



Firm Attributes and Performance: A Study of Architectural Firms in Nigeria

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Abstract

The performance of architectural firms has been a concern to the professional bodies. Studies have however shown that there are factors within organisations that influence their performance. From the Resource-Based Theory of the Firm, this study aims to identify attributes in the profiles, structure and strategies of architectural firms, which are associated with the success of these firms. The performance of firms is conceptualized according to profitability, while the attributes considered are the ones identified as resources in the Resource-Based Theory of the firm. Data on the attributes and performance of the firms were obtained from a survey of ninety-two randomly selected architectural firms in Nigeria, using questionnaires and interviews. The results of the discriminant analysis carried out show that factors, which were related to the successes of the firms, include the availability of information technology facilities and the level of specialization of duties. The findings suggest that appropriate sizes, professionally qualified staff; and provision and use of IT facilities were areas that architectural firms can concentrate on for enhanced performance.

Keywords: Architectural firms, Architectural practice, Firm attributes, Firm Performance, Nigeria, Professional Service Firms.

1. Introduction

Scholars such as Phua (2006) have noted that the economy determines the performance of industries and their structures. However, the unique attributes of a firm determines its performance relative to the other firms within the same industry. This suggests that determinants of firms' successes may be industry specific. In the context of architectural firms, Larsen (2005) and White (2005) decried the poor performance and subsequent failures of many architectural firms in Europe and America respectively. Only 25 per cent of architectural firms in America is said to exist beyond the first three years (Schwensen, 2004). This poor performance is also evident in the fact that individual architects are alleged to be paid lower salaries than their counterparts are in other professions. Flynn-Heapes (2000) attributed poor performance of architectural firms to the tendency by principals of these firms to build the firms around clients instead of around proven business principles. It is often believed that business gets in the way of the arts that the profession seeks to project. This has often led to the lack

of attention to issues of management and profitability. There are however firms, which have proven that it is possible to build profitable firms (Cramer, 2006). Very little study however exists on the attributes that make for success in these firms. It is therefore of interest to this study to investigate high-performing firms in comparison to low-performing ones to elucidate the unique attributes that distinguish between them.

The unique attributes of firms are said to be important determinants of their performance (Rumelt, 1991). This principle is based on the Resource-Based Theory of the Firm (RBT). The unique attributes of firms consist of their resources and capabilities. Proponents of this theory described the resources in the firm as the assets, knowledge, capabilities and organizational processes, with which the organisation gain competitive advantage. Studies, which consider the performances of firms in relation to their resources, also consider the contexts of the firms. Such contexts include the strategy, structure, and environment of the firms. Several studies have investigated firm-specific resources and capabilities and how they influence the performances of the firms. Very

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few of these studies, however, focus on architectural firms. The purpose of this study is to investigate the unique attributes, which distinguish high performing architectural firm from the low-performing ones. This study is justified in three ways. First, architectural firms, as firms in the construction industry are increasingly under pressure to run more effective practices for the delivery of quality services. A study of this nature may, therefore, contribute to the debates on the attributes that make for successful practice in the construction industry. Second, there is a need to bridge the gap between practice and scholarship. This is in the light of the fact that research must precede practice. Third, the study provides empirical data from the context of architectural firms, which are mostly managed by principal architects, who may or may not have formal management training.

2. Firm Resources and Performance

Some studies have drawn attention to the issues of leadership, core competencies, market orientation, and corporate culture as factors, which make some companies more successful than others (Matzler *et al.*, 2010). It is believed that these are the resources and capabilities of the companies with which they gain competitive edge. The concept that captures this is the Resource-Based Theory (RBT). The RBT (Penrose, 1959) states that firms compete on the bases of resources or capabilities that are valuable, rare, and difficult to substitute and imitate. While the resources of the firms are said to include the financial capital, physical assets, technology, personnel, reputation and brand image, the capabilities include business processes and routines. In this context, a firm is "a collection of resources bound together in an administrative framework, the boundaries of which are determined by the area of administrative coordination and authoritative communication".

