



Foreign firms' financial and economic risk in China

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Abstract

Purpose – The aim of this research is to investigate how foreign firms manage financial and economic risks when operating in China's construction industry. The specific purposes of the paper are to: identify the types of financial and economic risks foreign firms face and the frequency and severity of these risks; examine how foreign firms manage these risks; and recommend a risk management framework that can be adopted by foreign firms to mitigate financial and economic risks in China.

Design/methodology/approach – The data collection instrument was a questionnaire which had open-ended questions. The data collection method was face-to-face in-depth interviews with 22 experts from Singapore who have experience in China's construction industry.

Findings – Nine economic and financial risks affecting foreign firms that operate in China's construction industry are found. Of these, the risks that occur frequently and are severe are: labour and material price fluctuation; and contractors/subcontractors' default. Eighteen contractual and general measures were found to be useful in mitigating these risks.

Research limitations/implications – The findings may not be readily generalized because interviews were conducted with 22 China experts, all of whom are from Singapore.

Practical implications – Foreign firms could use the findings to help them decide on the most appropriate measures to adopt, to overcome financial and economic risks that they face when operating in China's construction industry.

Originality/value – The research proposed a framework for foreign firms to use in managing financial and economic risks in China. It recommends different measures to mitigate different types of risks.

Keywords Financial risk, China, Risk management

Paper type Research paper

Introduction

China has one of the most dynamic construction markets in the world driven by high economic growth and public infrastructure spending. It is ranked third in terms of global construction spending and will soon be second only to the United States (US) market (Davis Langdon, 2005).

It is however not easy for foreign firms to succeed in China's construction industry. Business failures may arise when foreign firms underestimate the risks and difficulties they may face in China. Identifying and controlling vital risk factors is important for foreign firms to have a successful venture (Zhi, 1995).

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risks; and recommend a risk management framework that can be adopted by foreign firms to mitigate financial and economic risks in China.

This study is important because many foreign firms are entering China's construction industry for the first time and may not be familiar with the risks they would encounter. This research focused on financial and economic risks that foreign firms face when operating in China with particular focus on architectural, engineering and construction (AEC) firms from Singapore that have worked in China. The foreign firms studied are Singaporean AEC firms that had undertaken construction projects in China.

Managing financial and economic risks is important because these risks may cause a negative impact on the cash flow, endanger a project's viability and limit profitability (Xenidis and Angelides, 2005). The findings of this study would help foreign firms know the types of financial and economic risks they would face and the strategies that they could adopt to mitigate these risks.

Literature review

Risk management is a management discipline with the goal of protecting assets, reputation and profits of a company by reducing the possible losses before the risks occur (Bing *et al.*, 1999). Optimal risk management should aim to minimize the total cost of risk to a project and not necessarily the costs to each party separately (Rahman and Kumaraswamy, 2002). It is important to adopt risk management techniques when projects are large in size, complex and the potential for delay and cost overruns are high (Burchett *et al.*, 1999).

In the construction industry, risk reduction technique is most frequently utilized, followed by risk transfer, risk retention and risk elimination (Baker *et al.*, 1999). Kim and Bajaj (2001) discovered that Korean contractors' unfamiliarity with risk management techniques caused them to manage risks based on intuition, judgment and past experience. In Australia too, Uher and Toakley (1999) found the lack of knowledge to be the main barrier to the implementation of risk management. Wang and Chou (2003) analyzed risk allocation strategies and found that owners allocate risks through specific contract clauses.

Risks may be organized into several levels: country; market; project and client (Wang *et al.*, 2000; 2004). Alternatively, they can also be categorized as internal, project-specific and external (Bing and Tiong, 1999; Wang and Chou, 2003). Within these categories, the specific risks include natural risks (caused by weather and geological systems) and human risks comprising social, political, economic, financial, legal, health, managerial, technical and cultural risks (Edwards and Bowen, 1998).

The common types of financial and economic risks in construction projects are now reviewed.

Fluctuation in foreign exchange rates

An unfavourable change in exchange rates can result in a loss when the revenue received is in one currency but loan repayments are in another currency (Xenidis and Angelides, 2005). In build-operate-transfer (BOT) projects, foreign exchange fluctuation risk is moderately critical during the pre-investment stage and slightly critical during other BOT stages (Lam and Chow, 1999). Chua *et al.* (2003) found that fluctuation of foreign exchange rates is one of the most critical factors causing budget

overrun in East Asia. Other studies have found risk arising from fluctuation in foreign exchange rates to be of varying importance to joint ventures (Bing *et al.*, 1999; Shen *et al.*, 2001; Wang *et al.*, 2004).

