilitate internationalization (market entry)										
Increase competitiveness (get the job)										
Create long-term relationships										
Make more profit										
Performance of IJV management										
Effectiveness of the strategic (upper management) control of the JV										
Effectiveness of the operational (daily activities) control of the JV										
Effectiveness of the organizational control of the JV										
Perceived satisfaction										
Satisfaction of your company from the JV										

SECTION 4: PERFORMANCE DETERMINANTS OF INTERNATIONAL CONSTRUCTION JOINT VENTURES

SUCCESS CRITERIA				IMPORTANCE FOR THE SUCCESS THE JV					EXTENT IT IS REALIZED BY THE JV				
				Very low 1	Low 2	Medium 3	High 4	Very high 5	Very low 1	Low 2	Medium 3	High 4	Very high 5
INTER-PARTNER FIT	**Factors**	Should be similar	Should be complementary										
	Company goals												
	Financial capability of the companies												
	Size of the companies												
	Management system of the companies												
	International and national work load of the companies												
	Previous experience in the host country												
	Similar project experience												
	Management skills												
	Technical skills												
	Human resources												
	Strong relations with the client												

SUCCESS CRITERIA		IMPORTANCE FOR THE SUCCESS THE JV					EXTENT IT IS REALIZED BY THE JV				
		Very low 1	Low 2	Medium 3	High 4	Very high 5	Very low 1	Low 2	Medium 3	High 4	Very high 5
NATIONAL CULTURE	**Factors**										
	Similarity of the home countries of the partners in terms of power distance (inequality in income distribution and opportunities provided to people)										
	Similarity of the home countries of the partners in terms of individualism/collectivism (weak/strong relations in the society)										
	Similarity of the home countries of the partners in terms of masculinity (gender differentiation)										
	Similarity of the home countries of the partners in terms of uncertainty avoidance (obeying the rules, avoiding the risks)										
	Similarity of the home countries of the partners in terms of long-term orientation										
ORGANIZATIONAL CULTURE	Similarity of the companies in terms of process vs. result orientation (sticking to rules vs. taking risks easily)										
	Similarity of the companies in terms of employee vs. job orientation (listening to employees or not)										
	Similarity of the companies in terms parochial vs. professional approach (feeling comfortable in the company or existence of strict job competence)										
	Similarity of the companies in terms open vs. closed system approach (having good relations and trust among employees or having poor relations)										
	Similarity of the companies in terms loose vs. tight control approach (feeling free in the company or being under pressure)										
	Similarity of the companies in terms normative vs. pragmatic approach (solving problems using standard procedures or creating new ways of solutions)										

	SUCCESS CRITERIA	IMPORTANCE FOR THE SUCCESS THE JV					EXTENT IT IS REALIZED BY THE JV				
		Very low 1	Low 2	Medium 3	High 4	Very high 5	Very low 1	Low 2	Medium 3	High 4	Very high 5
INTER-PARTNER RELATIONS	Commitment to the JV and the partner										
	Communication between the partners										
	Conflict resolution between the partners										
	Trust among partners										
	Previous cooperation among partners										
	Reaching a consensus in making strategic decisions										
STR. IJV CHARAC.	Distribution of control within the JV										
	Ownership distribution within the JV										
	Completeness of the JV agreement between the partners										
HOST COUNTRY RISKS	Political stability of the host country										
	Strong macroeconomic conditions of the host country										
	Strength of the legal system in the host country										
	Strong relations with the host country										
FAMILIARITY WITH CONDITIONS IN THE HOST COUNTRY	Familiarity to the language of the host country										
	Familiarity to the business practices of the host country										
	Familiarity to the political and legal system of the host country										
	Familiarity to the economic environment of the host country										
	Familiarity to the industry structure of the host country										
	Familiarity to the national culture of the host country										

