CREATING AND SUSTAINING INTERNATIONAL COMPETITIVENESS OF CHINESE CONSTRUCTION FIRMS

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The international business of Chinese construction firms (CCFs) has witnessed progressive development since the country's open-door policy in 1979. Currently CCFs are actively involved in international construction projects in more than 190 countries or regions. 43 CCFs made it to the list of ENR Top 225 International Contractors in 2003. This research examines CCFs' international performance and their current status, with the aim of tailoring suitable competitive strategies for them. The research reviews the existing literature on CCFs' internationalisation and extends its scope to include strategies for improving their international competitiveness. The strengths and weaknesses of CCFs are analyzed and compared to other international contractors. The overall competitiveness for CCFs' internationalisation is discussed and a conceptual model of competitive strategy is postulated. This model will be validated through questionnaire survey, personal interview and case study in future.

Keywords: Chinese Construction Firms, Competitiveness, Internationalisation, Strategy.

INTRODUCTION

The current external environment is very favorable to Chinese construction firms (CCFs) because of the increase in China's domestic infrastructure investment and the WTO entry, in the midst of conducive political, economic and legislative environments. Besides securing sufficient contracts in the domestic market, a large number of CCFs are going abroad and have performed well, which shows that their international competitiveness is being enhanced. Based on the experiences accumulated, CCFs are set to realise greater ambitions in the international market. Concurrently, foreign contractors are also presented with tremendous opportunities to participate in construction activities in China. CCFs are still relatively weak compared to the international competitors. How can CCFs effectively compete with their foreign rivals in the domestic and international markets? Improving their international competitiveness thus becomes a top priority and challenge. However, the amount of extant literature about CCFs' internationalisation strategies is quite limited. Addressing these important issues and bridging the literature gap become the focus and objective of this research.

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In order to tailor suitable overall strategies for CCFs' international development, their international performance will first be reviewed, which include the developmental history of their international business and international track records. CCFs' strengths and weaknesses will be analysed subsequently. The weaknesses will be highlighted over their strengths in order to justify the pre-eminence of the use of the proposed strategies. The literature about the internationalisation process and generic competitive strategies will be reviewed. A framework for CCFs' internationalisation process and a model for their overall competitive strategy will be conceptualized, which can be validated through future survey and case study.

INTERNATIONAL PERFORMANCE REVIEW

Since late 1970s, China's international construction business has been growing steadily. By 2003, the accumulated contracted value for international projects and labour services had reached US$165.1 billion, while the transacted value was US$123.7 billion. In 2003 alone, the contracted value for international projects and labour services was US$20.8 billion, with the transacted value at US$17.2 billion (Department of Foreign Economic Cooperation 2004).

International construction projects carried out by CCFs have been categorised into various types of construction domains: general buildings, petro-chemical, metallurgy, harbours, airports, subways, power stations, shipping, communication projects, etc. as well as IT application, engineering consultancy, and nuclear power projects. The contracting scales have been increasing. The quantity of main contracts and turnkey projects has also been increasing.

The developmental history of CCFs' international business

Before 1979, CCFs' international involvement is mainly for financial aid projects in some under-developing countries with funds provided by the Chinese government. These projects cannot be fully deemed as international projects due to their non-market-driven nature (Low and Jiang 2003). From 1979 onward, the development of CCFs' international business can be categorised into three distinct stages as follows (CHINCA 2002):

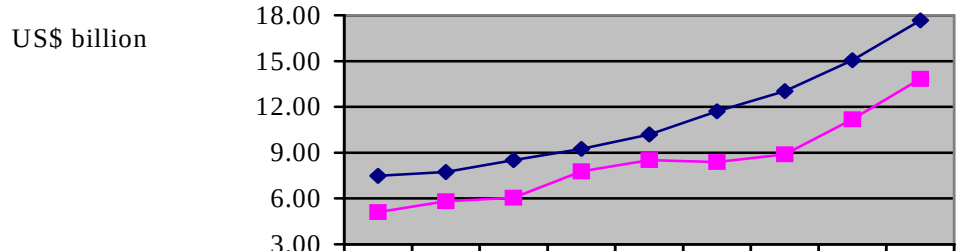
- Preliminary stage (1979-1982). Four large contractors were approved by the Chinese government to carry out international construction and related business in 1979. They started their work in the Middle East. In 1982, the Chinese government began to approve more companies for international business when 29 companies were given licenses for international construction. By the end of 1982, 755 contracts had been secured with a total value of US$1.25 billion. The completed value was US$560 million, covering markets in 45 countries and regions. Major markets were West Asia and North Africa, and major projects were buildings and roads. Project scales were small, and the major contract mode was sub-contracting.

