Review of Joint Venture Studies in Construction

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Abstract

This paper reviewed the definition, scope, and types of joint ventures (JVs) in the construction industry, summarized the research interests and trend on construction joint ventures (CJVs), and provided implications for future research into CJVs. Based on the observations of all CJV related studies, seven major categories of research focus on CJVs have been classified. In general, since the benefits and success criteria of CJVs have been well-documented in the literature, future research could be more valuable and practical when concerned about how to reduce the number of disputes in and even failures of CJVs, which in-turn renders it significantly important for researchers to develop relevant state-of-the-art criteria/framework to aid the assessment of appropriateness of selecting CJV contracting method in project procurement.

INTRODUCTION

Although JVs have become a way of life for some industries, such as off-shore oil exploration or jet engines (Harrigan 2003), they are still a relatively new concept in construction today (Kazaz and Ulubeyli 2009). However, JVs have become the principal vehicle for foreign construction firms to gain entry into the local construction market since the 1980s (Chow 1985). The use of a joint-venture relationship in the construction industry has become a convenient and necessary means of providing the concentration of economic resources, skills, and knowledge required to negotiate, bond and complete a new large-scale construction project (Dalle and Potts 1968).

The first use of JVs in large construction project could be traced back to the Hoove Dam project launched in 1931 in the United States (Rogers 2010). The guidance notes of "Joint Venture Tendering for Contracts in the United Kingdom", published by the National Joint Consultative Committee (NJCC) for Building in 1985, imply the emergence of JVs in the UK construction industry in the 1980s. Ozorhon et al. (2007a) stated that although establishing international construction joint ventures (ICJVs) is a widely used strategy in the construction industry, the majority of the current literature on international joint ventures (IJVs) is about the manufacturing industry and the validity of underlying theories have not been extensively and empirically investigated in the construction industry. In terms of ICJVs, Mohamed (2003) summarized that the published work on ICJVs have addressed such key issues as: (1) motivations behind ICJV formation; (2) associated advantages and disadvantages; (3) critical success factors; and (4) risk analysis and management.

Ozorhon et al. (2007b and 2010) also came up with the summary that a small group of studies on IJVs are associated with the risks of IJVs in construction, the factors affecting the performance of IJVs and management issues on IJVs. Generalities alike, however, may hinder the recognition of research efforts on the study of CJVs. Thus, a systematic, holistic examination of research contributions to CJVs within the past two decades is essential for raising a convincing and well-received appreciation of the research outputs in the field, which is absent or insufficient from the pool of the contemporary literature. As academic journal papers present the most important wealth of literature available (Fellows and Liu 1997), this chapter attempts to critically review the CJV literature and to investigate the research trend of JV related studies in top-tier leading journals in construction engineering and management during the past two decades.

This paper intends to crystallize on the understanding of the coverage of CJV related studies published in construction journals and to explore the change or evolution of the themes / foci / interests of the CJV related publications within the past two decades. More importantly, it is expected that the findings from the desktop literature review could engender valuable insights to other researchers in shaping their research foci under the umbrella of CJVs to suit the demands of both the literature base and the real construction market.

OVERVIEW OF JOINT VENTURES IN CONSTRUCTION

Definition and scope of Joint Ventures in construction. The term 'Joint Venture' originated as commercial or maritime enterprises used for trading purposes (Harrigan 2003). A JV is generally defined as an arrangement where there is commitment of funds, facilities, and services by two or more legally separated interests to an enterprise for their mutual benefits for a long period of time (Tomlinson 1970). It involves at least two parent organizations that contribute equity and resources to a semiautonomous legally separate entity, of which they participate in the decision-making process (Geringer 1988). Chow (1985) stated that there is no generally accepted statutory or legal definition of a JV, at least under common legal law systems. Dalle and Potts (1968) quoted the appropriate definition of joint-venture groupings, in the context of the construction industry, as: "a business alliance of limited duration formed by two or more unrelated business or professional entities for the purpose of furnishing engineering, consulting, procurement, construction and construction management services by consolidating the skills and resources of the participants". The National Joint Consultative Committee (NJCC) for Building (1985) of the United Kingdom distinguished JVs from other contractual patterns by defining it as: "a partnership between two or more companies covering building, mechanical and electrical engineering, or other specialist services for the purpose of tendering a building or civil engineering contract, each of participating companies having joint and several liability for their contractual obligations to employer".