	SUCCESS CRITERIA	IMPORTANCE FOR THE SUCCESS THE JV					EXTENT IT IS REALIZED BY THE JV				
		Very low 1	Low 2	Medium 3	High 4	Very high 5	Very low 1	Low 2	Medium 3	High 4	Very high 5
PROJECT-RELATED FACTORS	Complete and on time payments by the client										
	Strong relations with other project participants										
	Competence/performance of the other parties in the project										
	Complete definition of the project										
	Availability of resources (human, materials, equipment, plant, etc.)										
	Handling the technical complexity of the project										
	Handling the impact of external factors (weather, water, soil, force majeure)										
	Complete and accurate design										
	Completeness of the contract										
	Handling the quality requirements (tolerance of the client)										
	Handling the time limitations (tolerance of the client)										
	Performance of project management (planning, coordination, controlling and monitoring) activities										

APPENDIX B

DESCRIPTIVE STATISTICS

Table B.1: Statistics for general information about the companies

Statistics	Age (years)	Domestic turn over ($M)	Overseas turn over ($M)	Frequency of partnering (1-5 Scale)	Number of countries of operation
Mean	39.07352941	2493.317647	1564.544118	3.735294118	8.029850746
Standard Error	1.946870722	450.4630073	240.8488149	0.117811562	0.813991775
Median	39	2150	616.5	4	7
Mode	30	4000	2000	3	3
Standard Deviation	16.05430725	3714.613119	1986.090207	0.971499027	6.66280983
Sample Variance	257.7407814	13798350.63	3944554.311	0.94381036	44.39303483
Kurtosis	-0.166197328	46.00454885	1.927449189	-1.115836179	0.098057285
Skewness	0.125960579	6.183090365	1.57930325	-0.042305102	1.053895204
Range	66	30000	8000	3	22
Minimum	2	0	0	2	0
Maximum	68	30000	8000	5	22

Table B.2: Statistics for project performance

Statistics	PROJPER1		PROJPER2		PROJPER3		PROJPER4	
	Importance	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**
Mean	4.455882	3.485294	4.191176	3.088235	4.455882	4.029412	4.485294	3.941176
Standard Error	0.087482	0.150347	0.098846	0.155009	0.089956	0.1166	0.097133	0.133965
Median	5	4	4	3	5	4	5	4
Mode	5	4	4	3	5	4	5	5
Standard Deviation	0.721396	1.239796	0.815106	1.278237	0.741797	0.961507	0.800982	1.104703
Sample Variance	0.520413	1.537094	0.664399	1.633889	0.550263	0.924495	0.641572	1.220369
Kurtosis	6.536365	-0.65907	3.170478	-1.00649	6.99416	0.446409	5.158666	-0.19721
Skewness	-1.93045	-0.57056	-1.39153	-0.08117	-2.10461	-0.89035	-2.0155	-0.77059
Range	4	4	4	4	4	4	4	4
Minimum	1	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5

Table B.3: Statistics for partner performance

Statistics	PARTPER1		PARTPER2		PARTPER3		PARTPER4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	3.955882353	3.367647059	3.911765	3.411765	4.073529	3.073529	3.176471	2.632353
Standard Error	0.117468587	0.123783655	0.133724	0.136164	0.113443	0.126262	0.137297	0.143493
Median	4	4	4	4	4	3	3	3
Mode	4	4	4	4	5	3	3	3
Standard Deviation	0.968670785	1.020746168	1.102714	1.122833	0.935473	1.041184	1.132178	1.183272
Sample Variance	0.93832309	1.041922739	1.215979	1.260755	0.87511	1.084065	1.281826	1.400132
Kurtosis	2.410436394	0.207669382	0.434531	-0.34302	0.693207	-0.63712	-0.60272	-0.5124
Skewness	-1.43254669	-0.80065211	-0.99072	-0.55502	-0.93848	-0.06879	-0.23143	0.314143
Range	4	4	4	4	4	4	4	4
Minimum	1	1	1	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5