Inflation

Inflation fluctuation in a country affects various financial indices such as the interest rate, rate of return and currency exchange rate (Lam and Chow, 1999). Several studies have found rise in inflation to have some bearing on construction projects (Lam and Chow, 1999; Bing *et al.*, 1999; Fang *et al.*, 2004; Shen *et al.*, 2001; Wang *et al.*, 2004).

Interest rate fluctuation

Interest rate is a key factor in determining the intensity of a debt and internal rate of return, which consequently affects the feasibility, construction and operation of a project (Lam and Chow, 1999). Loss due to fluctuation of interest rate is moderately critical (Shen *et al.*, 2001), especially during pre-investment stage and slightly critical in all other stages (Lam and Chow, 1999).

Default by contractors/subcontractors

Bing *et al.* (1999) found that incompetence of subcontractors and suppliers is a major risk factor for contractors. Poor management, technology and quality of materials are significant risks faced in China (Fang *et al.*, 2004). Other associated risks are: unexpected delay in delivery of materials; subcontractors' breach of contract; and disputes between main and sub contractors. It is therefore important to select contractors/subcontractors carefully, and pay close attention to quality of materials supplied materials and their construction and management ability (Fang *et al.*, 2004).

Labour and material price fluctuations

The economic conditions in the host country may lead to an increase of production costs (Xenidis and Angelides, 2005). The increase in demand for construction work will result in shortages of resources, which leads to higher prices (Chen, 1997). Smith *et al.* (2004) found labour and material costs to be volatile when a country is undergoing economic reforms.

Import/export restrictions

A deficit trade balance of the host country may be the reason for the imposition of several restrictions concerning imports and exports. It is common for a host government to implement policies such as increasing tariffs for imported products or requiring special permission to import certain products (Xenidis and Angelides, 2005). This leads to an increase in the prices of goods and services.

Delayed or non-receipt of payment

In some developing countries such as China, established banks only provide project financing to large national projects and this lack of construction credit is a major constraint in the construction industry (Chen, 1998). It may lead to owners of smaller projects not making regular payments to contractors. Disputes have been found to arise from the shortage of necessary capital, due to the lack of construction financial credit facilities (Smith *et al.*, 2004).

Financial failures

Foreign AEC firms may face the risk of financial failures of their own firms or their business partners. Companies that face financial failures have a serious impact on the project's progress. Nevertheless, potential bankruptcy is not necessarily connected to the project but could be related to other business activities (Xenidis and Angelides, 2005).

Restriction on repatriation of funds

Restriction on the repatriation of funds occurs when a host country forces foreign companies to spend their earnings in the host market (Chua *et al.*, 2003). This results in loss of profit either by preventing exploitation of foreign bank account privileges or by additional convertibility costs to lift restrictions. Furthermore, the enforcement of such restrictions may not be predictable (Xenidis and Angelides, 2005).

Gap in knowledge

The brief literature review showed that there were various attempts to analyze the risk situations in China. The late 1990s and early 2000s studies focused on risks faced in Sino-foreign joint ventures and BOT projects (Bing *et al.*, 1999; Wang *et al.*, 2004). These may not be outdated because the research was done when China was still a planned economy, had not become a member of the World Trade Organization (WTO), and had not allowed wholly foreign owned enterprises to be incorporated. The mid 2000s' studies focused on risks faced by Chinese organizations (Fang *et al.*, 2004). The past studies did not focus on the financial and economic risks that foreign (non-Chinese) AEC firms face when working in China. This study attempts to fill the gap by investigating the types of financial and economic risks faced by foreigners under China's open market economy, after it became a member of WTO in 2001, and how these risks were managed by them.

Research method

Research may be quantitative or qualitative in nature. This research adopted the qualitative method because understanding a phenomenon from the point of view of the participants and its particular social and institutional context may be lost when textual data are quantified (Kaplan and Maxwell, 1994). Other construction management researchers who adopted qualitative research method include: Ellis *et al.* (2005); Nystrom (2005); and Leiringer (2006).

The qualitative research method adopted was grounded theory. Grounded theory is an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data (Martin and Turner, 1986). This method was chosen because there should be a continuous interplay between data collection and analysis, to determine inductively how financial and economic risks in China are managed using discovery method.

Data collection for qualitative research includes interviews, participant observation, and archival research (Myers and Avison, 2002). This study adopted the face to face interview technique because probing questions were involved, respondents were required to provide in-depth answers and particularly interesting aspects of the responses could be delved into. It also tended to give a higher participation rate since

interviewees only need to give verbal comments rather than fill up a questionnaire with long answers. The other data collection methods were not used because the projects in China had been completed (preclude participant observation) and project information are confidential (archival research ruled out).

The data collection instrument was a specially designed questionnaire which comprised open ended questions to investigate frequency and severity of major financial and economic risks in international construction projects, and how these risks were managed. Open ended questions allowed interviewees to have greater freedom in sharing their experience and knowledge.