Munns et al. (2000) attempted to define JVs by employing five criteria: legal agreement, duration, equality, participants and profits. Resorting to these five criteria, the study of Munns et al. (2000) is concerned with business JVs between two or more partners of comparable commitment, who create a distinct legal entity that may be of fixed or unlimited duration. To distinguish the general term of "JVs" and the specific term of "CJVs", this study makes reference to the comparative discussion of Girmscheid and Brockmann (2010), in which the marked difference between IJVs and ICJVs was stressed and pointed out by indicating that IJVs mostly take the form of equity JVs whereas ICJVs are contractual JVs. Specifically, CJV is regulated by both JV contract and construction contract signed with the client, as elaborated in Figure 1.

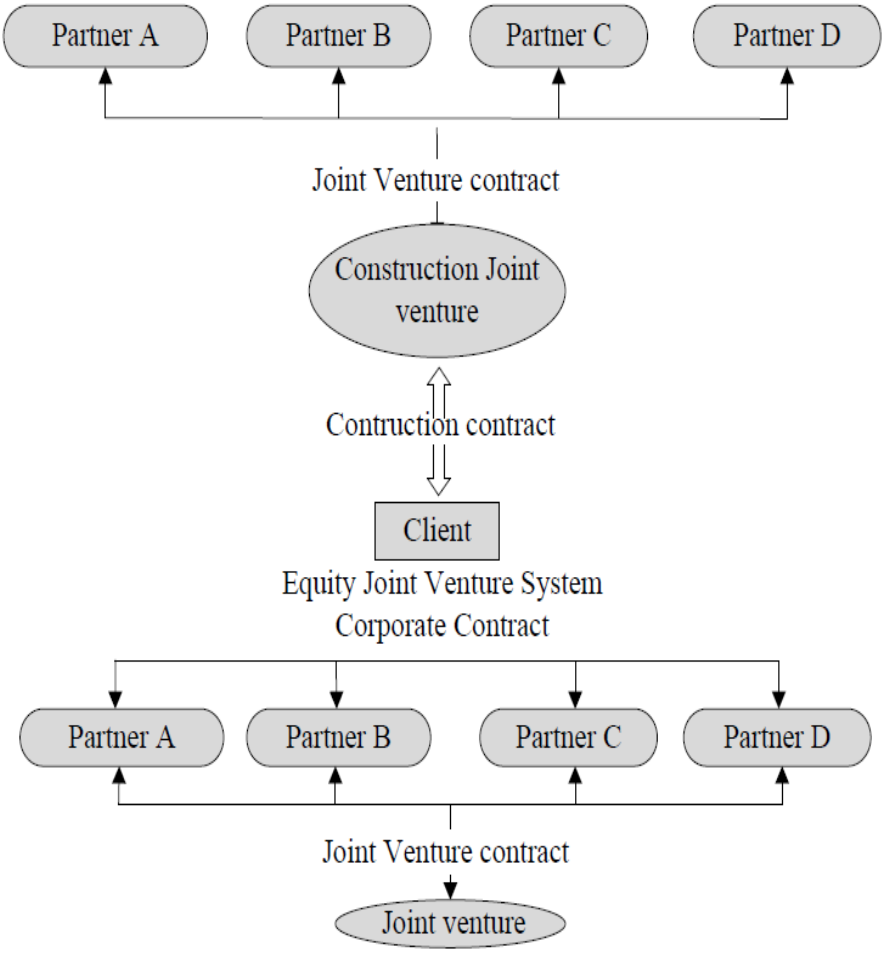

Figure 1.Construction Joint Venture and equity Joint Venture.

Classification of Joint Ventures in construction. JVs in the construction industry fall broadly into two categories: integrated and non-integrated (Norwood and Mansfield 1999; Dalle and Potts 1968). The integrated JVs may alternatively refer to jointly managed JVs (JMJ) (Ho et al. 2009). Under an integrated JV agreement, the parties essentially agree to perform their work as if it were performed by a single corporation having several stakeholders (Dalle and Potts 1968). Thus, the integrated JVs are adopted when the parties to the proposed JV intend to perform their work on an integrated basis (Dalle and Potts 1968). The non-integrated form of JVs, being synonymous with separately managed JVs (SMJ) (Ho et al. 2009), is often termed as item JVs (Badger et al. 1993), wherein the parties, for the most part, undertake their respective portions of the work separately (Dalle and Potts 1968). The non-integrated JVs are normally used when parties to a joint venture each have discrete scopes of work and the JV is being formed merely to satisfy a particular requirement necessitating a joint bid (Dalle and Potts 1968).

International construction joint venture (ICJV) is a type of CJV involving multinational partners. ICJV is seen by developing countries 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; Mohamed 2003).