Statistics	PARTPER5		PARTPER6		PARTPER7		PARTPER8		PARTPER9	
	Imp.	Rating	Imp.	Rating	Imp.	Rating	Imp.	Rating	Imp.	Rating
Mean	3.397059	2.852941	3.882353	2.970588	4.117647	3.705882	4.132353	3.352941	4.176471	3.073529
Standard Error	0.156985	0.145559	0.133385	0.145114	0.107916	0.129256	0.095795	0.11993	0.091186	0.131374
Median	4	3	4	3	4	4	4	4	4	3
Mode	4	3	4	2	4	4	4	4	4	3
Standard Deviation	1.294532	1.200307	1.099924	1.196644	0.8899	1.065873	0.789944	0.988965	0.751936	1.083336
Sample Variance	1.675812	1.440737	1.209833	1.431958	0.791923	1.136084	0.624012	0.978051	0.565408	1.173617
Kurtosis	-0.69929	-0.78334	-0.01834	-0.94546	1.60974	-0.21121	-0.07698	-0.50472	0.500377	-0.60471
Skewness	-0.57417	-0.02843	-0.86993	0.004192	-1.15294	-0.67442	-0.61638	-0.3875	-0.73892	-0.22221
Range	4	4	4	4	4	4	3	4	3	4
Minimum	1	1	1	1	1	1	2	1	2	1
Maximum	5	5	5	5	5	5	5	5	5	5

Table B.4: Statistics for performance of IJVmanagement

Statistics	MANPER1		MANPER2		MANPER3	
	Importance	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**
Mean	4.338235	3.514706	4.088235	3.544118	3.941176	3.588235
Standard Error	0.082781	0.123051	0.090689	0.105664	0.110634	0.117097
Median	4	4	4	3.5	4	4
Mode	4	4	4	3	4	3
Standard Deviation	0.682626	1.014707	0.747839	0.871332	0.91231	0.965607
Sample Variance	0.465979	1.029631	0.559263	0.759219	0.832309	0.932397
Kurtosis	0.777663	0.450842	-0.43762	-0.64349	-0.56686	-0.95433
Skewness	-0.83688	-0.74761	-0.3664	0.070008	-0.48899	-0.00142
Range	3	4	3	3	3	3
Minimum	2	1	2	2	2	2
Maximum	5	5	5	5	5	5

Table B.5: Statistics for strategic and organizational fit

Statistics	SOF1		SOF2		SOF3		SOF4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	3.705882	3.426471	3.632353	3.573529	3.838235	3.529412	3.338235	3.235294
Standard Error	0.078559	0.092084	0.093476	0.10542	0.087924	0.111795	0.11401	0.1111
Median	4	3	4	4	4	3	3	3
Mode	4	3	4	4	4	3	3	3
Standard Deviation	0.647817	0.759343	0.770819	0.869314	0.725038	0.921883	0.940154	0.916151
Sample Variance	0.419666	0.576602	0.594162	0.755707	0.52568	0.849868	0.883889	0.839333
Kurtosis	-0.21654	-0.31624	-0.02696	0.159781	2.776327	-0.23526	0.005376	0.426816
Skewness	0.030532	-0.05975	-0.46047	-0.30304	-0.95298	-0.08883	-0.06889	-0.61157
Range	3	3	3	4	4	4	4	4
Minimum	2	2	2	1	1	1	1	1
Maximum	5	5	5	5	5	5	5	5

Statistics	SOF5		SOF6		SOF7		SOF8	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	4.117647	3.735294	4.323529	3.911765	4.25	3.882353	3.867647	3.588235
Standard Error	0.103769	0.106046	0.087501	0.108334	0.099107	0.115766	0.098059	0.107316
Median	4	4	4	4	4	4	4	4
Mode	4	4	4	4	4	4	4	4
Standard Deviation	0.855699	0.874475	0.721548	0.893347	0.817258	0.954634	0.808618	0.884954
Sample Variance	0.732221	0.764706	0.520632	0.798068	0.66791	0.911326	0.653863	0.783143
Kurtosis	1.381153	1.437593	1.510129	-0.22539	3.505196	0.853012	1.849896	0.116026
Skewness	-0.96762	-0.82904	-1.07082	-0.5996	-1.51071	-0.81908	-0.9728	-0.40907
Range	4	4	3	3	4	4	4	4
Minimum	1	1	2	2	1	1	1	1
Maximum	5	5	5	5	5	5	5	5

