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Construction management strategy and developer performance

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Abstract

Purpose – Construction and development firms are going through major reorganizations in trying to define a profitable structure – including deciding whether to include construction operations as part of the firm or to outsource it. This paper aims to analyze the relationship between firm size, construction management strategy and performance.

Design/methodology/approach – The paper reviews relevant strategic management literature and reports the results of an empirical survey research study of 80 US real estate developers.

Findings – The results showed that there was no significant performance difference between firms that performed construction activities in-house as opposed to those that outsourced it. However, the impact of construction strategy on performance may occur through its effect on size and size was negatively associated with performance. In addition, among the smaller firms, the ones that outsourced construction outperformed those that did construction in-house.

Research limitations/implications – The results are in line with the findings of similar studies from other industries. In order to add to the generalizability of these findings, future studies should include larger samples and non-US firms.

Originality/value – The study links the general strategic management literature to organizational issues of construction and development firms. Findings suggest that the scale of operation of the industry is such that even large development firms have too small a market share to take advantage of vertical integration of construction.

Keywords Construction operations, General management, Outsourcing, Real estate, United States of America

Paper type Research paper

Introduction

According to Noteware's (1989) survey of over 1,000 US real estate firms, the real estate industry is fragmented and its low entry barriers allow many new entrants in each year. In difficult economic times many firms are forced out of the industry although ones that develop prompt and appropriate strategic responses to economic conditions may avoid failure (Arditi *et al.*, 2000). A critical strategic management issue currently facing real estate development firms is how to structure or restructure their organizations in order to improve performance (Hewlett and Kaufman, 2008; Bhambri *et al.*, 1991). In a major review of the management literature, in search of lessons for real estate development firms, Bhambri *et al.* (1991) note that firms in this industry take on

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various organizational structures – smaller firms tend to be project-oriented while large firms are project-oriented, functionally-oriented or a mix of the two. Large firms may be groups of partnerships that are highly decentralized or the firms may be integrated with staff in functional areas and therefore more centralized. In the construction sector, the importance of strategic planning based on a comprehensive analysis of the external environment and demand conditions and the need for possible geographic re-alignment has been highlighted (Warszawski, 1996; Chan *et al.*, 2005).

Organizational structure, as Bhambri *et al.* (1991) define it, refers to consistent relationships among positions within the organization. They suggest that the best way to structure an organization is a function of firm size, market location, product emphasis, and strategic choices such as whether the firm intends to handle various activities like construction in-house or use outside firms (i.e., the extent of vertical integration). This paper examines the question of development firms' strategy, with the business unit as the focus on analysis, by investigating whether there is a relationship between a firm's size, construction management strategy (extent of vertical integration) and performance. This issue of strategy and performance is particularly significant for development firms in the US given the current economic downturn that has affected the industry since 2006 and is expected to last for a few more years. There may be some lessons to be learned from the last such prolonged economic slowdown of the early 1980s, when a third of home builders went out of business (NAHB, 1988), since the impact of the current slump will not be fully known for a few years yet.

Previous research

Descriptive studies have identified different types of strategies among different firms. Melody and Wagley (1989), Green (1988), and Suchman (1987) found that different strategies and structures exist among successful firms. Although these studies provide important insight into the workings of firm strategy and organizational structure they do not develop empirical generalizations which can be applied to the whole industry. Leinberger (1993) and Hewlett and Kaufman (2008) discuss the strategy of assembling a portfolio of project-oriented (development) and process-oriented (service) businesses to create a viable real estate corporation. When the emphasis is on business unit strategy, the strategic choice requires the decision maker's selection of an organization's specific product(s) and its target market(s) and the appropriate organizational structure needed to implement the strategy. Findings based on a sample of Singapore property developers show that market orientation in another aspect of strategy that has an impact on performance (Tay and Tay, 2007). Anikeeff *et al.* (1993) found evidence of a cumulative effect between age and size and their impact on performance. Smaller firms outperformed larger ones and smaller, younger firms were the best performers in their sample.

Organizational models

Development is essentially an entrepreneurial business. The nucleus of the firm is the entrepreneur who is the coordinator of all resources feeding the development process. In Hardy's (1986) model, as a development firm matures through the growth stage its employee size increases and the issues of delegation and organizational structure become important. A more formalized structure is needed for control, and the firm becomes less entrepreneurial. The common thread among development firms is that

the developer-entrepreneur retains the front-end deal-making responsibility while the remaining development responsibilities – site acquisition, design, construction, financing are delegated to staff. The developer must decide how large and in what direction to expand staff. As a general rule, a developer who concentrates on developing many smaller projects will require a larger staff than one concentrating on fewer larger projects since larger projects are generally less management-intensive and benefit from economies of scale. A developer concentrating on smaller projects should be prepared to build a larger staff and should be aware that the overhead costs associated with that staff will erode development profits to a greater extent (Hardy, 1986).

