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The role of exogenous factors in the strategic performance of construction companies

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Received November 2008
Revised May 2009
Accepted November 2009

Abstract

Purpose – The purpose of this paper is to investigate the role of exogenous factors in the strategic performance of construction companies. A conceptual model is proposed where strategic performance is influenced by a two-dimensional construct composed of market conditions and strategic alliances.

Design/methodology/approach – A questionnaire survey was administered to 73 construction companies. Structural equation modeling was used to analyze the data and test the hypothesis that strategic performance is impacted by exogenous factors. The individual constructs used in the study passed the internal reliability test, all factor loadings were statistically significant at $\alpha = 0.05$, all goodness of fit indices consistently indicated a good fit, and the hypothesized path coefficient was large and significant at $\alpha = 0.05$.

Findings – The hypothesis was supported by the data and analysis. Indeed, macro-economic, political, legal, socio-cultural conditions and the level of competition and demand are expected to impact differentiation strategies, and market/project/partner selection strategies. The quality of the relationships with government agencies and clients is expected to influence client/project/market selection strategies, while the quality of the relationships with labor unions may affect the ability to differentiate by using innovative construction methods, materials and equipment.

Research limitations/implications – It is likely that endogenous factors such as company resources, capabilities and project management competencies also impact strategic performance. But the study is confined only to the exogenous factors of market conditions and strategic alliances.

Practical implications – The findings of the study benefit construction company executives in that they make the executives more cognizant of the market environment and they draw the executives' attention to the importance of alliances with other parties. While market conditions are beyond the control of construction executives, relationships with other parties are somewhat within their sphere of influence.

Originality/value – Only a few studies have ever investigated non-financial measures to assess the effectiveness of company strategies. Also, exogenous factors which are unavoidable in a project environment were also rarely discussed in the construction management literature. The originality of this study is that it uses non-financial measures to assess the effects of exogenous factors on strategic performance.

Keywords Market forces, Strategic alliances

Paper type Research paper

Engineering, Construction and Architectural Management
Vol. 17 No. 2, 2010
pp. 119-134

0969-9988
DOI 10.1108/09699981011024650

Introduction

Strategic performance became important in the construction industry mainly because of its role in the pursuit of company success, and its capability to cope with uncertainties and to provide sustained improvement. Various researchers such as Anumba *et al.* (2000) and Beatham *et al.* (2004) commented on the existing poor performance of construction companies. Some researchers suggested that correctly determining the factors affecting performance is needed for rehabilitation (Egan, 1998; Larson and Gobeli, 1989; Yasamis *et al.*, 2002). Developing strategic performance measures by using non-financial measures, and identifying the critical factors that impact strategic performance is seen as a way to bypass the current situation and cope with the increasing competitiveness between construction companies.

The strategic performance of a company is a multifaceted phenomenon that combines financial, operating and strategic measures in order to translate strategies into deliverable results for the company and gauge how well the company meets its targets. Strategic performance can be explored both from the point of view of resource-based and market-based perspectives. The neoclassical approach to strategy formulation is resource-based and consists of the appraisal of endogenous factors such as resources and competencies (Peteraf, 1993). Indeed, as Barney (1991) argues, a company may gain advantages by analyzing information about the assets it already controls and by adjusting its performance accordingly. But for sustainable competitive advantage, a company should also consider market-based factors that are beyond the control of the company. Indeed, according to Prescott (1986), Porter (1980) and Scherer (1980), the strategic performance of a company is greatly affected by the environment in which it operates. According to Porter (1980), environment is the primary determinant of performance. But uncertainties are an inherent part of environment as company executives have hardly any impact on any environmental issue. The uncertainties in a project environment are caused by politics, macroeconomic conditions, policies of the government, social risks, competitiveness and the power of the project participants such as the suppliers and the client as well as the risks associated with the operation of the project and the strength of the strategic interrelationships with the other participants of a project. An efficient strategic plan needs to be put in place in order to cope with these uncertainties.