Domestic construction joint venture (DCJV) is defined in this study as the type of CJVs with partners from a single country. Apart from the use by entrepreneurial firms to expand into new businesses and tap new markets, JVs are also being used voluntarily as a strategy option within mature economics (Harrigan 2003). Industrial studies have found some support that JVs are a form of strategy behavior to increase market power (Kogut

1988). From the strategic perspective, DCJV, as formed by partners from the same country, enables the share of resources of the national A/E/C firms, expedites technology transfer and adapts to the global competition.

Theory and model development of CJVs. As shown in Table 1, a retrospect of the observed publications on CJVs indicates a conspicuous lack of theoretical contributions to CJV study, ranging from building up theory to developing CJV practice model and framework. Defining the scope of CJVs has always been an imperative task for researchers to position the domain of studies relating to CJVs. The distinction of contractual JVs and equity JVs in the context of multinational partners, within the study of Girmscheid and Brockmann (2010), is among the rare cases concerning the differentiation of JVs and CJVs in terms of the scope of study.

Similar scarce instance for providing any implications for the procedural formation of CJVs could be resorted to the cyclic model of negation developed by Munns et al. (2000) for the formation of JVs in construction, which involves five sequential elements of aspiration, information exchange, social exchange, knowledge and uncertainty. Another instance of contribution to the model development relating to CJVs is the study of Ho et al. (2009), where a model for organisational governance choices in CJVs was proposed to decide on the use of joint managed JVs or separately managed JVs. Except for these examples of studies, the existing literature about CJVs provides few theoretical underpinnings for the formation and operation of CJVs in real practice.

Motives, benefits and other strategic demands of application. Research into CJVs is also concerned with the key issues in terms of the motivations for the use of CJVs and the success criteria of CJV practices. Motives and benefits underneath the application of CJVs, as identified by the previous studies, involve technology transfer (Norwood and Mansfield 1999; Kumaraswamy and Shrestha 2002; Girmscheid and Brockmann 2010), risk sharing/transfer (Norwood and Mansfield 1999; Kazaz and Ulubeyli 2009; Girmscheid and Brockmann 2010), financial strengths (Kumaraswamy and Shrestha 2002; Kazaz and Ulubeyli 2009; Girmscheid and Brockmann 2010), together with combination/pooling of general resources and specialist skills (Norwood and Mansfield 1999; Munns et al. 2000; Kazaz and Ulubeyli 2009). Other potential benefits such as bringing in outside expertise (Norwood and Mansfield 1999), and opportunities for long-term profitable business development (Bellhouse 1999) have also been referred to in the literature. Especially for the developing construction markets such as Mainland China, ICJVs could be adopted to improve local construction technology, raise project management skills and promote the development of the local construction market (Editorial 2001).

The extensive research attention to JVs has been largely attributable to their importance as a strategic alternative in global competition (Ozorhon et al. 2007a). Use of JVs by architectural / engineering / construction (A/E/C) firms for strategic purposes in the construction industry has been widely examined in the literature. Raftery et al. (1998) highlighted that the easiest way for foreign contractors to operate in domestic markets is through JV with local construction firms in the Asian construction industry. Ho et al. (2009) reported from interview findings that forming JVs is perceived as one response adopted by Vietnamese A/E/C firms to the threat of foreign competition, through which the Vietnamese A/E/C firms can have fast access to up-to-date technology through their JV partners. Forming international JVs with foreign A/E/C firms has also been identified as the key strategy to overcome some of the weaknesses of the Chinese consulting firms and to reduce the competition from foreign A/E/C firms. Ling et al. (2008) found that one of the most effective market entry modes for the A/E/C firms in Singapore and the broader area of Southeast Asia is to form project JVs with local firms.

Table 1.Major Research Interests of Relevant Studies on Construction Joint Ventures (CJVs).