The qualitative data collected were analyzed using content analysis. Content analysis is a research technique for making replicable and valid references from data to their contexts (Krippendorff, 1980). This was chosen because content analysis allowed the qualitative data to be subjected to constant comparative analysis to search for structures and patterned regularities in the text to generate knowledge within interviewees' experience in managing financial and economic risks in China.

The population comprised non-indigenous Chinese clients, consultants, main contractors, specialist contractors and suppliers, who had exported their construction services or products to China. The sampling frame was Singapore-based firms that had undertaken construction projects in China and at least one of these commenced after China became a WTO member (2001). A list of 54 Singaporean firms was obtained from trade publications and websites. The questionnaire was emailed all the 54 firms, requesting for interviews with directors or managers in-charge of projects in China.

Characteristics of the sample

Of the 54 requests for interview, 22 experts agreed to be interviewed after much persuasion, giving a response rate of 41 percent. Interviews were conducted in interviewees' offices. Each interview lasted 30-60 minutes.

Table I shows that the majority of the interviewees were from middle and upper management. The interviewees had an average of 15.3 years of working experience in the construction industry, with six years of experience in China. The majority (55 percent) of the interviewees was from consultancy firms.

Table II shows that the interviewees undertook different types of businesses in China. The projects they were involved in were predominantly buildings, many located in Shanghai.

In the sections below, the results are reported and analyzed. For convenience, labels are used in the discussion. Interviewees are coded according to Table II, column 1; risks are coded as R1 to R2 (Table III, columns 2-3); and risk mitigation measures coded at CM1 to CM7 and GM1 to GM11.

Frequency and severity of risk

Table III shows the types of financial and economic risk encountered by the interviewees in China's construction industry. The difference in the types of risks faced was due to the different roles they played in a project. The companies' priorities and policies also affected the types of risks they faced.

On average, specialist contractors (SC-1 and SC-2) encountered the most financial and economic risks in China (mean = 5.50), possibly because they are low in the supply chain and risks have been transferred down the chain to them through

Description	Number	% ^a	Economic risk in China
<i>Main business</i>			351
Consultant QS	6	27	
Architects	1	4.5	
M&E/structural engineers	1	4.5	
General building contractors	3	14	
Developers	4	18	
Suppliers	1	4.5	
Specialist contractors	2	9	
Project managers	4	18	
<i>Designation</i>			
Upper management	6	27	
Middle management	13	59	
Professionals	3	14	
<i>Experience in construction</i>			
1-5 years	3	14	
6-10 years	4	18	
11-15 years	4	18	
16-20 years	7	32	
> 20 years	4	19	
Mean	15.3		
<i>Experience in China</i>			
1-5 years	12	55	
6-10 years	7	32	
11-15 years	2	9	
16-20 years	1	4	
Mean	6		

Note: ^aRounding-off errors may have occurred

Table I.
Characteristics of respondents

contractual provisions. Suppliers (S-1) faced the least risks because they exported their goods from the home country without the need to be physically present in the host country.

Table III also shows that none of the interviewees encountered foreign exchange fluctuation risk in China, while labor and material price fluctuation risk was encountered by 21 (95 percent) of the 22 interviewees. These observations are discussed later.

Table IV shows the impact of financial and economic risks faced by foreign firms in China. On the x-axis, the frequency of occurrence was based on the number of interviewees who encountered this risk (see Table III). When more than 75 percent of the respondents had faced the risk, it is classified as “high frequency of occurrence”. Medium frequency is when 25 percent to 75 percent of respondents encountered this risk and the rest are classified as low frequency of occurrence. The severity of the risks was classified by respondents during the interviews as “low”, “moderate” or “high”, based on their experience and perception. Two risks have a great impact on construction projects in China because they are perceived to have high frequency of