Company performance can be measured by a variety of methods including strategic measurement analysis and reporting technique (SMART) (Lynch and Cross, 1991), the performance measurement questionnaire (PMQ) (Dixon *et al.*, 1990), the results and determinants matrix (R&DM) (Fitzgerald *et al.*, 1991), the balanced scorecard (BSC) (Kaplan and Norton, 1996), comparative business scorecard (CBS) (Kanji, 1998), the Cambridge performance measurement process (CPMP) (Bourne *et al.*, 2000), consistent performance measurement systems (CPMS) (Flapper *et al.*, 1996), integrated performance measurement systems (IPMS) (Bititci *et al.*, 1997), dynamic performance measurement systems (DPMS) (Bititci *et al.*, 2000), and integrated PM framework (IPMF) (Medori, 1998). All these studies state that company performance measures should be derived from strategy. But only few studies investigated non-financial measures to describe what has to be measured in order to assess the effectiveness of strategies (e.g. Kagioglou *et al.*, 2001; Yasamis *et al.*, 2002; Koksal and Arditi, 2004; Bassioni *et al.*, 2005). Moreover, exogenous factors which are unavoidable in a project environment were also rarely discussed in the construction management literature

even though their importance was abundantly stressed in the general strategic management literature.

This study promotes the understanding of the role of exogenous factors in the strategic performance of construction companies, where "exogenous factors" is defined as a two-dimensional construct reflecting on the one hand the market environment relative to macro-economics, political conditions, socio-cultural structure, legal conditions, competitiveness, supply power, client power, demand and on the other hand, the strategic interrelationships of the company with other parties including clients, the government and labor unions. It is hypothesized that exogenous factors (so defined) influence the strategic performance of a construction company. Whether this hypothesized relationship exists or not is assessed by using structural equation modeling (SEM), a multivariate analysis technique that is used to explore the interdependencies between the parameters and the impact of these parameters on strategic performance. A questionnaire survey was administered to a number of construction companies to obtain data for the analysis. The methodology of the study is described in detail later in this paper.

Strategic performance

The literature on strategic decision-making is spread over a wide range from an individual strategist's perspective to strategic management techniques, to the implementation of these techniques in real situations (Globerson, 1985; Letza, 1996; Warszawski, 1996; Neely *et al.*, 1997). According to Betts and Ofori (1992), Ofori (1994), Atkinson *et al.* (1997), Hobday (2000), and Cheah *et al.* (2004) the following strategies represent the values of the construction industry where companies are project based organizations, and were selected for this study.

Differentiation strategies refer to the differentiation of products or services that provides competitive advantage and allows a company to deal effectively with the threat of new entrants to the market (Porter, 1979). Many new construction companies enter the industry every year because starting a new company does not require a large investment; consequently the construction industry becomes more competitive and forces existing companies to seek advantages over competitors by means of differentiation strategies that allow them to undertake projects that the new entrants cannot do.

Market, project, client and partner selection strategies are related to characteristics such as market conditions, the location and complexity of the project, the financial stability of the client, and the reliability of potential partners that have capabilities that the company does not possess.

Project management strategies involve the managerial functions of a project defined in *Guide to the Project Management Body of Knowledge* (*PMBoK Guide*, 2004) including planning, cost control, quality control, risk management, safety management, to name but a few. In order to achieve project goals, adequate strategies have to be set up relative to these functions.

Investment strategies occur along several dimensions such as the capabilities of the company (resources), pricing (financial decisions), product (construction project related factors), and finally research and development (Spence, 1979).

Organizational management strategies involve decisions pertaining to the company's reporting structure, planning, controlling and coordinating systems, as

well as the management of the informal relations among the different parties within the company (Barney, 1991).

The strategic performance of a company is the effectiveness with which a company performs the strategies mentioned above. In other words, strategic performance is measured by how effective these strategies were. Strategic performance may be impacted by exogenous factors including market conditions and the strength of the company's relationships with other parties. These factors are discussed in the following two subsections.