Research focus	Description	Example literature
Theory and model development	Defining the scope of joint ventures in the construction field and developing models related to the formation and operation of CJVs.	Girmscheid and Brockmann (2010); Munns et al. (2000)
Motives, benefits and other strategic demands of application	Identification/investigation of motives and potential benefits of CJV application and examination of the use of CJVs for other strategic purposes, e.g. entry to overseas market, organisational learning, etc.	Norwood and Mansfield (1999); Kumaraswamy and Shrestha (2002); Girmscheid and Brockmann (2010); Oyegoke (2006); Ling et al. (2008); Chan and Ling (2008)
Performance measurement or management	Development of performance measurement model and criteria and measuring CJV performance.	Luo 2001; Mohamed (2003); Ozorhon et al. (2007a and 2010)
Risk assessment or management	Development of risk assessment model/criteria and assessing risks inherent with CJVs.	Bing et al. (1999); Shen et al. (2001); Zhang and Zou (2007); Hsueh et al. (2007)
Exploration into influential factors/issues for practice	Identifying underlying factors/issues critical to or impacting on the performance/success of CJVs.	Gale and Luo (2004); Morledge and Adnan (2006); Ozorhon et al. (2007a and 2007b); Ho et al. (2009); Girmscheid and Brochmann (2010)
Problematic issues and challenges in practice	Investigation of problematic or practical issues on CJV formation and operation.	Ozorhon et al. (2007a and 2007b); Ho et al. (2009); Kumaraswamy and Shrestha (2002); Ofori (2000)

Performance measurement or management of CJVs. Measuring JV performance has been a difficult task as efforts to identify variables associated with JV performance have been constrained by disagreements on the comparability and reliability of alternative performance measures and methods (Geringer 1988). A sound selection and identification of the measures of CJV project performance is critical to the validity and reliability of measurement. With respect to the performance measurement of CJV projects, the types of CJV projects in the pool of the identified publications fall exclusively into the category of ICJV, with no record of study on DCJV.

A variety of measures for assessing CJV performance have been documented with no consensus achieved so far in the literature. Ozorhon et al. (2010) raised four aspects for assessing the overall IJV performance: project performance, perceived satisfaction with IJV, performance of the IJV management, and partner performance, each of which is assessed with separate measures. Mohamed (2003), from the process-based perspective, developed a research model to explore the relationships between three key processes, being partner selection, ICJV formation and ICJV operation, in the life of an ICJV and their effects on the success of the ICJV, where the ICJV's performance is measured by three items: value, profit and satisfaction. While in the context of equity JVs in construction, installation and decoration, Luo (2001) used the number of projects undertaken by the JVs, the average annual profit rate of the JVs and a subjective managerial measure to assess the performance of Sino-foreign JVs. Differing from these aforementioned studies, Sillars and Kangari (2004), with reference to the study of Warszawski (1996) on strategic planning, adopted the construct of organization return (profitability), which is further measured by JV return, and company growth (market position change) to measure organization success under the circumstance of project-based JV practice.

Risk assessment or management of CJVs. Previous research has demonstrated that despite several applications and perceived benefits, JVs frequently go awry and create problems, with dangers and risks to the success of JVs arising from anti-trust, sovereignty conflicts, lack of autonomy and control, as well as a loss of competitive advantages through strategic inflexibility (Harrigan 2003). Risks inherent with CJV formation and operation render it essential to develop an effective mechanism for risk management, assessment and control.

A frequently adopted classification of risks in CJVs is to incorporate three main groups of risks-internal, project-specific, and external risks-into the analysis of CJV risks, which was developed by Bing et al. (1999) in the context of ICJV in East Asia and was further adopted by Hsueh et al. (2007) to develop an on-line multi-criteria risk assessment model for JVs and was also used by Zhang and Zou (2007) to evaluate risks in CJV projects in Mainland China. The study of Bing et al. (1999) indicated the most critical risk factors inherent with ICJVs are associated with financial strengths, government policies, project relationships, economic conditions and subcontractors' competence. Differentiated criticality of these risks in three different phases of ICJVs, start-up, operation, and dismantle, is further disclosed in their study. Shen et al. (2001) classified the risks associated with Sino-foreign CJVs into six groups: financial, legal, management, market, policy and political and technical risks. Their study empirically revealed that among the top 10 risks in Sino-foreign CJVs, there are 5 risks related to management, 2 related to market, 2 related to policy and 1 related to technical issue.

Influential factors for CJV practices. There appears to be more similarities than differences in perceptions concerning the critical success factors for CJVs, of which commitment, co-operation, management control, agreement of JV contract, and partner selection, are widely identified from the previous studies. Gale and Luo (2004), focusing on the formation stage of JVs, investigated the key factors conducive to the success of JVs.

Morledge and Adnan (2006), based on a literature review and semi-structured interviews, examined the critical success factors for CJV projects in Malaysia and identified the top three ones as agreement of contract, commitment and co-operation, followed by management control, inter-partner trust and financial stability. Apart from communication, partner selection and co-operation, Munns et al. (2000) also advocated cultural homogeneity as a critical factor to the success of CJVs.