Table II.
Types of business
undertaken by
interviewees' firms in
China

Interviewee code	Designation	Main business in China	Main project location	Main project types
QS-1	Associate	QS consultancy	Shanghai, Beijing, Chengdu, Xiamen, Yangzhou and Suzhou	Hotel, office, condominium
QS-2	Senior QS	QS consultancy	Suzhou, Shanghai, Tianjin, Hainan	Hotel and office
QS-3	Vice president	QS consultancy	Suzhou and Shanghai	Industrial properties
QS-4	Director	QS consultancy	Beijing, Tianjin, Shantou, Shanghai	Hotel, commercial, residential
QS-5	Senior contract manager	QS consultancy	Shanghai, Beijing, Tianjin	Commercial, residential, hospital
QS-6	Contract manager	QS consultancy	Chengdu	Residential
DV-1	Chairman	Developer	Suzhou	Industrial factory
DV-2	Managing director	Developer	Shantou, Suzhou, Yangzhou	Hotel, commercial, residential
DV-3	Deputy manager	Developer	Suzhou, Yangzhou, Tianjin	Commercial and residential
DV-4	Project manager	Developer	Shenyang, Beijing	Mixed-development
PM-1	Contract manager	Project management	Guangzhou, Tianjin, Beijing, Shanghai, Suzhou, Changzhou, Wuxi	Hotel, office, golf course, retail mall, factory
PM-2	Senior QS	Project management	Yangzhou	Mixed development
PM-3	Manager	Project management	Shanghai	Office
PM-4	Project manager	Project management	Kuming	Hospital
CR-1	Managing director	Main contractor	Shanghai, Wuxi, Nanjing, Shenzhen, Zhuhai	Industrial (Hi-tech) buildings
CR-2	Senior QS	Main contractor	East of China, south of China	Industrial building, M&E work
CR-3	Project manager	Main contractor	Shanghai, Beijing	Office, residential
A-1	Senior associate	Architect	Shanghai, Ningbo, Nanjing	Residential, commercial
ME-1	General manager	Mechanical & Electrical Consultancy	Shanghai, Chongqing, Changsha	Residential, commercial, hotel
S-1	Managing director	Supplier	Shanghai, Beijing, Suzhou	Commercial
SC-1	Deputy manager	Specialist contractor	Shanghai, Zhengzhou, Suzhou	Hotel and office
SC-2	Managing director	Specialist contractor	Shanghai	Offices

Rank	Code	Risk	QS-1	QS-2	QS-3	QS-4	QS-5	QS-6	A-1	ME-1	PM-1	PM-2	PM-3	PM-4	DV-1	DV-2	DV-3	DV-4	CR-1	CR-2	CR-3	S-1	SC-1	SC-2	Total %	
1	R5	Labor and material price fluctuation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	21	95
2	R4	Contractors/subcontractors' default	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20	91
3	R2	Inflation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	17	77
4	R7	No/delayed payment	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	55
5	R6	Import/export restriction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	8	36
6	R8	Financial failure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	23
6	R9	Restriction on repatriation of funds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	23
8	R3	Interest rate fluctuation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	4	18
9	R1	Foreign exchange fluctuation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	0	0
Total			4	3	7	2	2	4	2	2	3	5	3	3	4	4	5	6	5	5	5	3	5	6	5.5	
Average									3.5								5	5.3				3	3	3	5.5	

Table III. Financial and economic risks encountered

Table IV.
Impact of financial and economic risks in China

		Severity →		
		Low	Moderate	High
Frequency ↓	Low	R1: Foreign exchange fluctuation	R9: Restriction on profit repatriation R3: Interest rate fluctuation R8: Financial failure	
	Medium		R6: Import/export restriction	R7: No/delayed payment
	High		R2: Inflation	R5: Labour and material price fluctuation R4: Contractors/subcontractors' default

occurrence and high severity: Labour and Material Price Fluctuation (R5); and Default by Contractors/Subcontractors (R4).

Framework for managing financial and economic risks

The interviewees were asked how they managed the financial and economic risks which they encountered. The strategies they adopted can be classified into: contractual measures (CM1 to CM7); and general measures (GM1 to GM11) (see Table V). These are represented pictorially in Figure 1.

Figure 1 consists of three rows and three types of nodes. The nine types of financial and economic risks (R1 to R9) in this study are represented by circles and are sub-categorized according to when they predominantly occur in a project: pre-contract stage; construction stage; and completion stage. Admittedly, some risks may occur in several stages, but Figure 1 shows where they predominantly occur. The contractual measures (CM1 to CM7) are represented by square boxes on the first row, whereas the general measures (GM1 to GM11) are represented by the rectangular boxes on the last row.

When a foreign AEC firm encounters a specific financial and economic risk, it could use Figure 1 to find out the strategies to manage them, by following the arrows to relevant contractual and/or general measures.

Discussion

This section discusses the ways foreign firms managed financial and economic risks in China's construction industry. The discussion is based on the framework in Figure 1 and details in Table V.

R1: Foreign exchange risk

Table IV shows that risk arising from fluctuations in foreign exchange rates (R1) is not likely to happen and not severe, in a stark departure from an earlier study (Chua *et al.*, 2003). The interviewees believed their profits would not be drastically affected because the Chinese government exerts tight exchange rate controls.