Exogenous factors

Traditionally, exogenous factors refer to variables that are beyond the control of an organization. There is no doubt that market conditions (composed of macro-economic, political, socio-cultural, and legal conditions, the state of competitiveness in the marketplace, supply, demand, and client power) constitute exogenous factors that are solely influenced by outside parties (e.g. Prescott, 1986; Holzinger, 2000; Hernes and Weik, 2007). But, in this study, a more liberal view of this definition is adopted whereby exogenous factors include variables that are influenced not only solely by outside parties but also jointly by outside parties and the organization. The strength of the relationships of an organization with other parties such as clients, consultants, subcontractors, financial institutions, governmental agencies, and labor unions constitutes such a variable. Some researchers (e.g. Gulati, 1995; Gulati and Gargiulo, 1999) argue that the strategic relationship of a company with an outside party is part of the concept of "embeddedness" and that it can be categorized as an endogenous factor. Other researchers (e.g. Adler and Kwon, 2002; Ahuja, 2000; Koka and Prescott, 2002; Tsai and Ghoshal, 1998) consider strategic alliances as a resource called social capital. But, the strength of the relationship between a company and another party is as dependent on the attitude of the company as it is on the attitude of the outside party. The strength of strategic alliances cannot therefore be considered entirely endogenous to a company. The exogenous factors are loosely defined in this study to cover variables that are totally and partly influenced by outside parties, namely market conditions, and the strength of strategic alliances respectively, as discussed in the following sections.

Market conditions

The effect of market conditions on company success was discussed by many researchers (e.g. Prescott, 1986; Chan *et al.*, 2004). Managing the positive and negative effects of exogenous factors has the power to reshape corporate wide characteristics. The factors described below are the key factors that drive the efficiency of strategic performance.

Macro-economic conditions refer to indicators such as national income, output growth, price indices, inflation, unemployment rates, etc. The construction industry is one of the most dynamic moderators of the overall economy in a country. The industry's contribution to the nation's GDP is a key measure in this sense.

Political conditions in a country have the power to impact the overall economy which in turn affects all industries. Government changes, *coups d'état*, the strength of international relationships, etc. can be considered as potential factors affecting the political stability of a country.

Socio-cultural conditions refer to the social environment and wealth in a country that determines the demand. Oliff *et al.* (1989) state that factors such as national ideology, international joint ventures, attitudes toward construction industry, achievement and work, class structure, information based management, risk, and the nature and extent of nationalism compose the structure of socio-cultural conditions.

Legal conditions govern the bureaucracy. The amount of paper work varies depending on the legal requirements.

Competitiveness refers to positioning the company according to the company's strengths/weaknesses such as its tangible and intangible assets and its managerial competencies. According to Kale and Arditi (2003), a company's environment hosts competitive forces and a company's strategic performance is closely related with its ability to handle the effects of competition.

Supply power refers to the impact of suppliers of materials and equipment that are needed in the execution of projects. The quality and cost of materials and equipment and the speed of procurement have significant effects on the performance of projects. The number of suppliers in the industry has the potential to affect a project's budget and quality.

Client power refers to the financial stability, connections, and political clout of the construction owner and may enhance the continuity of the project.

Demand governs the macro-level environment of the industry. The volume of construction depends on the general demand. While developing countries concentrate on infrastructure projects, industrialized countries emphasize industrial/heavy construction as well as high rise buildings and rehabilitation of existing facilities.

Strategic relationships with other parties

The strategic relationships of a company with other parties constitute a social dimension of the project environment (Kendra and Taplin, 2004). The strategic relationships with the parties involved in typical construction projects such as public or private clients, regulatory agencies, subcontractors, labor unions, material dealers, surety companies, and financial institutions are developed over the years and are a function of the age of the company. The strength of these relationships is related to the mutual satisfaction of the parties, i.e. the realization of the expectations of the parties. The primary relationships that are of more importance than others include relationships with construction owners (both public and private), labor unions, and regulatory agencies. But the subtle difference between favoritism and the strength of relationships has to be distinguished while assessing this criterion.