Strategic choice

The product-market selection decision is sometimes called "the entrepreneurial problem" in the management literature (Miles and Snow, 1978). A great deal has been written about two particular classification schemes for strategies – Porter's (1980) generic strategies and Miles and Snow's (1978) typologies. Porter's generic strategies are concerned primarily with aspects of competition and maintaining distinct advantage whereas Miles and Snow deal mainly with a firm's product-market domain selection strategies, growth objectives and organizational style – the topics which interest us here.

Miles and Snow (1978) suggest that:

- It is not necessary for a firm to evolve i.e. any strategy can be selected from the time the firm begins.
- The structure that the firm adopts to deal with a product-market-strategy influences future product-market strategies. In other words, the firm may be locked into a strategy because it is organized to implement that particular strategy and cannot evolve to the next strategy.
- It is the consistent use of a particular strategy and the selection of the appropriate implementation system, organizational structure and administrative processes that is important to performance – none of the strategies is inherently superior. Miles and Snow identify poor performing firms (called Reactors) as the firms where the product-market domain is not consistent with the appropriate technology, organization and/or administrative structure.

A previous study (Sriram and Anikeeff, 1991) of the Miles and Snow framework of strategic group analysis found the typology applicable to the real estate development industry and indicated that the four product-market matrix variations identified by Miles and Snow (1978) were equally popular among single-family residential, multi-family residential and commercial developers. By finding no significant difference in average performance among the four intended product-market strategy categories, this study supports Miles and Snow view that no strategy was inherently superior. This lack of difference in performance was found even when controlling for builder type (multi-family residential, single family residential, commercial). This earlier study demonstrated that various strategies exist among development firms and that no strategy in and of itself could ensure better performance.

Vertical integration of construction and performance

The issue of vertical integration has also received a great deal of attention in the strategy and economics literature (e.g., Williamson, 1975; Porter, 1980; Harrigan, 1985). Much of the analysis has centered around the strategic benefits and costs of integration (Harrigan, 1985), relationship structures which offer alternatives to make vs buy as input acquisition strategies (Williamson, 1975), and subsequent anecdotal empirical studies of his propositions), and the effect of vertical integration on financial performance (Buzzell, 1993).

Anecdotal evidence provides examples of both the necessity of and the inherent risks associated with integration. Also, the advantages (e.g., lower buying and selling costs, assurance of supply, better inventory control) and disadvantages (e.g., capital requirements, reduced flexibility, loss of specialization) of integration have been discussed (Buzzell and Gale, 1987). There is some empirical evidence indicating the existence of a V-shaped relationship between vertical integration and ROI (Buzzell, 1993). This suggests that either a very high or a very low level of integration yields an above average rate of return whereas an intermediate level of integration was least profitable. Others, such as Harrigan (1983) have argued that there are certain strategic issues which need to be considered, in addition to economic issues, in formulating a firm's vertical integration strategy. These include asset flexibility and managing sources of supply.

The issue of vertical integration for real estate developers often centers on how best to organize the construction activity. Peiser and Schwanke (1992) believe that for a real estate developer, the two most important functions are the purchase of the land and the commencement of the construction activity. Frequently, the cost of the construction represents the bulk of a project's total cost and effectively managing the construction team's activity is critical to the overall success of the project. McMahan (2007) points out that the development firm may undertake construction in a variety of ways – in-house, on a contract basis with a general contractor, or as a joint venture partner with a general contractor. In addition, some developers perform the construction activity through an affiliated company or select contractors via an open bidding process. These represent varying degrees of vertical integration of the construction activity from fully integrated (in-house) to not integrated (open bid). While alliances and other cooperative agreements offer an alternative to vertical integration in the construction industry, the short-term orientation and project-based mindset in the industry limits these alliances from realizing their full benefits (Ingirige and Sexton, 2006). Research also suggests that for real estate developers that deliver to consumers (apartments, retail, hotels, etc.) where branding is important, vertical integration – combining ownership with asset and property management – allows greater control over quality and therefore, the brand (Benjamin *et al.*, 2006).