Five interviewees managed foreign exchange risks by making payments in the same currency as their revenues (CM1). In this mitigation measure, developers who

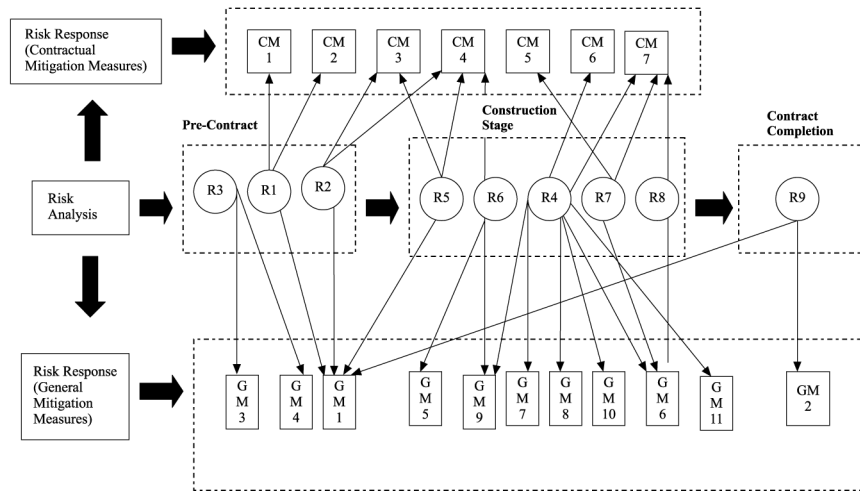
Code	Mitigation measures	Mitigated risks (see Table III)
<i>Contractual measures</i>		
CM1	Award contracts in the same currency as the source of funds or revenue	R1
CM2	Stipulate fixed exchange rate in the contract	R1
CM3	Adopt firm price contract without fluctuation clause	R2, R5
CM4	Allocate the risk to the other parties through main or sub-contracts	R2, R5, R6
CM5	Stipulate pay-when-paid clause in the contract	R7
CM6	Be specific on contractual terms and define scope of work clearly	R4
CM7	Require contractor to provide performance bond	R4, R7, R8
<i>General measures</i>		
GM1	Adjust bidding strategy accordingly	R1, R2, R5, R9
GM2	Familiarize with the procedures for arranging profit repatriation	R9
GM3	Arrange for self-financing	R3
GM4	Negotiate for attractive loan package	R3
GM5	Greater use of local products	R6
GM6	Conduct pre-qualifications to assess financial capacity and work only with parties that have sound financial capacity	R4, R7, R8
GM7	Establish long-term partnership with competent partners/contractors	R4
GM8	Ensure proper documentation and substantiate all claims	R4
GM9	Adopt bi-party project management	R4, R6
GM10	Use of bonus system	R4
GM11	Obtain payment due before handover of project	R7

Table V.
Measures adopted to
mitigate financial and
economic risks

obtain financing from Chinese banks in Renminbi (RMB) should award main contracts in RMB. Contractors should award their subcontracts in RMB if they receive their revenue in RMB. Another five interviewees stipulated a fixed exchange rate in their contracts (CM2). Interviewee SC-2 took into account exchange rate fluctuations in his pricing and made necessary adjustment to his pricing strategy (GM1).

R2: Inflation

Despite the small inflation rate in China, most interviewees were concerned with the variation in material prices brought about by inflation. The developers and subcontractors in this study made adjustment to their pricing and transferred the increase in material cost to their customers (GM1). On the other hand, seven consultants used firm price contract without the inclusion of fluctuation clause to transfer their clients' inflation risk to main contractors (CM3). All the contractors in turn transferred inflation risks to their subcontractors and suppliers, by subletting the works and locking the price through firm-priced sub-contracts (CM4).



Symbol	Description
	Risks Financial and economic risk encountered. See Table 5 for full description. N is 1, 2, 3, ..., 9.
	Contractual Measures Contractual measure to mitigate the risk. See Table 5 for full description. N is 1, 2, 3, ..., 7.
	General Measures General measure to mitigate the risk. See Table 5 for full description. N is 1, 2, 3, ..., 11.
	Interdependent relationship between risk and mitigating measure.
	Flow of the framework.

Figure 1.
Framework for managing
financial and economic
risks in China

R3: Interest rate fluctuation

According to most interviewees, it is not easy for private enterprises to obtain finance from Chinese banks to support their projects. As a result, five of the interviewees had to use their company reserves to finance their construction projects in China (GM3). This implies that firms investing in China need to be financially strong and have sufficient internal reserves.

Only four interviewees obtained loans to finance their projects in China. To manage interest rate fluctuation risk, it is important to negotiate for an attractive loan package (GM4). An attractive loan package can be obtained if foreign firms form alliances with banks, and evaluate a loan package, not merely on the interest rate quoted, but other services such as overdraft facilities and banker’s guarantee provided by the bank.

R4: Contractors/subcontractors' default

Most of the interviewees enter into contracts which provided for liquidated damages to be paid by the defaulting party to mitigate their losses if delays occur in their projects. Nevertheless, QS-1 faced problem in imposing liquidated damages. When liquidated damages were imposed, his contractor deliberately delayed the submission of documents to hamper the application of permits.