Relationships with clients rely on the communication and negotiating skills of company executives. The difficulty of achieving strong relationships between clients and contractors has always been a matter of concern, but recently the importance of cooperation and trust between clients and contractors has been understood somewhat better (Bresnen and Marshall, 2000). The awareness of the influence of good relationships on project performance encouraged contractors to recognize clients' basic expectations relative to cost, time and quality (Ahmed and Kangari, 1995). On the other hand, good relationships with owners are characterized by timely payments on the part of the owner, fewer claims on the part of the contractor, and the absence of legal disputes.

Relationships with labor unions relate to the human resources management of the company. Contractors should pay attention to formulating fair employment policies

and to recognize labor rights. Labor unions have the right to strike in case the company engages in unfair labor practices (Arthur, 1992). Smooth labor relations minimize disputes and strikes, and prevent potential delays.

Relationships with the government create a delicate balance between the government policies implemented by regulatory agencies and the operations of a company. In general terms, bureaucratic obstacles set by regulatory agencies to maintain standards in companies' day-to-day operations (e.g. codes, inspections, approvals, etc.), and companies' difficulties in obtaining preferential financial support are some of the government-induced problems. On the other hand, tax incentives, and relaxation of customs duties to allow the import of some materials and to prevent shortages are encouraging government actions (Oz, 2001).

Research methodology

A questionnaire consisting of questions about the latent variables and their constituent variables described in the preceding sections was designed to analyze the role of "exogenous factors" in "strategic performance". The questions intended to seek the perceptions of the respondents on the strategic performance of construction companies relative to exogenous factors. An example question would read "How would you rate the performance of your company in formulating and implementing differentiation strategies?". The respondent would rate the answer on a scale of 1 to 5, where 1 represents "not successful" and 5 "very successful".

The questionnaire was administered via e-mail and face-to-face interviews to 185 construction companies established in Turkey. The target construction companies were all members of the Turkish Contractors Association (TCA) and the Turkish Construction Employers Association (TCEA). The 185 companies received an e-mail describing the objective of the study, inquiring about their willingness to participate in the study and requesting a face-to-face interview with an executive of the company. Forty seven questionnaires were completed, the majority of which were administered by face-to-face interviews. The rate of response was 25 per cent. However, considering the fact that there were other construction companies in the industry which were not members of TCA or TCEA but showing similar characteristics with the member companies of these two associations in terms of size and type of work undertaken, a decision was made to expand the survey by including 26 additional similar companies selected individually through personal contacts. At the end of the extended survey, there were 26 more completed questionnaires, bringing the total number of respondents to 73. The average turnover of these 73 companies in the last five years was more than half a billion dollars. According to the demographics in Figure 1, respondent companies were involved in building, transportation, infrastructure, hydraulic works, and industrial projects. The majority of the respondents (82 per cent) operated internationally.

The model is presented in Figure 2. In the proposed model, "exogenous factors" is considered to be a two-dimensional construct composed of "market conditions", and "strategic alliances with other parties"; its effect on "strategic performance" is tested. In other words, the structure of the model involves a second order approach whereby a latent variable (exogenous factors) is represented by two latent variables (market conditions, and strategic alliances with other parties). The second order approach is recommended by Hair *et al.* (1998) as it maximizes the interpretability of both the