- Stable development stage (1983-1989). With the recession of the global economy, construction demands in the Middle East and North Africa suddenly declined. CCFs had to expand their markets to other regions. By 1989, a total of 88 contractors had obtained international business licenses. From 1983 to 1989, total contracted value of international construction and labour services was US$11.56 billion, out of which US$7.22 billion of work was completed. Business has been expanded to more than 130 countries, with Asia as the biggest market where it accounts for 60 percent of the total contracted value. Besides buildings, road and bridge projects, power stations and industrial plants had widely been built.

- Fast development stage (1990- present). The Gulf War in 1990 has a severe impact on the construction market in the Middle East. CCFs had to give up this market and looked for new ones. With the support of the government, CCFs had been involved in many construction projects in Russia, Eastern Europe, Asia, Africa and Latin America. After the Southern tour of Deng Xiaoping in 1992, state-owned-enterprises (SOEs) have been reformed progressively and become more adaptable to the international market. In this stage, the average annual growth for CCFs' international business was more than 20 percent. More than 1700 contractors have been licensed to carry out international business (Yi 2003) in more than 190 countries (Low and Jiang 2003). Thus CCFs have played an increasingly significant role in the international construction market. Now they are set to re-enter the Middle East region and also expand their business in other advanced countries.

CCFs' international construction track record

The total international construction turnover for CCFs has increased steadily, as shown in Figure 1. Total contracted and transacted value for overseas construction in 2003 was US$17.67 billion and US$13.84 billion respectively. Since 1995, more CCFs have become top international contractors. There were between 30 and 43 CCFs which were ranked as top international contractors in ENR from 1998 to 2003. Many CCFs have also been enhancing their design capability. Seven CCFs were included in ENR Top 200 International Design Firms in 2003. However, their international market share is still small compared to Western contractors. Skanska secured US$14.14 billion of contracts and completed US$11.52 billion of international projects in 2002. Skanska's international construction market share alone was almost the same as the total of all CCFs in 2002.



	1995	1996	1997	1998	1999	2000	2001	2002	2003
Contract value	7.48	7.73	8.52	9.24	10.2	11.7	13	15.1	17.7
Turnover	5.11	5.82	6.04	7.77	8.52	8.38	8.9	11.2	13.8

Figure 1: International Construction Track Record of CCFs
Source: Department of Foreign Economic Cooperation (2004)

Table 1 shows the CCFs' market share by regions, construction values by countries and construction and related values by countries respectively. It can be seen that most of the business of CCFs were centralised in Asian countries especially in Hong Kong, which is now part of China. Their international construction market share in Asia was more than 60 percent of the total in 1999, as against 25 percent in Africa, and about 10 percent for the rest of the regions. CCFs were unable to compete with local

contractors in Europe and North America, where they failed to gain enough market shares to survive and develop. CCFs have conspicuous advantages in Hong Kong because of the easy supply of low cost resources from mainland China and low overhead. Many CCFs are also successful in Singapore due to similar cultural environment, open construction industry and flexible immigration rules for labour and management staff recruitment.

Table 1: CCFs' International Market Share by Regions and Countries in 1999
Unit: US$ million

Market Share by Regions

	Asia	Africa	Europe	Latin America	North America	Ocean & Pacific	Others
Construction	4502.1	1827.7	125.9	71.8	103.7	119.5	44.1
Labour Supply	1711	203.1	171	69.7	225.3	62.5	14.3
Design/Consultant	34.1	5.5	9.2	2.1	1.9	0.2	0.08

Top 10 Countries

By Construction Values		By the Sum of Construction and Related Values	
Country	Turnover	Country	Turnover
Hong Kong	1966.5	Hong Kong	2192.1
Sudan	728.9	Singapore	1018.6
Singapore	530.9	Sudan	743.4
Pakistan	305.8	America	323.2
Iran	200.1	Pakistan	308
Burma	192.7	Japan	287.7

Kuwait	187.5	Macau	249.3
Bangladesh	144.9	Kuwait	215.8
Macau	118.2	Iran	205.8
Thailand	108.7	Burma	197.8

Source: Data from CHINCA (2002)

In brief, CCFs have made significant achievements in various types of international projects and construction-related services. Through international construction, CCFs amassed considerable advanced technology and management skills, helping China to increase its foreign exchange reserves. It also provided more employment opportunities for workers, stimulating construction-related equipment export, and training more technical and management personnel in international construction. In the new millennium, CCFs would have to face new challenges and opportunities. In the next section, their major strengths and weaknesses will be examined in order to reposition themselves in the new environment.