Besides using liquidated damages to punish defaulting contractors, some interviewees used a bonus system (GM10). The bonus system could be in the form of lump sum payments at specified intervals to encourage the contractor to perform the works more efficiently and produce higher workmanship quality.

To avoid working with incompetent partners or contractors, background checks should be conducted (GM6). These checks include assessing financial capacity of the potential partner, and contracting with only parties that have sound financial capacity. However, projects which are managed by foreign firms in China generally have poor schedule performance (Ling *et al.*, 2006). This may be because although many projects are awarded to qualified construction companies, they are subsequently dismembered and passed on to unqualified subcontractors (Sha, 2004).

Besides pre-qualification, default risk may be mitigated through establishing long-term partnerships with competent parties (GM7). Long term relationships may be established through partnering and trust building (Jin and Ling, 2005). CTR-2 reduced default risk by building long term relationships with subcontractors. Likewise, QS-1 proposed that the client should establish long-term partnership with competent contractors.

Chinese contractors may also default by not fulfilling their obligations after contracts were awarded to them. QS-1 recommended that potential problems should be identified upfront in the tender document and spelt out clearly in the contract. DV-1 advised the need to be specific on contractual terms and define scope of work clearly (CM6). This is done by ensuring proper documentation and substantiating all claims (GM8). The contract should also require contractors to furnish performance bonds (CM7).

Sometimes, default risk arises because of foreign project managers' unfamiliarity with China's regulations and practices. Thus, the use of bi-party construction project management is proposed (GM9). In this management system, the project is managed by both a Chinese engineer and a foreign project manager. The Chinese engineer is familiar with China's regulations, procedures, business cultures and situations; while the foreign project manager is able to complement this with modern technology and construction management practices.

R5: Labour and material price fluctuation

Table IV shows that material and labor price fluctuation is a very high impact risk: high severity and high frequency of occurrence. All the interviewees had transferred this risk to other parties (CM4) by using firm price contracts without fluctuation clause (CM3). Unfortunately, in China, a firm price contract is not always effective in controlling this risk. Since some price increases cannot be foreseen, QS-1 recommended his clients to allow for price fluctuations in subsequent projects (GM1).

R6: Import/export restrictions

All the interviewees did not face serious problems with unavailability of materials and machineries. Notwithstanding this, some of the interviewees had to import materials and equipment because these were either unavailable in China or the local equivalent is of inferior quality.

Generally, the problems faced by seven interviewees were lengthy importation and testing procedures, which affected project progress. These interviewees adopted risk transfer techniques by allocating the risk to the other parties through main or sub-contracts (CM4). Adopting bi-party project management (GM9, described in item R4) also helped because indigenous Chinese project managers would be more familiar with Customs clearance and procedures. However, the interviewees warned that this strategy is not fail-safe and advised greater use of local products (GM5) since imported goods are much more expensive due to the high taxes.

R7: Delayed or no-receipt of payment

Seven consultants had encountered clients who delayed making payments to main contractors. PM-1 felt that financially weak Chinese contractors may become hostile and will stop work if they do not receive payment on time. PM-4 recalled one Chinese contractor who threatened to create bad publicity for his client by going to the press.

As it is generally difficult to obtain project financing in China, the shortage of funds may cause payments to be delayed or not made. This underscores the importance of working with financially strong clients in China (GM6). Five consultants said that their clients were mainly reputable foreign developers with sound financial capacity who paid contractors promptly. SC-1 and SC-2's firms made periodic assessments of their clients' financial capacity. SC-2's advice was:

Be very selective in choosing jobs. Do not grab a job out of desperation. It is important to do your homework beforehand to pre-determine whether the client can afford to pay.

To reduce the impact of delayed payment risk, CTR-1 and CTR-3 stipulated "pay-when-paid" clause in their sub-contracts (CM5) so that cash flow of their projects would not be seriously affected by clients' payment delays.

The interviewees shared that it is more difficult for the contractor to demand for payment after the completed project is handed over to the client. It is therefore proposed that contractors use the handing over as leverage to obtain payment due to them (GM11). This measure is implemented by submitting the final claim after practical completion, but before applying for the necessary permits from the government to operate the facilities.

It is also proposed that performance bonds be demanded from contractors (CM7) even though this is not a usual practice in China. Since few banks or insurance companies would provide bonds to poor performing contractors, they will evaluate a contractor's financial status, technical experience, management capability and track record carefully (Meng, 2002). As a result, it is difficult for an incompetent or financially weak contractor to obtain a performance bond. Requiring contractors to furnish performance bond therefore mitigates default risk.

R8: Financial failures

All the interviewees emphasized the importance of conducting background checks of contractors and business partners to reduce financial failure risk (GM6). Table IV shows that financial failure is not a serious risk: only five interviewees encountered financial failures of their contractors. DV-4 explained the low probability of this risk as:

It is not that financial failure won't happen, but it is less likely to happen in China. Many of the Chinese construction firms are state-owned and are very big. They might lose money but they won't go into liquidation because of government support.