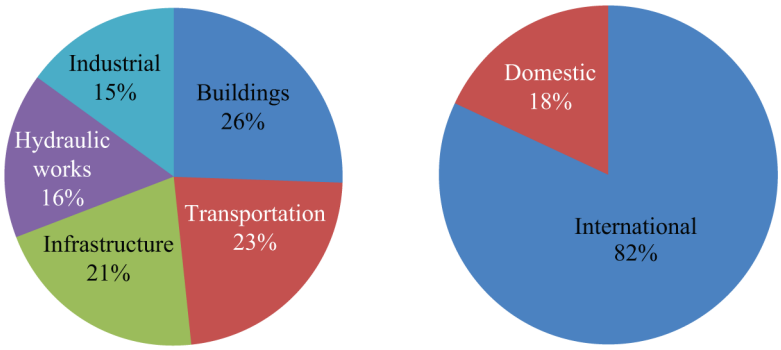

Figure 1.
General information about respondent companies

measurement and the structural models. The heavy arrow in Figure 2 defines the direction of the influence between two constructs, while light arrows define the dimensions of latent variables.

Data analysis

Structural equation modeling (SEM) is a statistical technique that combines a measurement model (confirmatory factor analysis) and a structural model (regression or path analysis) in a single statistical test (Kline, 1998; Mueller, 1996; Garver and Mentzer, 1999). Data obtained from the 73 completed questionnaires were analyzed by using an SEM software package called EQS 6.1. The selection of SEM for use in this research was based on the structure of the proposed model that is composed of a number of interdependencies between the independent and dependent variables.

The first step in SEM is the validation of the measurement model through confirmatory factor analysis (CFA). While conducting CFA, construct validity should be satisfied by using content validity and empirical validity tests. Once the measurement model is validated, the structural relationships between latent variables are estimated (Anderson and Gerbing, 1988; Garver and Mentzer, 1999).

Content validity tests the extent to which a constituent variable belongs to its corresponding construct. Since content validity cannot be tested by using statistical tools, an in-depth literature survey is necessary to keep the researcher's judgment on the right track (Dunn *et al.*, 1994). An extensive literature survey was conducted to specify the variables that define latent variables. The model was tested in a pilot study administered to industry professionals and academics. Based on the input of these subjects, the model was restructured, eliminating some of the variables and adding recommended ones. Content validity was thus achieved. Empirical validity tests follow content validity.

Scale reliability is the internal consistency of a latent variable and is measured most commonly with a coefficient called Cronbach's alpha. The purpose of testing the reliability of a construct is to understand how each observed indicator represents its correspondent latent variable. A higher Cronbach's alpha coefficient indicates higher reliability of the scale used to measure the latent variable (Cronbach and Meehl, 1955). According to the EQS analysis results presented in Table I, all Cronbach's alpha values were well beyond the threshold of 0.70 recommended by Nunnally (1978), indicating

