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The Moderating Effect of Environmental Instability on the Hospital Strategy-Financial Performance Relationship

Akbar Ghiasi, PhD[1], Robert Weech-Maldonado, PhD[2], Larry Hearld, PhD[2], Ferhat Zengul, PhD[2], Maziar Rsulnia, PhD[3], Anthony Hood, PhD[4], Neeraj Puro, PhD[5]

[1] The University of Incarnate Word, H-E-B School of Business and Administration, Health Administration Department

[2] The University of Alabama at Birmingham, School of Health Professions, Department of Health Services Administration 3

[3] Pack Health LLC, Birmingham, AL

[4] Collat School of Business, The University of Alabama at Birmingham, Department of Management, Information Systems & Quantitative Methods, Birmingham, Alabama

[5]Florida Atlantic University, College of Business, Department of Health Administration

Abstract

The health care environment experiences rapid changes. It is essential to investigate how these changes can affect the viability of competitive strategies of hospitals. This study aimed to examine whether Porter's typology of cost leadership, differentiation, and hybrid are equally viable in different environments of the hospital industry.

This study used longitudinal data from 2006 to 2016 of the US urban general acute care hospitals. Three secondary datasets, including the American Hospital Association (AHA) Annual Survey, Medicare cost reports (CMS), and Area Health Resource File (AHRF), were used. Multiple regression with an interaction term was used to test the moderating effect of environmental factors on strategy-financial performance relationship. The results showed that the cost leader hospitals outperform hybrid ones in an unstable environment compared to a stable environment. There was no performance difference between the cost-leaders versus differentiators and hybrids versus differentiators in a stable and unstable environment. Environmental factors seem to moderate the relationship between hospital strategic group membership and financial performance.

Key Words: Competitive Strategy, Environmental Instability, Moderating Effect, Financial Performance

INTRODUCTION

The strategy of a firm is a way it pursues its goals, given the opportunities and threats in the environment [1]. An effective strategy provides a sustainable competitive advantage to a firm resulting in superior performance [2]. Nonetheless, this goal can be achieved if the strategy fits appropriately with the firm's external environment [3].

One of the main arguments in the strategic management literature is that the appropriateness of a firm's strategy can be determined as a fit between environmental contingencies and firm strategy [4, 5]. According to the definition, fit refers to how variables, such as an organization's strategy and its environment, combine or match together to impact firm performance. Strategy-fit is a core concept in the strategy formulation, and the pursuit of fit strategy has typically been regarded as having desirable performance [6].

There is an argument about the idea of equally viable strategies versus the notion of particularly appropriate environment-strategy combinations [7]. On the one hand, generic strategy typologies [2, 8] have assumed that despite differences in the environment, various strategies are viable across different environments. On the other hand, contingency theorists suggest the existence of a match between strategy and environment [9-11]. As such, the core debate is whether strategy adaptation is only organizationally determined or environmental factors are important as well [12]. If strategy

adaptation is affected by environmental factors, then it is expected that firms with appropriate strategy-environment combinations may exhibit higher performance.

The notion of an appropriate strategy-environment fit and its impact on hospital financial performance is an important area of study. Environmental factors may alter an industry and change the bases of competition [6], resulting in inappropriate combinations of strategy and environment. The strategy-environment fit has been the case in the hospital industry where environmental changes like the Patient Protection and Affordable Care Act [13], the emergence of new technologies, change in consumer expectations, and new sources of competition have contributed to the hospital industry's environment becoming more unstable [14-16].

This study aimed to examine whether Porter's (1980) typology of cost leadership, differentiation, hybrid, and stuck-in-the-middle strategies are equally viable in different environments of the hospital industry and if hospitals with appropriate strategy- environment combinations exhibit higher performance than other hospitals.

REVIEW OF LITERATURE

While the notion of an appropriate strategy-environment fit has received substantial attention in other industries, there is a dearth of research in the hospital setting [7, 17]. The literature indicates that environmental contingencies such as regulations, market structure, unemployment rate, income, competition, wage index, number of physicians per capita, and population over the age of 65 can change the strategy of hospitals and ultimately hospital financial performance [18-20]. Moreover, a considerable number of empirical studies have examined the relationship between business-level strategy and hospital performance [6, 19, 21, 22]. However, none of the available studies have examined how environmental factors in terms of changes if the environment may affect the strategy-financial performance relationship.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

Structural contingency theory has widely been considered to understand the fit between an organization and its external environment. In a contingency perspective, it is presumed that “contingency variables” referring to any contextual variables have an association with organizational structure and consequent performance [23-25]. A central assumption of this theory in strategic management is that firms pursue different strategies in response to multiple contingencies, and when the firm’s strategy fits with external contingencies, it results in superior performance. With this perspective, hence, a firm is supposed as a reactive body that seeks to respond to environmental contingencies strategically. Moreover, contingency theory assumes that the differences observed in firms are a result of different reactions to contingency factors such as market competition, consumer expectation, demographic changes, technology, and policies [26-28].