INTERNAL STRENGTHS AND WEAKNESSES

CCFs' strengths mainly lie in their low costs and strong government support. With the improvement in the productivity in agriculture in China, more farmers have become construction workers, which results in low labour costs. The abundant natural resources and low labour costs lead to lower construction material costs. Construction tools, machinery and equipment made in China are also cheaper than imported ones. CCFs' overhead could have been far lower than that of their international competitors if their organisational structures were optimised. In addition, due to the state-owned nature of most big CCFs, they have been strongly encouraged and supported by the Chinese government to venture abroad. These are the major strengths of CCFs. Conversely, their weaknesses are reflected in the following eight aspects:

- A large number of equal-sized firms. Such a situation leads to fierce competition among CCFs. Very few CCFs are giant conglomerate contractors which can compete in the world. Under the new grading system in 2002, there are more than 4000 big CCFs with Grade 1 and above (special grade), accounting for about 6.2% of total CCFs having grade status (Ministry of Construction 2003).
- Ownership by or administration under various ministries. Big CCFs are either SOEs or shareholding enterprises which are recently restructured from SOEs but still retain the characteristics of SOEs. Such restructured enterprises are specialised in names even though their business is well-diversified. Under the restructured ownership and management, the role of management is largely controlled by the ministries instead of being market-focused.
- Overstaffing. This phenomenon is reflected in the following aspects: (1) plenty of redundant construction workers; (2) many redundant divisions within the organisational charts, such as those relating to the Party administration, which results in large cost overrun and causes conflicts with the top management; (3) too many subsidiaries and hierarchies, even as most of these are independent economic entities.

- Heavy social responsibility burden. Big CCFs have their own hospitals, schools, and even universities and research centres. They are obliged to provide social security for retired staff. Such problems are now being tackled in tandem with the SOE reforms.
- Over capacity. Some CCFs in the special trade sectors are facing survival crisis due to insufficient works. Idle rates of their equipment remain high.
- Low profits and tight cash flow. These are due to fierce competition and perpetual delay in progress payments by clients. Such problems undermine their ability to secure financing for large projects.
- Small international revenues. International construction still accounts for a small portion of their total revenues. For the 43 CCFs listed in ENR's Top 225 in 2003, the average percentage of their international revenue was 18.9% (ENR 2003), which shows little improvement to the 2002 figure of 18.4%.
- Low technology and management know-how. Compared to many international contractors from advanced economies, CCFs are far behind in management expertise and technological know-how, especially for large and sophisticated projects.

A FRAMEWORK FOR CCF'S INTERNATIONALISATION PROCESS

There is a wide range of literature concerning internationalisation and international marketing process, among which, Huszagh et al (1985) described a global company's normal macro-development process from a domestic market player, through an international firm and then a multinational firm to finally a global market dominator. Asseal (1993) and Bradley (2002) defined similar stages for international marketing process from international marketing environment to strategic alignment and performance. Howes and Tah (2003) designed a foreign market entry decision process that includes decision to internationalise, selection of market and sector, determination of strategies, and implementation of the strategies in international market. Internationalisation process can also be depicted through the four stages of product life cycle paradigm: introduction, growth, maturity and decline. Vernon (1966) and Gilligan and Hird (1986) further explained international product life cycle from both the advanced countries' perspective and less developed countries' perspective. Drawing from the literature review on internationalisation and international marketing process and product life cycle theory, a framework is proposed for the CCFs' internationalisation process, as shown in Figure 2. As indicated in Figure 2a, the framework incorporates three stages. Stage 1 is the preparation stage. The assessment is firstly made on the company's competency such as domestic turnover, technical know-how and financial status, etc. in order to ascertain if it is the right time to internationalise. Next the internal and external analysis will examine the company's internal strengths and weaknesses and external environment. The analysis results would vary according to different target markets. The company will then craft its mission statement which documents the purpose for its existence, often containing a code of corporate conduct to guide management's strategic intent. Objectives are then set to achieve the desirable outcomes. Thus even as mission, vision and objectives are formulated immediately after in-depth internal and external analysis, they are updated after a particular target market is selected, contingent upon feedback on its actual performance. Stage 2 is the initial international expansion stage which represents the

early stage of a company's international development. Market entry mode selection, project/equity management and evaluation are the major tasks for this stage. The importance of evaluation cannot be ignored as it determines whether the business will be expanded/maintained or divested. Stage 3 is the maturity stage in which very few CCFs are forging ahead towards this stage. Building a strong foundation for international competitiveness in Stage 1 and 2 would help to strengthen Stage 3 against future business decline.