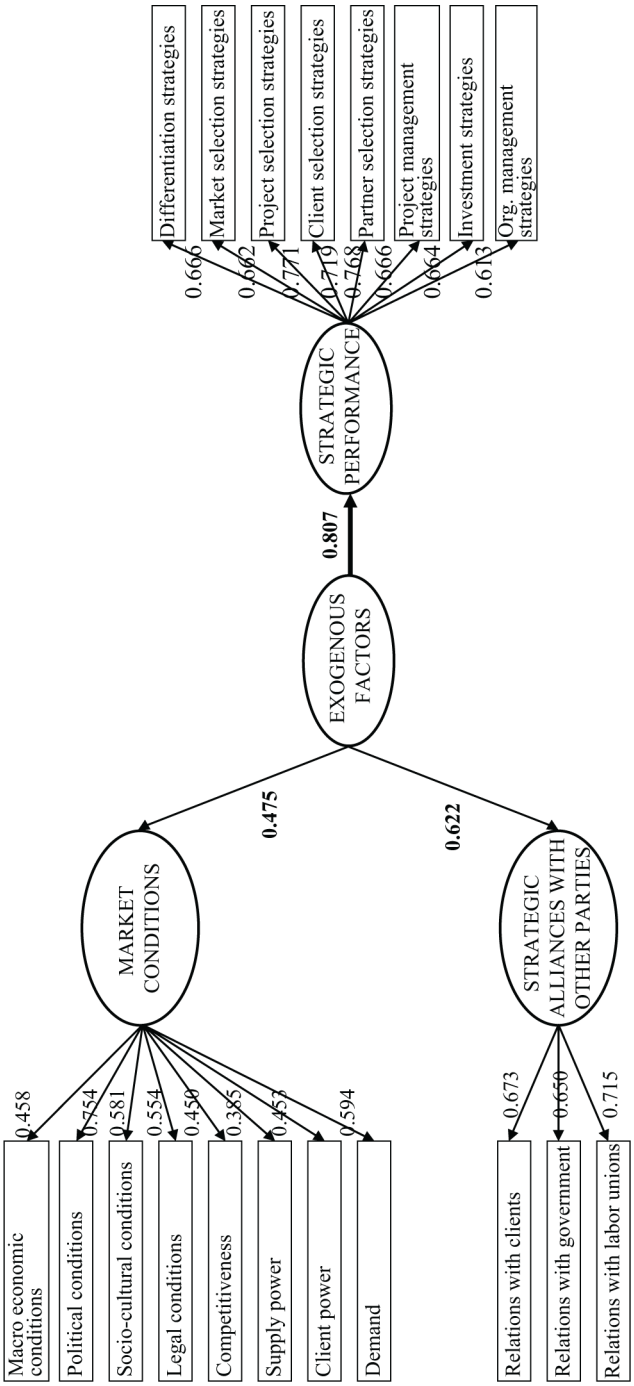

Figure 2.
Structural equation model

Variable	Latent variables	Cronbach's alpha
Market conditions	Macro-economic conditions Political conditions Socio-cultural conditions Legal conditions Competitiveness Supply power Client power Demand	0.84
Strength of strategic alliances	Relationship with clients Relationship with the government Relationship with labor unions	0.71
Exogenous factors	Market conditions Strength of strategic alliances	0.86
Strategic performance	Differentiation strategies Market selection strategies Project selection strategies Client selection strategies Partner selection strategies Project management strategies Investment strategies Organizational management strategies	0.88

Table I.
Cronbach's alpha coefficients of constructs in the model

that scale reliability has been achieved. Also, the reliability of the "exogenous factors" construct was observed to be 0.86, which justifies the use of a two-dimensional construct with a second order approach.

Unidimensionality refers to the degree to which constituent variables represent one underlying latent variable. CFA was used to test for unidimensionality. Initially, CFA was conducted independently for each construct. Once each construct in the model was deemed unidimensional by itself, then unidimensionality was tested for all possible pairs (Garver and Mentzer, 1999; Dunn *et al.*, 1994).

Convergent validity is the extent to which the latent variable correlates to corresponding items designed to measure the same latent variable. If the factor loadings are statistically significant, then convergent validity exists. Figure 2 shows the factor loadings marked next to light arrows corresponding to the four constructs of the model; note that all of the factor loadings are significant at $\alpha = 0.05$.

Another way of assessing construct unidimensionality is the goodness-of-fit of the model. A number of fit indices are available, but Marsh *et al.* (1988) propose that ideal fit indices should have:

- relative independence of sample size;
- accuracy and consistency to assess different models; and
- ease of interpretation aided by a well defined continuum or pre-set range.

Many fit indices do not meet these criteria, because they are adversely affected by sample size (Bentler and Yuan, 1999). The non-normed fit index (NNFI) considers a correlation for model complexity (Kline, 1998). The comparative fit index (CFI) is

interpreted in the same way as the NNFI and represents the relative improvement in fit of the hypothesized model over the null model. The root mean squared error of approximation (RMSEA) is an estimate of the discrepancy between the observed and estimated covariance matrices in the population (Hair *et al.*, 1998). The χ^2 compares the observed covariance matrix to the one estimated on the assumption that the model being tested is true. But, when the sample size is small, it is difficult to obtain a χ^2 that is not statistically significant; in such situations, the ratio of χ^2 to degree of freedom (dof) is to be examined. Based on the stated criteria and the suggestions made by Garver and Mentzer (1999), Jackson (2003), and Bentler and Yuan (1999):

- the non-normed fit index (NNFI);
- the comparative fit index (CFI);
- the root mean squared error of approximation (RMSEA); and
- the ratio of χ^2 to dof

were selected in this study since they are less affected by sample size compared with other goodness-of-fit indices.