According to Van de Ven & Drazin [23], there are three different conceptual approaches related to the structural contingency theory, including selection, interaction, and systems approach. The interaction approach emphasizes explaining variations in organizational performance from the joint influence of organizational structure and context [23]. This approach explains how an

organization's performance is influenced by an interaction between context and organizational design. We used the interaction approach to study the effect of environmental factors on hospital strategy-financial performance relationship. The structural contingency theory with an emphasis on the interaction approach is a preferred theoretical framework for guiding this research for two main reasons. First, the theory highlights the adaptive nature of an organization strategy to multiple contingencies. Second, the interaction approach emphasizes on the moderation effect of context on the organizational structure-performance relationship [23].

Since Porter's typology suggest that each generic strategy needs different organizational structure for pursuing a specific strategy successfully [2], the strategy of a hospital can be a proxy for its structure [6]. The underlying assumption of the research question raised in this study is that an organizational strategy, measured by Porter's generic strategy typology could differ across hospitals given different contextual factors (environmental factors). Thus, it is expected that the fit between environmental factors and the strategy leads to higher financial performance among urban acute care hospitals.

Porter's generic strategy typology describes how an organization may pursue a competitive advantage across its market. Cost leadership and differentiation are considered to be the two primary or pure generic strategies. According to this typology, cost leaders emphasize minimizing costs related to administrative overhead, marketing, research and development, and sales related activities, in addition to emphasizing efficient ways to operate [2, 29, 30]. Differentiators, on the other hand, attempt to produce the products or services in a unique way. Firms with unique products or services command a higher price than competitors to justify the higher costs of producing unique products or services [2,3].

Porter posits that the benefits of optimizing a firm's strategy cannot be gained if a firm is simultaneously pursuing more than one generic strategy. Thus, a successful organization should exclusively compete on one of two specific generic strategies. Firms that are not completely committed to one of the cost leadership or differentiation strategy are referred to as a "stuck-in-the-middle" [2, 31]. While there is limited research that supports Porter's view, some researchers argue that differentiation and cost leadership are indeed dimensions along which firms can score low and high [32]. Therefore, the researchers have suggested another strategy, usually known as a hybrid strategy. The hybrid strategy can be seen when a firm successfully and simultaneously pursue both the cost leadership and differentiation strategies [6, 20, 33].

As mentioned before, there are two schools of thought regarding the idea of equally viable generic strategies versus the notion of particularly appropriate environment-strategy combinations [7]. Porter's framework [2, 8] implies that generic strategies of cost leadership and differentiation may be equally viable across different environments. However, the literature has shown contradictory results respect to the association between strategy and hospital financial performance [6, 21, 29, 34]. These researchers have discussed the potential moderating effect of environmental factors on strategy-financial performance relationship, but they have not investigated it empirically. The potential effect of environmental factors on strategy-financial performance relationships is originated in contingency theory and it suggests the existence of match or fit between strategy and environmental contingencies. The fit between environment and strategy may lead to desired financial performance in the hospital context [9-11].

Contingency theory suggests that key strategic requirements vary depending upon environmental conditions [17]. In fact, there should be a match between environment and hospital strategy [6].

For instance, hospitals with cost leadership strategies are assumed to perform efficiently in stable or predictable environments compared to unstable or unpredictable environments. In stable environments, hospitals with a cost-leadership strategy do not need to invest as much on marketing, research and development or offering new services. [29, 34]. Since these hospitals are more internally oriented, they are better able to focus on how to control and minimize their costs and maximize their profit and eventually improve their financial performance in a stable environment compared to an unstable environment.

On the other hand, differentiators are more externally-oriented, and they may financially perform well in unstable environments because of its ability to insulate the hospital from costly price competition [35]. In an unstable environment, hospitals need to invest more in new services, marketing, and research to keep track of rapid changes in the environment and also maintain their existing market share or increase their market share and ultimately improve their financial performance [35, 36]. Therefore, the relationship between hospital strategic group membership and financial performance is expected to be moderated by environmental instability such that:

H1. Hospitals with a cost leadership strategy have a better financial performance than differentiators in more stable environments compared to unstable environments.