Table B.5: Statistics for strategic and organizational fit (continued)

Statistics	SOF9		SOF10		SOF11	
	Importance	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**
Mean	4.220588	3.823529	4.058824	3.485294	4.426471	3.955882
Standard Error	0.097928	0.108751	0.104513	0.097133	0.092084	0.10974
Median	4	4	4	4	5	4
Mode	4	4	4	4	5	4
Standard Deviation	0.807531	0.89678	0.861833	0.800982	0.759343	0.904942
Sample Variance	0.652107	0.804214	0.742757	0.641572	0.576602	0.81892
Kurtosis	3.569729	0.885098	-0.46638	0.483635	4.882488	0.384458
Skewness	-1.47888	-0.919	-0.54762	-0.93822	-1.74559	-0.65846
Range	4	4	3	4	4	4
Minimum	1	1	2	1	1	1
Maximum	5	5	5	5	5	5

Table B.6: Statistics for national culture fit

Statistics	NC1		NC2		NC3		NC4		NC5	
	Imp.	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**
Mean	2.764706	2.779412	3.073529	2.941176	2.323529	2.558824	3.647059	3.25	3.794118	3.382353
Standard Error	0.102894	0.110561	0.10542	0.102391	0.115599	0.128102	0.1104	0.103442	0.095	0.102706
Median	3	3	3	3	2	3	4	3	4	3
Mode	3	3	3	3	3	3	4	3	4	3
Standard Deviation	0.848487	0.911708	0.869314	0.844338	0.953253	1.056357	0.910383	0.853002	0.783388	0.846933
Sample Variance	0.71993	0.831212	0.755707	0.712906	0.908692	1.115891	0.828797	0.727612	0.613696	0.717296
Kurtosis	-0.0952	-0.3031	-0.30429	-0.14473	-0.9715	-1.15604	0.701417	-0.51588	-0.9567	0.034963
Skewness	0.023519	-0.15048	-0.14503	-0.19306	0.046255	-0.19839	-0.57503	0.23228	0.191584	-0.22598
Range	4	4	4	4	3	3	4	3	3	4
Minimum	1	1	1	1	1	1	1	2	2	1
Maximum	5	5	5	5	4	4	5	5	5	5

Table B.7: Statistics for organizational culture fit

Statistics	OC1		OC2		OC3		OC4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	3.852941	3.426471	3.617647	3.220588	3.808824	3.411765	3.529412	3.382353
Standard Error	0.101058	0.111491	0.104821	0.106516	0.081839	0.09655	0.103644	0.110925
Median	4	3.5	4	3	4	4	3.5	3
Mode	4	4	4	3	4	4	3	3
Standard Deviation	0.833348	0.91938	0.864376	0.878356	0.674865	0.796172	0.854673	0.914712
Sample Variance	0.694469	0.845259	0.747147	0.77151	0.455443	0.633889	0.730465	0.836699
Kurtosis	0.739827	-0.33649	0.226452	-0.54064	-0.19317	0.235594	-0.57729	-0.6866
Skewness	-0.51166	-0.25191	-0.30427	-0.18011	-0.05122	-0.70724	0.053695	0.239026
Range	4	4	4	4	3	4	3	3
Minimum	1	1	1	1	2	1	2	2
Maximum	5	5	5	5	5	5	5	5

Statistics	OC5		OC6	
	Importance	Rating	Importance	Rating
Mean	3.705882	3.382353	3.867647	3.191176
Standard Error	0.108988	0.110925	0.102438	0.120828
Median	4	3	4	3
Mode	4	3	4	4
Standard Deviation	0.898736	0.914712	0.844727	0.996372
Sample Variance	0.807726	0.836699	0.713565	0.992757
Kurtosis	-0.74387	-0.32449	-0.99213	-0.4768
Skewness	-0.13809	-0.12264	-0.04744	-0.21179
Range	3	4	3	4
Minimum	2	1	2	1
Maximum	5	5	5	5