Cheah et al (2003) suggested a four-stage evolutionary pattern of organisational models in a construction firm's internationalisation process, which is adapted into three basic stages in this research, to represent the strategic planning for CCF's organisational model selection over time, as indicated in Figure 2b. The relationship between corporate headquarters and the foreign projects/subsidiaries changes over the venturing period, with some of the latter being taken over by regional headquarters. The final organisational model should start from late initial international expansion stage because international construction may reach different stages on the life cycles within different markets (Gilligan and Hird 1986).

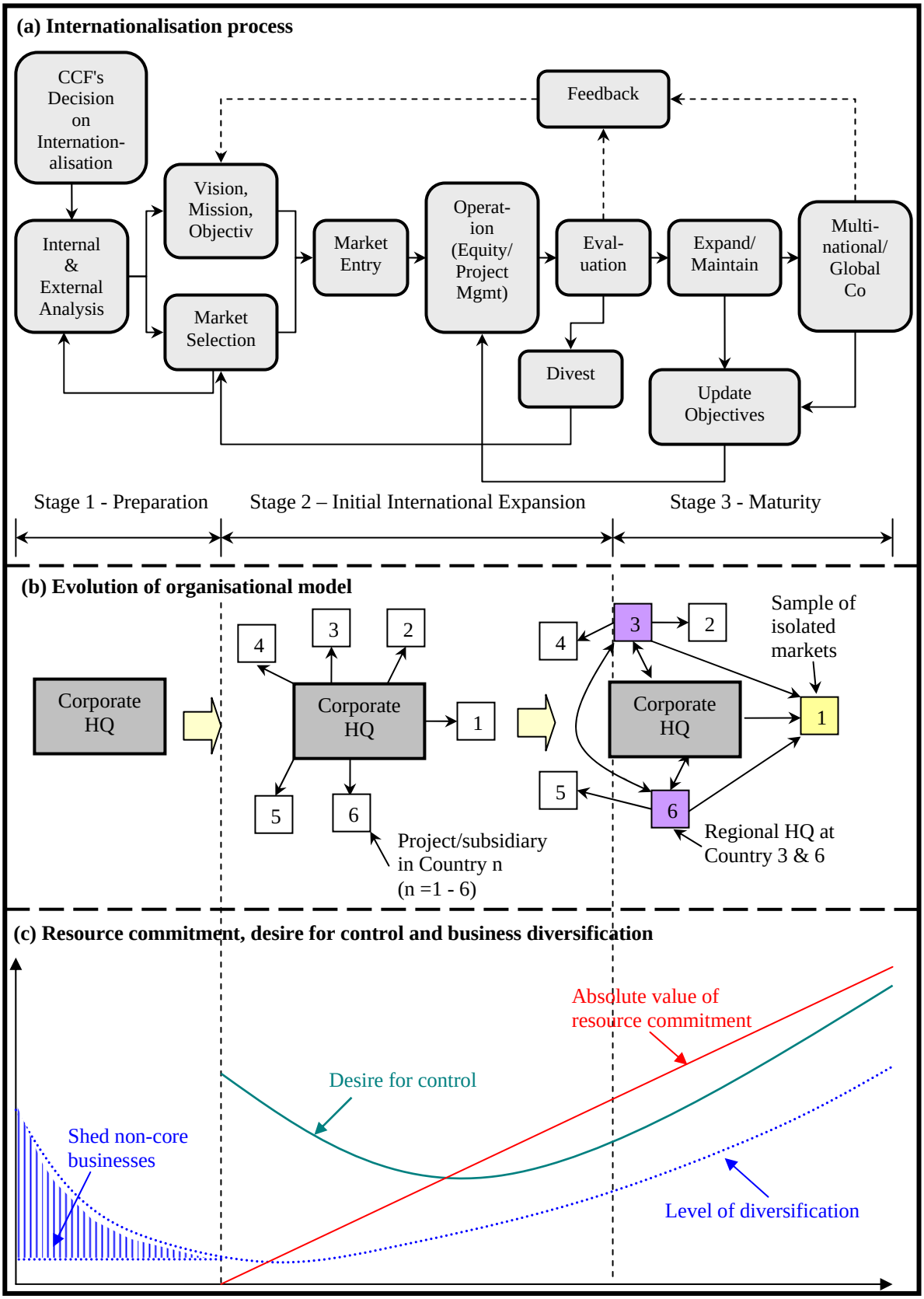


Figure 2: A Proposed Framework for CCF's Internationalisation Process

With international business expansion, CCFs' absolute value of resource commitment will increase almost linearly like traditional manufacturing enterprises. However, as construction firms are of the closest nature of service firms, a U-shaped relationship