H2. Hospitals with a differentiator strategy have a better financial performance than cost leaders in more unstable environments compared to stable environments.

Hospitals with only a cost leadership strategy are more internally-oriented than hybrids, and they try to gain competitive advantage mainly by focusing on using internal resources efficiently [2, 21]. Hospitals with a hybrid strategy, on the other hand, pursue both cost leadership and differentiation strategies at the same time [29]. Hospitals that are pursuing hybrid strategy benefit the advantages of a cost leadership strategy like controlling costs and lowering the price of services [37]. Besides, hybrids pursue a differentiation strategy in some of their functional areas [21]. Pursuing a differentiation strategy makes these hospitals to be more externally-oriented than cost leaders. As a result, in an unstable environment, hospitals with a hybrid strategy may have advantages over cost leaders due to their ability to predict environmental changes better than hospitals, only pursuing cost leadership strategy. In an unstable environment, due to frequent changes in the environment, it is very crucial to match the strategy of a hospital with environmental changes. Pursuing a differentiation strategy beside cost leadership strategy may provide the advantage for hospitals with a hybrid strategy over cost leaders. As a result:

H3. Hospitals with a hybrid strategy have better financial performance than hospitals with a cost-leadership strategy in an unstable environment compared to a stable environment.

As mentioned before, hospitals with differentiation strategy are expected to exhibit the most performance-enhancing strategy in an unstable environment, because they can be more proactive in such environment due to their externally oriented nature, more investment in marketing, R&D, quality, customer services, and eventually predict environmental changes effectively [21]. Hospitals with a hybrid strategy also enjoy these advantages, and they can relatively perform well in an unstable environment.

However, hospitals with a differentiation strategy may not perform well in stable environments. Because the market in a stable environment is relatively mature, and it is difficult to introduce new products or services to gain a competitive advantage [37]. Instead, it is possible that, in stable

environments, hospitals (hybrids) would gain a competitive advantage (differentiators) over differentiators by pursuing a cost-leadership strategy and focusing on their internal operations to lower their costs. Thus, it can be assumed that they hybrids perform better than differentiators in a stable environment. Thus:

H4. Hospitals with a hybrid strategy have a better financial performance than hospitals with a differentiation strategy in a stable environment compared to unstable environments.

METHODOLOGY

Sample and Data Collection. The context of this study was the U.S. hospital industry. This study used longitudinal data of the US urban general acute care hospitals from 2006 to 2016.
Data Sources: We used three secondary data from several sources: America Hospital Association (AHA) Annual Survey provided general organizational information about hospitals like the type of services, occupancy, ownership, size, and teaching status. The Medicare cost report provided information about cost, expenses, income, and revenue of hospitals. Finally, the Area Resource File (AHRF) provided county-level information such as unemployment rate, population growth, hospital competition, and Medicare Advantage Penetration. We matched the AHA data sets with the Medicare cost report data using Medicare provider numbers and AHRF data using county identifiers.

Study population: The study sample was included all urban acute care hospitals in the US. We limited the study sample to all urban general acute care hospitals since other types of hospitals (e.g., specialty hospitals, government) were expected to perform differently. Also, we limited the sample to urban areas because hospitals in rural areas might function differently [38]. The final sample size consisted of 3,006 individuals with 23,570 hospital-year observations.

Dependent Variable. The dependent variable was the financial performance of hospitals. Based on previous research [7, 33, 39-41] operating margin was selected. This ratio is a measure of the profitability of hospitals. The profitability ratios are very important because they measure the efficiency with which any firm turns the business activity into profits [42]. We used the operating margin in this study because it captures core patient-related activities and revenues and excludes the influence of non-operating income like endowments and non-operating expenses such as interest income [43].
Independent Variables. The first independent variable is a categorical variable with four strategic groups, including cost leadership, differentiation, hybrid, and stuck-in-the-middle. We used Porter's strategic group typology to determine the strategic group of each hospital. While other approaches are available [19], Porter's typology has been used extensively in the health care context, and it has been shown as a reliable typology in the hospital setting [6, 29, 34, 44].
To implement Porter's approach and test hypotheses, we calculated measures of cost leadership and differentiation. We used three measures to capture cost leadership dimensions, including total expenses to the number of beds occupied, the total cost per patient days, and total salaries per patient days [35, 39, 44]. By dividing total expenses by the number of beds occupied, a hospital's expense per bed can be determined based on its current level of business activity. Total cost and

salary adjusted per patient day also express how efficiently internal finances are managed based on current business [44].