There are important dimensions of the RBT highlighted in the literature. These, according to Baine and Hesterly (1999) include financial resources, physical resources (such as machines), human resources (experience, training), and organizational resources (reputation, teamwork and trust). Also, the contexts such as the strategy, structure, and environment of the firm are taken into cognizance of the context in which the resources are used. While many of these attributes are within the control of the firms, the environment in which the firm operates is not within the control of the firms. Some of these factors that have been investigated in literature These include the size, the organizational structure, human resources, and managerial orientations of top management (Matzler *et al.*, 2010). Other factors in the literature include the culture of the firms and market orientations of organizations. Besides, skills and technologies have also been found to influence the performance of organizations. The performance of an organization is often defined in terms of its growth, advantageous market position/ market share, competitiveness and profitability. Performance in this study is defined in terms of the profitability of a company.

A significant resource in architectural firms, which this study focuses on, is the human resource. This is because the industry, as a professional service industry, is

labour and knowledge-intensive (Pathirage *et al.*, 2007). Services rendered often depend on the knowledge and skill of the workforce. Also, Sirmon *et al.* (2011) observed that managers vary in the ways they manage resources and these differences influence firm performances. The ways managers manage their firms could depend on the attributes of the managers. It may therefore be expected, that the characteristics of the principal may influence the way the firm is run and subsequently the performances of the firms. Besides, Matzler *et al.* (2010) noted that the orientation of leaders of firms also determines what the organization invests time and resources on. This goes further to inspire and motivate employees of the firm to achieve set objectives. The manager in an architectural firm is usually the owner, who is referred to as the principal. This principal may or may not have any management training, but is nonetheless saddled with the responsibility of managing the firm. In this respect, the study by Kim and Arditi (2010) found that the education, experience, and leadership styles of owners of construction firms influence the performances of those firms.

Technology, which has been mainly conceptualized as Information Technology (IT), has also been found to influence firm performance (Koellinger, 2008). Scholars (for example, Benbunan-Fich, 2002) argued that technology could be used to gain competitive advantage. In other words, it is also a resource in an organization, which may determine the performance of the firm in the end. Also, IT is said to be an enabler of innovation, which is very important to architectural firms. In fact, Koellinger (2008) and Tanriverdi (2005) associated IT with innovation. According to Barret and Sexton (2007), innovation, which entails solving problems using new ideas, technologies, and processes, is a means of achieving sustainable competitiveness in the construction industry. Matzler *et al.* (2010) also investigated innovation orientation of top executives concerning their willingness to take risks and search for new solutions. Matzler *et al.* found that organizations with higher innovation orientation were more successful.

Apart from innovation orientation, other strategies influence firm performance (Aragon-Sanchez and Sanchez-Marin, 2005). The strategies of a firm are the approaches the firm adopts to please customers, achieve organizational goals, and create competitive edge. These strategies could influence the technology, personnel characteristics, and profiles of organizations (Thompson *et al.*, 2004). Although scholars have found that the influence of other attributes of an organization on its performance is moderated by the strategy as posited in the RBT, the direct influence of strategy and performance is investigated in this study.

Debates on the influence of strategies of firms on the performances of the firms abound in literature. Starting from the studies of Miles and Snow in 1978, scholars seem to agree that prospectors, defenders, and analyzers outperform reactors, in that order. The findings of Matzler *et al.* (2010) also suggest that organizations that focus on innovation as their orientation tend to outperform other organizations. While the prospector strategy seeks to identify and exploit new opportunities, firms adopting the defender strategy seek to protect their market and

establish stability, reliability, and efficiency. Liu, Ratnatunga and Yao (2014) observed that organizations that compete using the defender strategy often use the cost leadership approach. Analyzers on the other hand focus on cautiously seeking innovativeness, combining the characteristics of both the prospectors and the defenders. This is in contrast with the reactor strategy where course of action depends on existing situations.

Previous research such as the one by Zott and Amit (2007) have also focused on the role of organizational design in determining the performance of firms. The structure of an organization denotes the task and job reporting relationships in the organization. The dimensions of the structure identified in literature are centralization, formalization, and specialization (Miller and Droge, 1986). While centralization denotes the extent to which decision-making is concentrated in top management, formalization is the extent to which rights and duties of members of the organization are written. Specialization, on the other hand, is the extent to which tasks are divided into sub-tasks which individuals are assigned to. The attributes within the firm are investigated in this study. These include the IT, personnel, and culture of the firms. Also, the structure and strategy of the firms are also investigated.