One way to manage this risk is to require contractors to furnish performance bonds (CM7).

R9: Restriction on repatriation of profits

Most interviewees said that the popular impression that investors are restricted from bringing profits out of China is incorrect. DV-2 felt that this is just another myth and his advice was:

Don't listen to market talk that this or that cannot be done. If profit cannot be repatriated, it may be because the documentation was not properly done in the first place. You need to pay taxes and follow the procedures closely.

Nevertheless, many of the interviewees were still concerned with the complicated bureaucratic process and taxation when trying to repatriate profits. SC-2 reminded companies planning to repatriate profits to make allowance for taxation in pricing their bids (GM1). It is also important to be familiar with the procedures for arranging profit repatriation (GM2). To avoid delay in repatriation, foreign firms should: provide evidence that they have made after-tax profits; keep all relevant documentation on business transactions; cooperate with banks; and engage Chinese accountants who are familiar with Chinese regulations and submission procedures to remit profits efficiently.

Limitations of the study

The limitation faced is the relatively small sample size of this research. It would be desirable if more industry practitioners could be interviewed so that the results could be generalized. Notwithstanding this, the in-depth interviews of 22 China experts from Singapore provided a realistic insight of the financial and economic risks that foreign firms would face in China's construction industry. The qualitative data collected precluded statistical analysis of how well the mitigation measures worked. However, it may be assumed that if interviewees had mentioned ineffective measures, they would have emphasized in the face to face interviews that these measures did not work.

The next limitation is that the findings from a Singaporean sample, whose key representatives are of the same race as the mainland Chinese, may not be applicable to other foreign (e.g. US or European) firms. US or European firms may approach China's construction industry somewhat differently from Singaporean firms, and hence attract different risks, including economic and financial risks. A future study could be conducted from US and European firms' point of view.

Another limitation of this study is that while there are many other categories of risks in China's construction industry, this research focused only on the financial and

economic risks. Further studies on other risks such as legal risks and cultural risks would be carried out.

Conclusion

This study investigated nine types of financial and economic risks that foreign AEC firms face in China. These are: labour and material price fluctuations; contractors and subcontractors' default; delayed or no receipt of payment; inflation; foreign exchange risk; inflation; interest rate fluctuations; import/export restrictions; financial failures; and restriction on repatriation of profits. The impact of these risks and ways to manage them were investigated by in-depth interviews with 22 foreign experts who have experience in China's construction industry.

The study found that the first four financial and economic risks have big impact on foreign firms operating in China's construction industry because they are frequently encountered and are severe (see Table IV).

This study found several mitigating measures for the financial and economic risks (see Table V). Based on the mitigating measures, a risk management framework is proposed (Figure 1) to help foreign firms manage financial and economic risk in China's construction industry. Of these, the most important is adjusting bidding strategy, by pricing for these risks in the offer price. This study found that foreigners in China are risk avoiders and largely risk averse. They showed a distinct preference for using contractual risk transfer and risk elimination methods.

References

- Baker, S., Ponniah, D. and Smith, S. (1999), "Risk response techniques employed currently for major projects", *Construction Management and Economics*, Vol. 17, pp. 205-13.
- Bing, L. and Tiong, L.K. (1999), "Risk management model for international construction joint ventures", *Journal of Construction Engineering and Management*, Vol. 125 No. 5, pp. 377-84.
- Bing, L., Tiong, L.K., Wong, W.F. and Chew, A.S. (1999), "Risk management in international construction joint ventures", *Journal of Construction Engineering and Management*, Vol. 125 No. 4, pp. 277-84.
- Burchett, J.F., Tummala, V.M.R. and Leung, H.M. (1999), "A world-wide survey of current practices in the management of risk within electrical supply projects", *Construction Management and Economics*, Vol. 17, pp. 77-90.
- Chen, J.J. (1997), "The impact of Chinese economic reforms upon the construction industry", *Building Research and Information*, Vol. 25 No. 4, pp. 239-45.
- Chen, J.J. (1998), "The characteristics and current status of China's construction industry", *Construction Management and Economics*, Vol. 16, pp. 711-19.
- Chua, D.K.H., Wang, Y. and Tan, W.T. (2003), "Impacts of obstacles in east Asian cross border construction", *Journal of Construction Engineering and Management*, Vol. 129 No. 2, pp. 131-41.
- Davis Langdon (2005), *World Construction Review/Outlook 2004-05*, Davis Langdon, Sydney.
- Edwards, P.J. and Bowen, P.A. (1998), "Risk and risk management in construction: a review and future directions for research", *Engineering, Construction and Architectural Management*, Vol. 5 No. 4, pp. 339-49.
- Ellis, R.C.T., Wood, G.D. and Keel, D.A. (2005), "Value management practices of leading UK cost consultants", *Construction Management and Economics*, Vol. 23 No. 5, pp. 483-93.