Bentler (2006) also recommends using robust methodology in EQS to handle non-normality and to avoid the limitations of small sample size. Robust analysis leads to corrected χ^2 statistics and fit indices.

In this study, robust analysis is performed and robust statistics are presented in Table II. According to the values presented in Table II, the χ^2 to dof ratio was satisfactory as it was smaller than 3, the threshold suggested by Kline (1998). The CFI and NNFI values of 0.87 and 0.86 also demonstrate a good fit of the model to the data. Moreover, the RMSEA value was found to be satisfactory as it was below the recommended value of 0.10 (Kline, 1998). All in all, the measurement model shows a good fit to the data.

In the second step of the analysis, SEM tests the hypothesized relationships between the validated constructs. The relationship between the latent variables was hypothesized with a heavy arrow in Figure 2 which represents the direction of the influence. The path coefficient marked on this heavy arrow is calculated for a 95% confidence level and can be interpreted similar to a regression coefficient that describe the linear relationship between two latent variables (Matt and Dean, 1993). According to the model, "exogenous factors" has a significant impact on "strategic performance" with a path coefficient of 0.81.

Discussion of the findings

A structural equation model was set up in order to assess the role of exogenous factors in the strategic performance of construction companies. All criteria including Cronbach's alpha values, factor loadings, path coefficients and goodness of fit indices which were used to measure the reliability and fit of the model were found to be highly satisfactory

Fit indices	Allowable range	Overall model
Cronbach's alpha	>0.9	0.86
Non-normed fit index (NNFI)	0 (no fit; 1 (perfect fit)	0.91
Comparative fit index (CFI)	0 (no fit); 1 (perfect fit)	0.89
RMSEA	<0.1	0.07
χ^2/degree of freedom	<3	1.37

Table II.
Goodness of fit indices

as shown in Tables I and II and Figure 2. Based on the findings, it can be concluded that the hypothesis set in the study that exogenous factors influence strategic performance is verified. In this model "exogenous factors" is a two-dimensional construct composed of the "market conditions" and the "the strength of strategic alliances". Judging from the factor loadings in Figure 2, it appears that "the strength of strategic alliances" contributes more (0.622) to "exogenous factors' than "market conditions" (0.475). A discussion of "market conditions" and "strength of strategic alliances" relative to "strategic performance" follows in the next two paragraphs.

The influence of market conditions on strategy was investigated in the strategic management literature by many researchers such as Prescott (1986), Porter (1980), and Scherer (1980). The findings of this study are supported by Prescott's (1986) research that states that the environment modifies the strength and form of the relationship between strategy and performance. Miles and Snow (1978) suggested that regardless of its characteristics, the market environment has the power to influence strategies through managerial perceptions and objective dimensions of industries' structure. Moreover Scherer (1980) stated that the factors affecting the performance of a company such as the pricing policies, investment policies or research and development emphasis are mainly dependent on the structure of the industry environment. Finally, Porter (1980) emphasized the role of industrial factors which include the threat of new entrants and substitutes, the bargaining power of suppliers and buyers, and the rivalry among existing firms, while defining the competitive rules of strategy in his well known model. The findings of our study indicate that the macro-economic, political, legal, socio-cultural conditions and the level of competition and demand are expected to impact primarily differentiation strategies, and market/project/partner selection strategies. Political conditions turned out to be the factor with the highest factor loading (0.754) and tends to suggest that it is difficult to make strategic decisions in developing countries like Turkey where political stability is often questionable. On the other hand, it may also mean that lobbying the legislature and steering political decision in the desired direction can be of great value in countries such as the USA where lobbying is an integral part of the system.