In addition to these resources, size (Tsai, 2014) and culture (Matzler *et al.* 2010) are said to influence firm performance. The culture was measured in terms of intensity. The size of the firm has been measured in the literature by the total number of employees, sales and net sales. Literature suggests that firms with larger sizes outperform smaller ones. There is however the need to investigate these attributes that influence organisational performance in a professional context, such as architectural firm. This will contribute to knowledge in this field and define the limits of generalisation of findings.

One of the flaws identified in previous studies by Matzler *et al.* (2010) is that only successful companies were investigated. These authors highlighted the importance of relating seemingly successful companies with others in order to identify what makes them successful. Matzler *et al.* also highlighted the flaws of relying on only interviews for such studies as the senior executives tend to attribute the successes of their companies to themselves. In this study, high performing firms were compared with the ones that did not perform so well. Also, measured from the literature that indicate firm attributes were used to obtain data in self-administered questionnaires.

3. Research Method

The cross-sectional survey was adopted as a research strategy for this study. This design collects data at a given time from a representative sample to allow results to be generalised to a larger population. The unit of data collection was the firm, and the sources of data were the principals of the firms or their representatives. Respondents for this study were randomly selected from the list of Architectural firms that were registered to practice in Nigeria ARCON (2006). Using the formula proposed by Adedayo (2006), $[n = N(1 + \alpha^2 N)]$ where n

= sample size; N = population α = level of significance, which for this study is 0.05]. A sample size of 157 out of 341 registered firms was arrived at. The firms were then approached and asked to fill questionnaires, which consisted of three sections. The first section gathered data on the profiles of the firms including personnel, while the second section gathered data on the strategies, structure and IT characteristics. In the third section, data on the performances of the firms was gathered. Only 97 of the questionnaires were returned giving a response rate of 59 per cent. The respondents were the principals of the firms, and where they were not available, the senior associates within the firms were asked to fill the questionnaires. Eight of the principals were also interviewed to gain deeper insight into the subject of study.

The measures of technological positions include the availability of IT facilities (computers, intranet and internet), and application of internet facilities in carrying out operations within the firms. These were measured on 3-point scales of not available at all/ not used at all to highly available/ highly used.

Data on the qualifications and gender of architects of the firms were also obtained. Other human resource data obtained included those on the gender, age, experience, qualification of the principals of the firms. Firm size was measured in terms of the number of staff within the firms. The respondents also indicated the legal ownership forms of their firms.

Respondents were asked to indicate on a scale of 1 (strongly disagree) to 5 (strongly agree) their level of agreement with 11 statements that represent their strategies. The statements include phrases such as "new ideas and technology are the determinants of the strategies of this firm"; "we are very cautious with risky ventures"; "we aggressively pursue business opportunities" and "maintaining tradition and consistency is very important to us". A cluster analysis of the firms was then carried out to determine the strategies that exist. The first cluster had a strategy that was similar to the prospector strategy of Miles and Snow (1978). The firms in this cluster allowed new ideas and technology to determine their strategy, are highly innovative, but are cautious in risky ventures. The firms in the second cluster had a strategy similar to the defender strategy. These firms scored very high in maintaining tradition and consistency, although they are achievement-driven. While firms in the third cluster had strategies similar to the analyzer strategy, those in the fourth cluster had a strategy similar to the reactor strategy. This is because the while the firms in both the third and fourth clusters scored high in the exercise of caution in a risky venture and allowing new ideas and technologies to determine their strategies, firms in the third cluster were, also, innovative.

The structure of the firms was measured in terms of the specialization, formalization, and centralization in the firms. For the level of specialization, the respondents were asked to indicate the tasks that were carried out exclusively by one person. The respondents were also asked to indicate the level to which procedures and rules were written to deduce the level of formalization within the firms. The level of centralization was deduced from the responses of the principals and associates on the ones

who took certain decisions. The options were arranged in order of seniority in the firms.