Research objectives

One issue of interest in this study was to investigate whether a firm's performance was a function of its size. There is a substantial body of research on the relationship between size and performance with some researchers suggesting a positive linear relationship and others finding evidence of a V-shaped one (with smaller and larger firms out-performing the medium-sized ones). Therefore, the first research questions (*RQ*) is:

RQ1. Is there an association between firm size and performance?

A second purpose of this study was to examine whether construction management strategy impacts performance. The key strategic issue of interest to developers is the extent of vertical integration. Therefore, our second research question is:

RQ2. Are there performance differences between integrated and non-integrated firms?

The third research issue was to assess the impact of size on performance given the presence of vertical integration. Therefore:

RQ3. What is the relative impact of size and vertical integration on performance?

Finally, previous studies showed that the relationship between size, and performance was more clearly demonstrated when the medium-sized firms were withheld from the analysis. Following this methodology, this study also attempted to isolate the confounding effect of these firms when investigating the effect of size, construction management strategy of vertical integration and performance. Therefore, the final research question is:

RQ4. Are there differences in performance between smaller firms with a construction management strategy of vertical integration and larger, vertically integrated firms?

Methodology

Sample

A sample of the largest US real estate developers was generated from lists published by *Professional Builder* and *Building Design and Construction* during the last economic downturn that affected the industry. The person named on these lists (i.e., the chief executive officer or the vice president/director of construction/real estate operation) for each of the companies was sent a mail questionnaire with a cover letter explaining the academic aims of the study and requesting them to respond. The survey included 391 of the 400 largest homebuilders, the 30 largest retail developers, the 50 largest industrial developers, and 40 largest hotel/motel/restaurant builders. A total of 80 responses were received from the 511 that were mailed, yielding a response rate of 16 percent. While this response rate is not very high, it is not markedly different from that found in other similar studies. In addition, a visual comparison between respondents and non-respondents did not reveal any systematic differences between the two groups in terms of geographic location and sales volume. The responding firms varied in terms of age (median 20, range three to 78), size (median 65, range five to 5,300 employees), and type of product built. The respondents were distributed among those that received the majority of their sales from single-family residential (31), multi-family residential (17), and commercial (11) development. The remaining firms either could not be classified because of missing data (ten) or received their revenue from a mix of product types (11) without a predominant category (i.e. no one product accounted for over 50 percent of their sales).

Constructs and measures

Where possible, constructs were operationalized using conventional measurement terms, and others were developed specifically for this study. The questionnaire was

pilot tested for its clarity, readability, and to ensure that the theory-based items addressed issues of concern to real estate decision makers.

Firm size was measured by the number of employees in the firm. Performance was measured by sales per employee. The total sales of the firm (in US$) as reported in the publication from which the firm was identified was divided by the number of non-clerical employees as reported in the survey. A firm's construction management strategy of vertical integration was assessed by the percentage of its construction activity it performed in-house versus the percentage it performed through an affiliated company, via negotiated contract, or through an open bidding process. Firms with more than 50 percent of construction performed in-house were classified as being vertically integrated and the others were defined as non-integrated. This narrow definition of integration was employed rather than a broader one, like that proposed by Williamson (1975) and others, which would include work performed by affiliates, in order to be consistent with the performance measure used here which does not take into account the sales and number of employees of the affiliates.

Analytical technique

The relationship between size and performance (*RQ1*) was first assessed using correlations. In addition, given the suggestion of a V-shaped relationship between size and performance *t*-tests were also conducted to reveal any performance differences between the smallest developers and the largest ones. This was done in order to highlight the impact of size by splitting the sample into three groups based on size. The middle third (medium-sized firms) was excluded from the analysis and the performance of the smallest third (48 or fewer employees) with the performance of the largest third (161 or more employees). For the purposes of interpretation, $p < 0.05$ was used to assess the significance of the results.

In order to determine the performance differences between integrated and non-integrated firms (*RQ2*), *t*-tests were conducted. *RQ3* was investigated using regression analysis with performance as the dependent variable and size and vertical integration as the independent variables. The standardized regression coefficients were used to interpret the relative importance of the independent variables in explaining the variance in performance. For the final research question (*RQ4*), one-way analysis of variance (ANOVA) was conducted for differences across the four groups created based on size and integration. This was done by splitting the sample into three groups based on size. As described earlier, the middle sized group was excluded from the analysis. Group 1 was the smallest third (48 or fewer employees), non-integrated; Group 2 was small, integrated; Group 3 was the largest third (161 or more employees) non-integrated and Group 4 was the larger, vertically integrated firms. In the interpretation, $p < 0.10$ was used to assess the significance of the results.