Table B.8: Statistics for inter-partner relations

Statistics	PR1		PR2		PR3		PR4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	4.573529	3.705882	4.441176	3.544118	4.441176	3.441176	4.558824	3.558824
Standard Error	0.067295	0.120467	0.06751	0.099237	0.082174	0.142692	0.06751	0.133143
Median	5	4	4	4	5	4	5	4
Mode	5	4	4	4	5	4	5	4
Standard Deviation	0.554928	0.993393	0.556705	0.818331	0.677624	1.176668	0.556705	1.097927
Sample Variance	0.307946	0.986831	0.309921	0.669666	0.459175	1.384548	0.309921	1.205443
Kurtosis	-0.32946	-0.32961	-0.9236	0.528568	3.046252	-0.95367	-0.44373	-0.97643
Skewness	-0.83942	-0.50088	-0.29607	-0.48249	-1.41136	-0.30786	-0.77347	-0.29357
Range	2	4	2	4	3	4	2	4
Minimum	3	1	3	1	2	1	3	1
Maximum	5	5	5	5	5	5	5	5

Statistics	PR5		PR6	
	Importance	Rating	Importance	Rating
Mean	3.764706	2.617647	4.544118	3.676471
Standard Error	0.124161	0.174077	0.087482	0.121161
Median	4	3	5	4
Mode	4	1	5	4
Standard Deviation	1.023859	1.435472	0.721396	0.999122
Sample Variance	1.048288	2.060579	0.520413	0.998244
Kurtosis	-0.06226	-1.33972	7.621297	0.690306
Skewness	-0.5378	0.239992	-2.24755	-0.87548
Range	4	4	4	4
Minimum	1	1	1	1
Maximum	5	5	5	5

Table B.9: Statistics for structural IJV characteristics

Statistics	J2	J3	
	Importance	Importance	Rating
Mean	3.544118	4.397059	3.867647
Standard Error	0.121148	0.098585	0.118345
Median	4	5	4
Mode	4	5	4
Standard Deviation	0.999012	0.812949	0.975895
Sample Variance	0.998025	0.660887	0.952371
Kurtosis	-0.1629	3.184224	0.836266
Skewness	-0.44891	-1.54562	-0.91839
Range	4	4	4
Minimum	1	1	1
Maximum	5	5	5

Table B.10: Statistics for host country risks

Statistics	HCR1		HCR2		HCR3		HCR4	
	Importance	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**	**Importance**	**Rating**
Mean	4.264706	3.382353	3.779412	3.323529	3.985294	3.176471	4.132353	3.617647
Standard Error	0.099643	0.135831	0.106516	0.111737	0.097133	0.120252	0.108676	0.114814
Median	4	3	4	3	4	3	4	4
Mode	5	3	4	3	4	3	5	3
Standard Deviation	0.821677	1.120093	0.878356	0.921407	0.800982	0.991624	0.896168	0.946784
Sample Variance	0.675154	1.254609	0.77151	0.84899	0.641572	0.983319	0.803117	0.8964
Kurtosis	0.657529	-0.53697	-0.4632	-0.35578	0.413649	-0.05201	-0.18667	-0.30494
Skewness	-1.03071	-0.28694	-0.3645	0.009591	-0.69135	0.106411	-0.78035	-0.24113
Range	3	4	3	4	3	4	3	4
Minimum	2	1	2	1	2	1	2	1
Maximum	5	5	5	5	5	5	5	5

Table B.11: Statistics for familiarity with conditions in the host country

Statistics	HCC1		HCC2		HCC3		HCC4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	3.308824	3.352941	3.705882	3.573529	3.514706	3.294118	3.411765	3.220588
Standard Error	0.137801	0.130449	0.106955	0.096734	0.109858	0.102769	0.103145	0.090955
Median	3	3.5	4	4	4	3	4	3
Mode	4	4	4	4	4	3	4	3
Standard Deviation	1.136338	1.075712	0.881972	0.797687	0.905912	0.847451	0.850554	0.750037
Sample Variance	1.291264	1.157155	0.777875	0.636304	0.820676	0.718174	0.723442	0.562555
Kurtosis	-0.72548	-0.62285	-0.50516	-0.2704	-0.71941	-0.39772	-0.72109	-0.76858
Skewness	-0.20076	-0.30983	-0.32016	-0.33875	-0.23116	0.298477	-0.31546	-0.17029
Range	4	4	3	3	3	3	3	3
Minimum	1	1	2	2	2	2	2	2
Maximum	5	5	5	5	5	5	5	5