Ali *et al.* (2013) identified the measures available for measuring performance in the construction industry. Objective data were however not available in the architectural firms. Respondents were also reluctant to declare their profit and access to audited accounts was not given. The respondents were, however, willing to indicate on a scale, their perception of the profitability of the firms. Wall *et al.* (2004) and Runyan *et al.* (2008) concluded that these subjective measures are as valid as objective measures when obtained from members of the top management. We, therefore, operationalized performance as the perception of the profit of the firm in the last two years on a 5-point Likert scale, which ranged from "not good at all" to "very good".

4. Results and discussion

The results in Table I show that more than half of the firms could be said to have recorded good performances in the preceding two years. These could be classified as firms with high performances, while the other firms could be classified as firms with low performances. The firms in the study were mostly sole-principal firms, aged less than 15 years and with most of the firms having less than 20 staff. Table I further shows that most of the firms indicated low level so specialisation, but high levels of centralisation of decision-making and formalisation of office activities. The firms were headed by principals who were mostly aged above 40 years, with more than 15 years of experience, and having worked in two firms or less.

Table 1: Profiles of the architectural firms

Variables	Percentage	
Performance of the firms	Very good	32.6
	Good	39.3
	Fair	24.7
	Not so good	3.4
Age of the firms	0-5 years	9.9
	6-10 years	16.0
	11-15 years	27.2
	16-20 years	19.7
	21-25 years	13.6
	26 years and above	13.6
Size of the firms	1-5 staff	14.9
	6-10 staff	33.3
	11-20 staff	27.6
	21-30 staff	8.0
	31-40 staff	6.9
	41-50 staff	5.8
Level of specialisation	51 staff and above	3.5
	No specialised task	9.5
	1-2 specialised task	41.7
	3-4 specialised task	21.4
	5-6 specialised task	19.1
Level of formalisation	7 or more specialised task	8.3
	Informal	7.5
	Fairly formal	37.5
	Very formal	55.0

Level of centralisation of decision-making	Moderate level of centralisation	31.9
	High level of centralisation	68.1
Level of availability of information technology facilities	Low	26.0
	Moderate	30.1
The degree of use of internet facilities	High	43.8
	Low use	33.8
	Moderate use	36.9
Legal structure of ownership	High use	29.2
	Sole principal	52.3
	Partnership	21.6
	Unlimited liability company	8.0
Gender of the principal	Limited liability company	18.1
	Male	89.8
Age of the principal	Female	10.2
	Below 30 years	1.2
	31-40 years	22.4
	41-50 years	43.5
	51-65 years	27.1
Highest qualification of the principal	Above 65 years	5.9
	HND	3.5
	BSc	3.5
	MSc	43.5
Years of experience of the architect	BArch	42.4
	Others	7.1
	1-5 years	1.5
	6-10 years	12.1
	11-15 years	15.2
	16-20 years	18.2
	21-25 years	21.2
26 years and above	31.8	
Management style of the principal	A mentor in the firm	9.3
	A visionary and innovative leader	38.4
	An efficient manager	11.6
Number of firms the principal worked in before starting the firm	A productivity-oriented achiever	40.7
	None	3.5
	1 firm	17.6
	2 firms	54.1
	3 firms	18.8
Strategy	4 firms	2.4
	5 or more firms	3.5
	Prospector	29.3
	Defender	30.4
	Analyser	29.3
	Reactor	10.9

Discriminant analysis was carried out to investigate the variables, which differentiate high-performing architectural firms from low-performing ones. All the attributes earlier mentioned were entered as independent variables. The perceptions of profits were entered as dependent variables. For this analysis, the responses "not good at all", "not good" and "fair" were recoded as 1, while the responses "good" and "very good" were recoded

as 2. Table II shows the variables that best differentiated the high-performing architectural firms from the low-performing ones. The Wilk's lambda was significant for the discriminant function, ($\lambda^2 = 60.49$, $df = 25$, $p = 0.00$). What this suggests is that the discriminant function does better than chance at separating the two groups. These results confirm that the unique attributes of the architecture firms determine their performances, relative to other firms in the industry as asserted by Matzler *et al.* (2010) and Phua (2006). The discriminant variables include the size, levels of specialization and

formalization, as well as the levels of availability of IT facilities and use of internet in carrying out the operations of the firms. Other factors, which distinguish high-performing architectural firms from low-performing ones, are the gender and leadership styles of the principals. The structure matrix shows that the availability of IT facilities had the highest standardized coefficient, suggesting that it is most successful at discriminating between high-performing and low-performing architectural firms. This is followed by level of specialization, then size of the firms.