Analysis and results

Size and performance

Interestingly, the correlation coefficients indicated the presence of a negative association between size and performance (-0.27, $p < 0.05$). While for the overall sample the *t*-test results in Table I support the correlation analysis regarding the negative relationship between size and performance, the contrast between small and large firms was clearer when the medium-sized firms were excluded from the analysis.

The smaller firms, with average sales per employee of $2,413,020, were almost four times as productive as the larger ones ($443,020). These results are statistically significant ($t = 5.78$, $p < 0.00$) and provide an affirmative response to *RQ1*.

Integration and performance

The results in Table II indicate that there was no significant relationship between the performance of integrated and non-integrated firms. The non-integrated had average sales per employee of about $1,474,000, while the integrated firms averaged sales per employee of $1,094,000, a statistically insignificant difference.

Integration, size and performance

Table III presents the results of the regression analysis. The dependent variable was performance. The results reveal that size significantly and negatively impacted performance while vertical integration did not.

The ANOVA results (Table IV) indicate that there may be a cumulative effect in that the small, non-integrated firms had the best performance among firms categorized by size and degree of integration. These results support the earlier results that show an inverse relationship between size and performance with the smaller firms

Table I.
Size and performance: *t*-test results

Group	Number of employees	Average sales/employee ($)	*t*	df	*p*
Smaller	< 49	2,413,020	5.78	43	0.000
Larger	> 160	443,020			

Table II.
Vertical integration and performance: *t*-test results

Group	Average sales/employee ($)	*t*	df	*p*
Integrated	1,094,127	1.16	54	0.25
Not-integrated	1,474,375			

Table III.
Size, vertical integration and performance: regression results

Variable	Regression coefficient	*t*	*p*
Size	−0.271	−2.14	0.037
Vertical Integration	−0.175	−1.39	0.170

Table IV.
Vertical integration, size and performance: ANOVA results

Group	Average sales/employee ($)	*n*	*F*	*p*
			5.78	0.000
Small, non-integrated	2,985,636	11		
Small, integrated	1,840,411	11		
Large, non-integrated	499,241	12		
Large, integrated	358,439	8		

outperforming the larger ones. The best performers were the small, non-integrated firms ($2,985,639 average sales per employee) followed by small, integrated firms ($1,840,411). The performance difference between group 1 and the others – groups 2, 3 and 4 – was statistically significant ($F = 12.49$, $p < 0.01$).

Discussion and conclusion

Interestingly, the results show a negative association between size and performance but this finding may be partly explained by the way performance was measured in this study – sales per employee. The results seem to point to the benefits of an entrepreneurial orientation and a lean organizational structure. Since service industries such as real estate development do not usually benefit from cost reductions as a result of economies of scale, there are very few efficiency advantages associated with increasing size. Perhaps in the future size will be justified because it will provide better access to capital markets. Other studies, using multiple performance measures, can investigate the exact nature of the benefits, if any, of size in this industry.

Vertical integration is a key strategic decision for developers. Here we investigated the effect on performance of keeping construction in-house versus contracting it out. The study tested the impact of this vertical integration on firm performance and found that there was no significant performance difference between integrated and non-integrated firms. However, the impact of vertical integration on performance may occur through its effect on size. Size was negatively associated with performance but among the smaller firms, the ones that were less integrated outperformed than the more integrated ones. This is in line with Buzzell's (1993) findings that firms with less than 25 percent market share had a lower return on investment (ROI) if they were highly integrated. Other evidence, from the facilities management industry in Finland, also recommends vertical integration only in special situations (Ventovuori and Lehtonen, 2006). The risk in vertical integration is that production is too small to be competitive with independent suppliers or customers. It works better with firms that have a large market share. Perhaps the scale of operation of the industry is such that even large development firms are too small to take advantage of vertical integration. In order to generalize these findings, future studies should investigate these issues using larger samples with different performance measures.

The results based on firms in this sample may offer some important insights for developers going through the current economic slump in the USA. It appears that performance benefits accrue to those that contract out their construction activity, thus allowing the firm to stay nimble, keep costs manageable and make the necessary structural adjustments quickly – all steps that boost efficiency and performance and enhance the chances of survival in tough economic times.

References

Anikeeff, M.A., Sriram, V. and Sapienza, H.J. (1993), "Age, size, and product-market strategy in a fragmented industry: an analysis of real estate developers", *Proceedings of the 1993 UIC/AMA Research Symposium at the Marketing/Entrepreneurship Interface*.