Apart from the major critical success factors identified from the existing studies, some underlying factors influencing and contributing to the performance/success of CJVs have also been examined and explored in the literature. For instance, in the context of ICJVs, cultural differences between the CJV partners (Ozorhon et al. 2007a), interpreter fit (Ozorhon et al. 2007b), together with the host country conditions and project characteristics (Ozorhon et al. 2007b), were explored to disclose their impacts on the ICJV performance. Walker and Johannes (2003) examined pertinent issues in JV design, of which JV vulnerability and risk factors, trust and commitment factors were investigated in terms of their respective influences on JV design. Ho et al. (2009) studied the determining effects of four influential factors-corporate cultural difference, mutual trust, need for procurement autonomy and motivation for learning-on the selection of organizational governance structure in CJVs.

Problematic issues and challenges in CJV practices. Culture is among the frequently explored constructs in the study of CJVs. Culture is perceived as the major cause of failure in a CJV (Swierczek 1994; Munns et al. 2000). The potential for conflicts in any JVs exists because of the differences in the partners involved, which may be further increased as a result of the different cultural backgrounds that the partners possess (Munns et al. 2000).

Studies into the dispute resolution in CJVs are also worthy of attention for reducing construction disputes in CJV projects. In connection with the Sino-foreign JV international projects, arbitration is identified through interviews as the preferred dispute resolution method (Chan and Ling 2008). The study of Chan and Ling (2008) unfolded that the sources of construction disputes in Sino-foreign JV construction projects in Mainland China can be classified into three categories: contractual, cultural, and legal matters, which are resolved through mediation and arbitration. Allen (2011) reported that nearly one third of the JV construction projects result in disputes, where the conduct of the project managers or engineers was found to be at the heart of disputes on more than half (53%) of occasions. A lack of sound understanding of contractual procedures and a partiality to the employer's interests were further referred in the study of Allen (2011) as the two most significant mistakes that project managers or engineers have made.

Knowledge management and knowledge sharing in CJV projects were also found to be investigated within the CJV literature. Dulaimi (2007), using the case study methodology, uncovered a lack of clear commitment and intent to create an environment conducive to knowledge sharing and the incompatibility between the foreign and local cultures as major barriers to effective knowledge sharing in ICJVs.

IMPLICATIONS FROM LITERATURE REVIEW

With regard to the emergence of industrial practices of CJVs, the solid theoretical contributions to CJVs are essential for providing useful guidance to practitioners in avoiding barriers and achieving success throughout the formation and operation of CJVs. Assessment of risks inherent with CJVs also equips the practitioners with the knowledge about the existence of potential risks and the intention of seeking possible and effective strategies to avoid, mitigate or transfer these risks. Establishing consolidated measurement criteria and operational systems for CJV

projects offers a benchmarking tool for the practitioners to monitor and meliorate the performance of CJVs. The influences on the performance and success of CJVs and the problematic issues concerning CJV practices may derive from various aspects, the identification of which is indispensable for comprehensively guaranteeing the effective operation of CJVs.

The above identified research interests enable generalising that research on CJVs overwhelmingly targets for guiding industrial practitioners on recognition of CJV issues and achievement of project success through the use of CJV approach, however, the practical value of those studies are questionable, with certain doubts from a variety of aspects, such as a lack of managerial practices of the performance measurement model or mechanism and risk assessment model or system in real-life CJV projects.

Concurrent with the extensive application of CJVs is the question of how to improve the success rate of JVs in construction projects. Prior research has articulated that the worldwide trend of using JVs has increased since the 1990s, but with very unsatisfactory results (Munns et al. 2000). Nearly one-third (31%) of these JVs in place to deliver a construction project resulted in disputes (Allen 2011). Hence, there is an imperative need to look at and explore thoroughly the reasons for the failure of CJVs.

CONCLUSION

This chapter reviewed the definition, scope and types of JVs in the construction industry, summarized the research interests and trend on CJVs, and provided implications for future research into CJVs.

Based on the observations of all CJV related studies, seven major categories of research focus on CJVs have been classified: (1) theory and model development; (2) performance measurement or management; (4) risk assessment or management; (5) influential factors for practice; (6) problematic issues and challenges in practice; and (7) managerial practices of CJVs in the industry.

In general, since the benefits and success criteria of CJVs have been well-documented in the literature, future research could be more valuable and practical when concerned about how to reduce the number of disputes in and even failures of CJVs, which in-turn renders it significantly important for researchers to develop relevant state-of-the-art criteria/framework to aid the assessment of appropriateness of selecting CJV contracting method in project procurement.

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