Table 2: Factors that discriminate between high-performing architectural firms and low-performing ones

Factor	Wilks' Lambda	F	Standardized coefficients	Sig.
level of availability of information technology facilities	.560	24.371	.176	.000**
level of specialization	.758	9.923	.112	.004**
size of firm	.769	9.303	.109	.005**
Gender of principal	.800	7.750	-.099	.009**
level of use of internet facilities	.807	7.428	.097	.010*
level of formalization of office activities	.849	5.509	.084	.025*
leadership style of principal	.862	4.980	-.080	.033*
ownership form of firm	.895	3.655	.068	.065
Number of architects with BSc	.933	2.214	.053	.147
Number of architects with OND/HND	.938	2.042	.051	.163
highest qualification of the principal architect	.943	1.864	.049	.182
Number of architects with other qualifications	.965	1.116	.038	.299
age of firm	.969	1.005	.036	.324
Number of architects with BArch/MSc	.973	.847	.033	.365
level of centralization	.981	.602	-.028	.444
Number of female architects	.988	.383	.022	.541
Number of registered architects	.988	.382	.022	.541
strategy type	.991	.291	-.019	.593
number of firms principal had worked previously	.993	.230	-.017	.635
age group of the principal	.997	.093	.011	.762
years of experience of principal	.999	.028	.006	.869

Further interrogation of the data shows that the high-performing architectural firms were mostly headed by male principals whose described themselves as either efficiency manager or productivity-oriented achievers. The fact the firms with male principals were found to perform better than those with female principals may be connected with the gender biases and challenges faced by female principals, whom one of the respondents to the interview described as often being "saddled with domestic issues". Besides, a female interviewee noted that most female principals might not be achievement oriented, stating that "men are more ambitious."

The high-performing firms were also smaller, in terms of the number of employees, confirming that size influences the performance of firms (Tsai, 2014). This result is also similar to that of Greenwood *et al.* (2005) who found that larger professional service firms were poor performers. This had to do with the total number of employees in the firms. However, firms with more architects with higher architecture qualifications performed better than those with fewer architects in those categories. This may suggest that the composition of the employees in the firms, not just the number may be more relevant in determining firm performance. Confirming the results of Koellinger (2008), IT also influenced the firms'

performances. IT facilities were highly available in the high-performing firms. It would thus appear that, as in previous studies (Barret and Sexton, 2007), IT was used as a tool to gain competitive advantage. Also, the level of specialization in the high-performing firms was high; the level of formalization was low.

The fact that the strategies of the firms did not directly differentiate between high- and low- performing architectural firms may confirm the approach of the RBT that the influence of other attributes of the firms on performance is moderated by the strategies of the firms (Aragon-Sanchez and Sanchez-Marin, 2005), although little direct influence may be observed. In the study by Kim and Arditi (2010), the qualifications of the employees as well as the principals were found to influence the performance of firms in the construction industry. This study, however, found that none of these distinguished the high-performing architects from the ones that did not perform so well. One reason for this may be that the present study only took samples from one profession in the construction industry. It may also signify that other training apart from core architectural skills may be necessary to run a high-performing firm. This may be evident in the fact that principals who led by demanding

efficiency and productivity had firms that performed better than those who were just innovative or mentors.

The design of the organizations also differentiated the firms in terms of their performances as found by Zott and Amit (2007). This was not expected as literature describes the structure of organizations a moderating variable, which influences other attributes of the firms, which in turn influence the performances of the firms. In particular, higher specialization of tasks was common with high-performing architectural firms. This may follow from the fact that when tasks are repeated, persons develop dexterity in handling those tasks to the benefits of their organizations. However, the level to which rules and procedures were written in the high-performing firms was lower.

5. Conclusion and Recommendations

This study contributes to the Resource-Based Theory (RBT) of the firm by investigating attributes that distinguish high-performing firms from those that do not perform well in the context of architectural firms. Direct influences of strategy and structure were investigated in addition to the moderating effect of the relationship between firm attributes and performance suggested in literature. The findings reveal the direct influence of specialization and formalization dimensions of the structure of the firm on its performance.

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