Statistics	HCC5		HCC6	
	Importance	Rating	Importance	Rating
Mean	3.588235	3.397059	3.235294	3.279412
Standard Error	0.098797	0.094026	0.113058	0.102312
Median	4	3	3.5	3
Mode	4	4	4	3
Standard Deviation	0.814702	0.775361	0.9323	0.843688
Sample Variance	0.66374	0.601185	0.869183	0.711809
Kurtosis	0.794564	-0.48786	-0.41219	-0.24159
Skewness	-0.80531	-0.23873	-0.72099	-0.26784
Range	4	3	4	4
Minimum	1	2	1	1
Maximum	5	5	5	5

Table B.12: Statistics for project-related factors

Statistics	PC1		PC2		PC3		PC4	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	4.588235	3.632353	4.0588235	3.1323529	4.0441176	3.4411765	4.2058824	3.2794118
Standard Error	0.067031	0.116475	0.102391	0.1289936	0.0823114	0.0922415	0.0742502	0.1085574
Median	5	4	4	3	4	4	4	3
Mode	5	3	4	3	4	4	4	4
Standard Deviation	0.552749	0.960479	0.8443376	1.0637081	0.6787571	0.760643	0.6122828	0.8951876
Sample Variance	0.305531	0.92252	0.7129061	1.131475	0.4607112	0.5785777	0.3748903	0.8013608
Kurtosis	-0.20015	-0.37989	-0.7342081	-0.4731148	0.2363585	1.7400667	1.5261428	-0.288132
Skewness	-0.90741	-0.23342	-0.4200687	-0.1949515	-0.348715	-0.9485118	-0.5431358	-0.589264
Range	2	4	3	4	3	4	3	4
Minimum	3	1	2	1	2	1	2	1
Maximum	5	5	5	5	5	5	5	5

Statistics	PC5		PC6		PC7		PC8	
	Importance	Rating	Importance	Rating	Importance	Rating	Importance	Rating
Mean	4.4705882	3.5294118	4.3823529	3.5	3.3529412	3.1617647	3.3970588	3.0294118
Standard Error	0.0797015	0.1397203	0.0812258	0.1175922	0.1304492	0.0973988	0.0985846	0.10258
Median	5	4	4	4	3	3	3	3
Mode	5	4	5	4	4	3	3	3
Standard Deviation	0.657235	1.1521633	0.6698053	0.9696899	1.0757116	0.8031708	0.8129494	0.8458959
Sample Variance	0.4319579	1.3274802	0.4486392	0.9402985	1.1571554	0.6450834	0.6608867	0.7155399
Kurtosis	1.7179394	-0.2647319	1.0893559	0.391824	-0.579826	0.5153387	-0.3773173	0.2371146
Skewness	-1.1886569	-0.5564955	-0.9354642	-0.7589341	-0.2357065	0.229649	0.1716947	0.4006088
Range	3	4	3	4	4	4	3	4
Minimum	2	1	2	1	1	1	2	1
Maximum	5	5	5	5	5	5	5	5

Table B.12: Statistics for project-related factors (continued)