between headquarters' desire for control and international experience of service firms suggested by Erramilli (1991) is basically available to CCFs, which means the propensity for control decline between "low" to "moderate" levels of experience, and increase between "moderate" to "high" levels (Figure 2c). The desire for control can be measured by the importance of foreign direct investment (FDI), which is expressed in terms of the percentage of FDI value among total foreign business turnover by all entry modes. In other words, CCFs may choose more FDI entry modes but with small business scale at the beginning of their venturing abroad. With certain accumulation of experience, they tend to diversify their market entry modes with lower level control like strategic alliances. When they are confident in sole operation of foreign projects after gaining enough experience, they may reinstate the desire for control in order to achieve fast market entry and effective management.

The level of diversification should increase with international business expansion and market saturation (Figure 2c). For those CCFs with well-diversified businesses in the domestic market, they should shed non-core businesses to a certain level before they venture abroad, in order to increase their competitiveness by focusing on their core competence. Although the recent reform on state-owned CCFs includes the removal of less profitable non-core businesses, the degree of such reform needs to be further strengthened.

OVERALL COMPETITIVE STRATEGIES FOR THE INTERNATIONALISATION OF CCFS

Porter (1985) highlighted three types of competitive advantage that a firm may possess: cost leadership, differentiation and focus. Cost advantage means having lower cost arising from the firm's ability to perform activities differently than rivals. Differentiation means that a firm differentiates itself from its competitors if it can be unique at its competency that is valuable to buyers (Porter 2002). Focus strategy rests on the choice of a narrow competitive scope within an industry. Hoskisson et al (2003) identified five strategies which were adapted from Porter (1985): cost leadership, differentiation, focused cost leadership, focused differentiation and integrated cost leadership/differentiation. Firms can choose from among these five strategies to establish and defend their desired strategic position against rivals. None of the five strategies is inherently or universally superior to the others (Dess et al 1999). The effectiveness of each strategy is contingent on both the opportunities and threats in a firm's external environment and on the possibilities provided by the firm's unique resources, capabilities and core competencies (Hitt et al 2003).

Based on the above literature review, combining the practical situation of CCFs, an overall competitive strategy model is postulated, as shown in Figure 3. There are two approaches for CCFs to compete internationally. The first approach involves focused cost leadership as low labour cost and overhead is CCFs' most obvious advantage. They should focus on specialised projects in a few target markets to minimise unforeseen risks. Gradually, cost leadership can be broadened to cover all fields of construction. The second approach involves differentiation in a narrow segment where CCFs have competitive advantage in certain construction technology and construction equipment. However, differentiation in a broad range of segments can hardly be achieved by CCFs as they lag behind big Japanese and Western contractors in technology. Ultimately, the two approaches will lead to integrated cost leadership/differentiation which is the ideal competitive advantage strategic approach. To what extent cost leadership can be broadened or differentiation can be achieved is firm-specific. For example, a specialist CCF may exert more differentiation advantage

than a building CCF. On the contrary, cost leadership may be more advantageous for a building CCF than a specialist CCF. The balance between cost leadership and differentiation is determined by the firm's business nature and decision makers' management ability and style. This model is based on one of the hypotheses of the current research, which will need to be validated through questionnaire survey and case study in near future.