- Fang, D., Li, M., Fong, S. and Shen, L. (2004), "Risks in Chinese construction market – contractors' perspective", *Journal of Construction Engineering and Management*, Vol. 130 No. 6, pp. 853-64.
- Jin, X.H. and Ling, Y.Y. (2005), "Model for fostering trust and building relationships in China's construction industry", *Journal of Construction Engineering and Management*, Vol. 131 No. 11, pp. 1224-32.
- Kaplan, B. and Maxwell, J.A. (1994), "Qualitative research methods for evaluating computer information systems", in Anderson, J.G., Aydin, C.E. and Jay, S.J. (Eds), *Evaluating Health Care Information Systems: Methods and Applications*, Sage, Thousand Oaks, CA, pp. 45-68.
- Kim, S. and Bajaj, D. (2001), "Risk management in construction: an approach for contractors in South Korea", *Cost Engineering*, Vol. 42 No. 1, pp. 38-44.
- Krippendorff, K. (1980), *Content Analysis: An Introduction to its Methodology*, Sage Publications, Beverly Hills, CA.
- Lam, K.C. and Chow, W.S. (1999), "The significance of financial risks in BOT procurement", *Building Research and Information*, Vol. 27 No. 2, pp. 84-95.
- Leiringer, R. (2006), "Technological innovations in PPPs: incentives, opportunities and actions", *Construction Management and Economics*, Vol. 24 No. 3, pp. 301-8.
- Ling, Y.Y., Ibbs, C.W. and Hoo, W.Y. (2006), "Determinants of international architectural, engineering and construction firms' project success in China", *Journal of Construction Engineering and Management*, Vol. 132 No. 2, pp. 206-14.
- Martin, P.Y. and Turner, B.A. (1986), "Grounded theory and organizational research", *Journal of Applied Behavioral Science*, Vol. 22 No. 2, pp. 141-57.
- Meng, X. (2002), "Guarantees for contractor's performance and owner's payment in China", *Journal of Construction Engineering and Management*, Vol. 128 No. 3, pp. 232-7.
- Myers, M.D. and Avison, D.E. (2002), "Overview of qualitative research", in Myers, M.D. and Avison, D.E. (Eds), *Qualitative Research in Information Systems: A Reader*, Sage Publications, London, pp. 1-5.
- Nystrom, J. (2005), "The definition of partnering as a Wittgenstein family-resemblance concept", *Construction Management and Economics*, Vol. 23 No. 5, pp. 473-81.
- Rahman, M.M. and Kumaraswamy, M.M. (2002), "Risk management trends in the construction industry: moving towards joint risk management", *Engineering, Construction and Architectural Management*, Vol. 9 No. 2, pp. 131-51.
- Sha, K. (2004), "Construction business system in China: an institutional transformational perspective", *Building Research and Information*, Vol. 32 No. 6, pp. 529-37.
- Shen, L.Y., Wu, W.C. and Ng, S.K. (2001), "Risk assessment for construction joint ventures in China", *Journal of Construction Engineering and Management*, Vol. 127 No. 1, pp. 76-81.
- Smith, J., Zheng, B., Love, P.E.D. and Edwards, D.J. (2004), "Procurement of construction facilities in Guangdong Province, China: factors influencing the choice of procurement method", *Facilities*, Vol. 22 Nos 5/6, pp. 141-8.
- Uher, T.E. and Toakley, A.R. (1999), "Risk management in the conceptual phase of a project", *International Journal of Project Management*, Vol. 17 No. 3, pp. 161-9.
- Wang, M.T. and Chou, H.Y. (2003), "Risk allocation and risk handling of highway projects in Taiwan", *Journal of Management in Engineering*, Vol. 19 No. 2, pp. 60-8.
- Wang, S.Q., Dulaimi, M.F. and Aguria, M.Y. (2004), "Risk management framework for construction projects in developing countries", *Construction Management and Economics*, Vol. 22, pp. 237-52.

Wang, S.Q., Tiong, L.K., Ting, S.K. and Ashley, D. (2000), "Evaluation and management of foreign exchange and revenue risks in China's BOT projects", *Construction Management and Economics*, Vol. 18, pp. 197-207.

Xenidis, Y. and Angelides, D. (2005), "The financial risks in build-operate-transfer projects", *Construction Management and Economics*, Vol. 23, pp. 431-41.

Zhi, H. (1995), "Risk management for overseas construction projects", *International Journal of Project Management*, Vol. 13 No. 4, pp. 231-7.

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