The influence of strategic alliances was also discussed in the literature extensively (e.g. Hausman, 2001; Pinto and Mantel, 1990; Dissanayaka and Kumaraswamy, 1999; Dainty *et al.*, 2003). According to Pinto and Mantel (1990) and Dissanayaka and Kumaraswamy (1999), good relationships between a construction management firm and the client's representatives expedite the operations and help to achieve success. Considering the sophisticated nature of the industry and the cultural values of the society, the relationship of a construction company were assessed not only with the client, but also with government agencies and labor unions. On this account, the communication and negotiation skills of company executives have to be stressed. But, the subtle difference between favoritism and strong relationships has to be distinguished since the strength of business relationships is an important phenomenon in Confucian societies like China, Hong Kong, Taiwan, Japan and Korea. It is generally called "guanxi" which means "connection" in Chinese. While western societies regard "guanxi" as favoritism or nepotism, Confucian societies regard it as an inevitable asset while doing business (Yeung and Tung, 1996). Turkey, located between the west and the east carries both sides' characteristics. The findings certainly indicate that contractors' strategic performance is enhanced by strong relationships in the Turkish setting.

The quality of the relationships with government agencies and clients is expected to influence client/project/market selection strategies. For example, when professionals working for construction companies and government agencies belong to the same professional organizations, they share common values and should be able to interact with greater ease. It also follows that construction companies should try to build up a positive reputation for good work and dispute-free operation in order to have long-term relationships with clients.

The quality of the relationships with labor unions may affect the ability to differentiate by using innovative construction methods, materials and equipment. Based on this finding, if construction companies and labor unions are able to minimize the number and frequency of unfair labor practices as defined by law, they should be able to have a smoother relationship. One can also state that construction companies can be more innovative, efficient and economical and therefore more competitive if they can bypass "work preservation" clauses that are common in some collective bargaining agreements in the USA, whereby a construction company is not allowed to use prefabricated components unless these are specified expressly by the architect.

Conclusion

A questionnaire survey was administered to 73 construction companies and the collected data were analyzed using structural equation modeling (SEM). A conceptual model was proposed where the strategic performance of construction companies was influenced by exogenous factors which were represented by a two-dimensional construct covering the market environment and strategic alliances with the other participants of the project. A two step SEM model was set up to measure the latent variable "exogenous factors". According to the findings of the SEM analysis (Figure 2 and Table I), the Cronbach's alpha coefficients of all the latent variables (market conditions, strategic alliances, exogenous factors and strategic performance) were well over the 0.70 minimum set by Nunnally (1978) which indicated that the internal reliability of the individual constructs was quite high. The internal reliability of the overall model was also found to be 0.86 which is an excellent result. CFA showed that all factor loadings presented in Figure 1 were significant at $\alpha = 0.05$. Limitations due to the small sample size were overcome by using robust methodology and the goodness of fit indices presented in Table I consistently indicated a good fit, considering the recommended values.

As a result, it can be concluded that the hypothesis set at the beginning of the study was verified by the statistically significant ($\alpha = 0.05$) and very strong path coefficient (0.81) shown in Figure 2 between "exogenous factors" and "strategic performance".

It is likely that endogenous factors such as company resources, capabilities and project management competencies also impact strategic performance as evidenced by research conducted by Porter (1981), Barney (1991), and Beatham *et al.* (2004). But based on the findings of the study it can be stated that, strategic performance is also impacted by exogenous factors that involve market conditions and strategic alliances. The findings of this study benefits construction company executives in that they should be cognizant of the market environment and attach particular importance to alliances with other parties. While market conditions are beyond the control of construction executives, relationships with other parties are well within their sphere of influence.

The exploration of the variables relevant to and influencing performance is an extensive research endeavor, only one part of which consists of the study of exogenous

factors. This research sheds light on one piece of the puzzle, providing a starting point for a wider study of other factors influencing performance. The development of a universal and integrated model that can identify, explain and measure reliably the many factors that influence the performance of construction companies is anticipated in future research.

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