Statistics	PC9		PC10		PC11		PC12		PC13	
	Imp.	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**	**Imp.**	**Rating**
Mean	4.3823529	3.25	4.4411765	3.75	3.1470588	2.8382353	3.2352941	2.8382353	4.3823529	3.6911765
Standard Error	0.0812258	0.1263644	0.082174	0.1395701	0.1152634	0.1177979	0.1223806	0.1214673	0.0695824	0.1208278
Median	4	3.5	5	4	3	3	3	3	4	4
Mode	5	4	5	4	3	3	3	3	4	4
Standard Deviation	0.6698053	1.0420273	0.6776243	1.1509244	0.9504862	0.9713861	1.0091765	1.0016448	0.5737911	0.9963718
Sample Variance	0.4486392	1.0858209	0.4591747	1.3246269	0.9034241	0.9435909	1.0184372	1.0032924	0.3292362	0.9927568
Kurtosis	1.0893559	0.0740833	1.297403	0.2851943	0.2034571	0.1708019	0.2121294	0.3845048	-0.737999	-0.862623
Skewness	-0.935464	-0.851139	-1.114824	-0.881326	-0.517913	-0.168299	-0.314977	-0.215611	-0.252652	-0.363366
Range	3	4	3	4	4	4	4	4	2	3
Minimum	2	1	2	1	1	1	1	1	3	2
Maximum	5	5	5	5	5	5	5	5	5	5

Table B.13: Correlation matrices for the determinant constructs of the model

	SOF1	S0F2	S0F3	S0F4	S0F5	S0F6	S0F7	S0F8	S0F9	S0F10	S0F11
SOF1	1	0.5736	0.3976	0.4543	0.4198	0.3423	0.3585	0.3096	0.4848	0.3172	0.4622
SOF2	0.5736	1	0.4722	0.5214	0.242	0.3544	0.4962	0.5056	0.4955	0.366	0.469
SOF3	0.3976	0.4722	1	0.4865	0.5282	0.1119	0.3941	0.7469	0.5119	0.1522	0.4399
SOF4	0.4543	0.5214	0.4865	1	0.4142	0.1899	0.3905	0.4527	0.5418	0.2692	0.3188
SOF5	0.4198	0.242	0.5282	0.4142	1	0.0079	0.2303	0.4164	0.2631	0.037	0.4377
SOF6	0.3423	0.3544	0.1119	0.1899	0.0079	1	0.3377	0.2554	0.4088	0.3945	0.3274
SOF7	0.3585	0.4962	0.3941	0.3905	0.2303	0.3377	1	0.6132	0.6379	0.4857	0.4258
SOF8	0.3096	0.5056	0.7469	0.4527	0.4164	0.2554	0.6132	1	0.6405	0.3914	0.4988
SOF9	0.4848	0.4955	0.5119	0.5418	0.2631	0.4088	0.6379	0.6405	1	0.6612	0.542
SOF10	0.3172	0.366	0.1522	0.2692	0.037	0.3945	0.4857	0.3914	0.6612	1	0.3594
SOF11	0.4622	0.469	0.4399	0.3188	0.4377	0.3274	0.4258	0.4988	0.542	0.3594	1

	NC1	NC2	NC3
NC1	1	0.4676	0.5948
NC2	0.4676	1	0.3721
NC3	0.5948	0.3721	1

	OC1	OC2	OC3	OC4	OC5	OC6
OC1	1	0,4763	0,5423	0,5384	0,5015	0,4343
OC2	0,4763	1	0,4012	0,4520	0,2415	0,4657
OC3	0,5423	0,4012	1	0,6052	0,5204	0,3929
OC4	0,5384	0,4520	0,6052	1	0,6458	0,4462
OC5	0,5015	0,2415	0,5204	0,6458	1	0,6718
OC6	0,4343	0,4657	0,3929	0,4462	0,6718	1

Table B.13: Correlation matrices for the determinant constructs of the model (continued)

	PR1	PR2	PR3	PR4	PR5	PR6
PR1	1	0.6955	0.649	0.8645	0.6108	0.6245
PR2	0.6955	1	0.677	0.6699	0.4847	0.5654
PR3	0.649	0.677	1	0.7421	0.5697	0.6945
PR4	0.8645	0.6699	0.7421	1	0.6016	0.6843
PR5	0.6108	0.4847	0.5697	0.6016	1	0.3808
PR6	0.6245	0.5654	0.6945	0.6843	0.3808	1