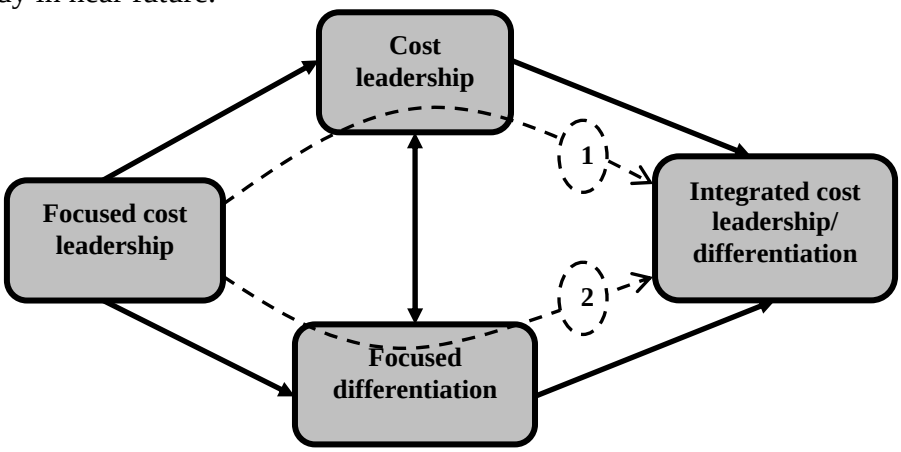


Figure 3: CCF's Overall Competitive Strategy Diamond

CONCLUSIONS

Review on CCF's international performance showed that they have made noticeable achievements in international construction. However, their international market share is still relatively small, focusing mainly on Asian and African countries, compared to their competitors from advanced countries. Analysis on CCFs' strengths and weaknesses indicated that they have two most obvious strengths – low costs and strong government support, and eight major weaknesses. Based on literature review, a framework for CCFs' internationalisation process was conceptualized. The evolutionary pattern of their organisational models, trends of resource commitment, desire of control and level of business diversification over time were outlined. In addition, a model for CCFs' overall competitive strategy was hypothesized, with two strategy-evolution approaches being suggested. The conceptualized framework and model, together with the other propositions for CCFs' internationalisation strategies made beyond this paper, will be validated through questionnaire survey, personal interview and case study in future.

REFERENCES

Asseal, H (1993) *Marketing Principles and Strategy*. 2nd ed. New York: The Dryden Press.

Bradley, F (2002) *International marketing strategy*. Edinburgh: Pearson Education Ltd.

Cheah C Y J, Tiong R L K and Chen P H (2003) International Management in Construction: Organisational Issues and Selected Empirical Findings. *In:* Ahmed, S M, Ahmad, I, Tang, S L and Azhar, S (Eds.) *Second International Conference on Construction in the 21st Century (CITC-II) "Sustainability and Innovation in Management and Technology"*, 10-12 December, Hong Kong Polytechnic University. Part 2.4, 299-304.

China International Contractors Association (CHINCA), www.chinca.org.cn available at 10th Dec 2002

Department of Foreign Economic Cooperation (2004), *Brief statistics of foreign economic cooperation (1995-2003)*, Ministry of Commerce, China

Dess, G G, Lumpkin, G T and McGee, J E (1999) Linking Corporate Entrepreneurship to Strategy, Structure and Process: Suggested Research Directions. *Entrepreneurship: Theory and Practice*, **23**(3), 85-102.

Engineering News Record (ENR), www.enr.com, available at 10th June 2003

Erramilli, M K (1991) The Experience Factor in Foreign Market Entry Behavior of Service Firms. *Journal of International Business Studies*, **22**(3), 479-501.

Gilligan, C and Hird, M (1986) *International Marketing: Strategy and Management*. Kent: Croom Helm.

Hitt, M A, Ireland, R D and Hoskisson, R E (2003) *Strategic Management: Competitiveness and Globalization*. 5th ed. USA: South-Western.

Hoskisson, R E, Hitt, M A and Ireland, R D (2003) *Competing for Advantage*. USA: South-Western.

Howes, R and Tah, J H M (2003) *Strategic Management Applied to International Construction*. London: Thomas Telford Publishing.

Huszagh, S M, Fox, R J and Day, E (1985) Organisational Adaptation: Strategic Choice and Environmental Determinism. *Administrative Science Quarterly*, **30**(3), 336-49

Low, S P and Jiang, H B (2003) Internationalisation of Chinese Construction Enterprises. *ASCE Journal of Construction Engineering and Management*, **129**(6), 589-98.

Ministry of Construction (MOC), *General information of construction firms after new grading system* (internal conference material), January 2003.

Porter, M E (1985) *The Competitive Advantage*. New York: The Free Press.

Porter, M E (2002) *What Is Strategy?* USA: Harvard Business School Press.

Vernon R (1966) International Trade and International Investment in the Product Life Cycle. *Quarterly Journal of Economics*, **80**(2), 190-207.

Yi J (2003) Serving 'High-end' Markets and Creating International Renowned Brand: The International Experience of China State Construction Engineering Corporation. *In:* Xiao J B (Ed.) *The Symposium on China Construction Development Situation Analysis*, 06-08 November, Qing Dao. China Construction News and China Construction Weekly, Vol. 2, 211-9.