Arditi, D., Koksal, A. and Kale, S. (2000), "Business failures in the construction industry", *Engineering, Construction and Architectural Management*, Vol. 7 No. 2, pp. 120-32.

Benjamin, J.D., Chinloy, P. and Hardin, W.G. III (2006), "Local presence, scale and vertical integration: brands as signals", *Journal of Real Estate Finance and Economics*, Vol. 33 No. 4, pp. 389-403.

Bhambri, A., Dale-Johnson, D., Kreiner, P. and Peiser, R.B. (1991), *Strategies and Structures Real Estate Development Firms: Lessons from Management Research*, Urban Land Institute, Washington, DC.

Buzzell, R.D. (1993), "Is vertical integration profitable?", *Harvard Business Review*, Vol. 61 No. 1, pp. 92-102.

Buzzell, R.D. and Gale, B.T. (1987), *The PIMS Principles: Linking Strategy to Performance*, The Free Press, New York, NY.

Chan, J.K.W., Tam, C.M. and Cheung, R.K.C. (2005), "Construction firms at the crossroads in Hong Kong: going insolvency or seeking opportunity", *Engineering, Construction and Architectural Management*, Vol. 12 No. 2, pp. 111-24.

Green, G.H. (1988), "Strategic management practices of real estate developers in a volatile economic climate", *Journal of Real Estate Research*, Vol. 3 No. 3, pp. 63-72.

Hardy, R.A. (1986), "Strategic planning in development firms", *Journal of Real Estate Development*, Vol. 1 No. 4, pp. 28-42.

Harrigan, K.R. (1983), *Strategies for Vertical Integration*, D.C. Heath, Lexington MA.

Harrigan, K.R. (1985), "Vertical integration and corporate strategy", *Academy of Management Journal*, Vol. 28 No. 2, pp. 397-425.

Hewlett, C. and Kaufman, G. (2008), *Strategy for Real Estate Companies*, ULI, The Urban Land Institute, Washington, DC.

Ingirige, B. and Sexton, M. (2006), "Alliances in construction: investigating initiatives and barriers for long-term collaboration", *Engineering, Construction and Architectural Management*, Vol. 13 No. 5, pp. 521-35.

Leinberger, C.B. (1993), *Strategy for Real Estate Companies: Marketing, Finance, Organization*, ULI, The Urban Land Institute and NAIOP, The Association for Commercial Real Estate, Washington, DC.

McMahan, J. (2007), *Property Development*, McGraw-Hill, New York, NY.

Melody, T.J. and Wagley, J.F.P. (1989), "Managing for survival: real estate development in Texas 1980-1990", Master of Science thesis, MIT, Cambridge, MA.

Miles, R.E. and Snow, C.C. (1978), *Organizational Strategy, Structure, and Process*, McGraw-Hill, New York, NY.

NAHB (1988), *Number of Building Establishments with Payrolls: Framework for the Future*, National Association of Homebuilders, Washington, DC.

Noteware, J.I. (1989), *Real Estate Development from Entrepreneurial Growth to Strategic Consolidation*, Laventhol & Horwath, Philadelphia, PA.

Peiser, R.B. and Schwanke, D. (1992), *Professional Real Estate Development*, Dearborn Financial Publishing and the Urban Land Institute, Washington, DC.

Porter, M.E. (1980), *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, Free Press, New York, NY.

Sriram, V. and Anikeeff, M.A. (1991), "Product-market strategies among development firms", *The Journal of Real Estate Research*, Vol. 7 No. 1, pp. 99-114.

Suchman, D.R. (1987), *Managing a Development Company*, The Urban Land Institute, Washington, DC.

Tay, J.Y. and Tay, L. (2007), "Market orientation and the property development business in Singapore", *International Journal of Strategic Property Management*, Vol. 11, May, pp. 1-16.

Ventovuori, T. and Lehtonen, T. (2006), "Alternative models for the management of FM services: an empirical investigation", *Journal of Corporate Real Estate*, Vol. 8 No. 2, p. 73.

Warszawski, A. (1996), "Strategic planning in construction companies", *Journal of Construction Engineering and Management*, Vol. 122 No. 2, pp. 133-40.

Williamson, O.E. (1975), *Markets and Hierarchies*, Free Press, New York, NY.

Further reading

Building Design and Construction (1988), July, pp. 106-78.

Professional Builder (1987), December, pp. 79-117.

Snow, C. and Hrebiniak, L.G. (1980), "Strategy, distinctive competence, and organizational performance", *Administrative Science Quarterly*, Vol. 25 No. 2, pp. 317-36.

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