	HCC1	HCC2	HCC3	HCC4	HCC5	HCC6
HCC1	1	0.3694	0.4083	0.4755	0.3842	0.4818
HCC2	0.3694	1	0.5857	0.7084	0.664	0.5789
HCC3	0.4083	0.5857	1	0.7652	0.3421	0.4052
HCC4	0.4755	0.7084	0.7652	1	0.5144	0.5852
HCC5	0.3842	0.664	0.3421	0.5144	1	0.7861
HCC6	0.4818	0.5789	0.4052	0.5852	0.7861	1

	J1	J2	J3
J1	1	0.0414	0.1895
J2	0.0414	1	0.3302
J3	0.1895	0.3302	1

	HCR1	HCR2	HCR3
HCR1	1	0.7027	0.4893
HCR2	0.7027	1	0.4103
HCR3	0.4893	0.4103	1

Table B.13: Correlation matrices for the determinant constructs of the model (continued)

	PC1	**PC2**	**PC3**	**PC4**	**PC5**	**PC6**	**PC8**	**PC9**	**PC10**	**PC11**	**PC12**	**PC13**
PC1	1	0.5012	0.0415	0.2428	0.3673	0.4086	0.2523	0.302	0.5367	0.0313	0.232	0.4099
PC2	0.5012	1	0.1666	0.3211	0.5022	0.5282	0.1449	0.3602	0.6126	0.151	0.4266	0.6447
PC3	0.0415	0.1666	1	0.5615	0.2745	0.2024	0.1187	0.3107	0.1961	0.199	0.1147	0.4976
PC4	0.2428	0.3211	0.5615	1	0.4622	0.4728	0.0678	0.468	0.4599	0.2416	0.3008	0.4998
PC5	0.3673	0.5022	0.2745	0.4622	1	0.6279	0.336	0.7708	0.8217	0.3177	0.3469	0.6516
PC6	0.4086	0.5282	0.2024	0.4728	0.6279	1	0.2911	0.4357	0.662	0.2298	0.3457	0.5175
PC8	0.2523	0.1449	0.1187	0.0678	0.336	0.2911	1	0.381	0.3756	0.3328	0.2875	0.2234
PC9	0.302	0.3602	0.3107	0.468	0.7708	0.4357	0.381	1	0.6876	0.4092	0.2967	0.5067
PC10	0.5367	0.6126	0.1961	0.4599	0.8217	0.662	0.3756	0.6876	1	0.3905	0.5082	0.6475
PC11	0.0313	0.151	0.199	0.2416	0.3177	0.2298	0.3328	0.4092	0.3905	1	0.4636	0.1481
PC12	0.232	0.4266	0.1147	0.3008	0.3469	0.3457	0.2875	0.2967	0.5082	0.4636	1	0.338
PC13	0.4099	0.6447	0.4976	0.4998	0.6516	0.5175	0.2234	0.5067	0.6475	0.1481	0.338	1

APPENDIX C

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name	: Beliz Ozorhon
Nationality	: Turkish (TC)
Date and Place of Birth	: 19 June 1980, Samsun
Marital Status	: Single
Phone	: +90 312 210 24 66
Fax	: +90 312 210 54 01
email	: beliz@metu.edu.tr

EDUCATION

Degree	Institution	Year of Graduation
MS	METU Civil Engineering	2004
BS	METU Civil Engineering	2002
High School	Atatürk Anatolian High School, Ankara	1998

WORK EXPERIENCE

Year	Place	Enrollment
2002-Present	METU Department of Civil Engineering	Research Assistant
2006-2007	Illinois Institute of Technology, Chicago, IL	Visiting Researcher
2000 July	EBI A.S.	Intern Engineering Student
2001 July	Basyazicioglu A.S.	Intern Engineering Student

PUBLICATIONS

1. Birgonul, M.T., Dikmen, I., Ataoglu, T., Ozorhon, B. "Organizational learning in Turkish construction companies: learning mechanisms and cultural barriers", 17th Technical Congress and Exhibition, 555-557, April 15-17, Istanbul, Turkey (2004).

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