To operationalize the differentiation dimension, we used three measures: Total number of services. The number of services ranged from 134 to 138 according to the AHA dataset. The total number of high technology services offered (a cardiac catheterization laboratory, an extracorporeal lithotripter, magnetic resonance imaging, open-heart surgery, and organ transplantation capability). The more the high technology services implies that a hospital invests in these types of services to differentiate itself from rivals. The total number of rare services, with rare defined as a service offered by less than 25 percent of all the hospitals in the sample. Having this variable is important due to capturing the rare services that a hospital can differentiate itself in the market. We used the American Hospital Association (AHA) Annual Survey to capture these variables.

A two-stage clustering procedure (hierarchical and non-hierarchical clustering) was used for the classification of hospitals in the strategic groups. A two-stage process is valuable because it increases the validity of cluster solutions. [6, 21, 29, 45]. This procedure first uses hierarchical clustering to determine the number of groups (i.e., Ward's method) and then uses the results in a nonhierarchical clustering (i.e., K-means). Results from the Ward's method showed that a four-group solution was optimal. According to the typology and available literature, we also expected to have four strategic groups [22, 46, 47]. The next step was to perform the nonhierarchical clustering.

Before running K-means clustering, we used factor analysis to test if those measures of cost-leadership and differentiation are correlated enough to create a composite score of cost-leadership and differentiation. The result of factor analysis showed high correlation between three measures of cost-leadership and three measures of differentiation. After standardizing cost leadership and differentiation measures, we summed up the three measures of cost leadership and differentiation to create the composite score of cost-leadership and differentiation.

Next, we used the standardized composite measures for cost leadership and differentiation to cluster the hospitals using the K-means method. After performing the clustering, the four groups were classified into a strategic group based on the mean score of cost-leadership and differentiation composite score. To accomplish this, first, we ranked the four groups resulted from K-Means cluster analysis based on their mean composite score of cost-leadership and mean composite score of differentiation. Second, we identified the group with the lowest cost composite score (1st in rank) and low differentiation score (e.g., 3rd of 4th in rank) as a "Cost-Leadership" group. We classified "Differentiation" as the group with the highest differentiation composite score (1st in the rank) and low-cost leadership score (e.g., third or 4th in rank). We identified "Stuck-in-the-middle" as the worst-ranked in both cost-leadership and differentiation composite score mean (sum of the two ranks). Finally, we identified "Hybrid" as a better-ranked in both cost-leadership composite score and differentiation compared to stuck-in-the-middle (sum of the two ranks). In addition, hybrid hospitals have better differentiation scores than cost leaders and lower costs than differentiators. (Please see table 1 for more details).

Table 1. Strategic groups identification

Cluster groups	Cost-Leadership Composite Score (mean)	Differentiation Composite Score (Mean)	Cost Leadership Rank	Differentiation Rank	Identified Strategic Group
2016					
1	0.7856686	2.412101	4	1	Differentiation
2	-0.1403393	-0.0799171	1	3	Cost-Leadership
3	0.0306939	0.7303677	2	2	Hybrid
4	0.0535798	-0.9471238	3	4	Stuck-in-the-middle

Environmental factors: An interaction term of environmental instability and the strategic group was used to test the moderation between environmental factors on the strategic group- financial performance relationship. We used three variables to operationalize environmental instability [48-50]. Unstable or dynamic environments are characterized by rapid changes in an external environment that may introduce instability in an organization and affect its strategy [7]. In this study, we used the change in population in the county, yearly change in the county unemployment rate, and change in poverty level [48] to operationalize instability of the environment. Based on the three variables, we created a composite score for environmental instability. To create the composite score, we first standardized all variables to remove the effect of different scales. Then, an average of the z-scores was calculated to obtain the composite score of instability. In this case, higher scores on the composite score represent a more unstable environment.

Control Variables. Organizational characteristics may have a substantial impact on the financial performance of hospitals [21, 51, 52]. Following previous studies, we controlled for organizational characteristics including hospital size, Medicare payer mix, Medicaid payer mix, system affiliation, ownership type, and teaching status of hospitals). Similarly, previous studies have shown that environmental variables may affect the financial performance of hospitals [51, 52]. Therefore, we also controlled for environmental variables including the number of active physicians per 1000 population, Herfindahl-Hirschman Index (HHI), Medicare Advantage penetration, and per capita income.

Analysis. The unit of analysis was a hospital. The dependent variable was a continuous - operating margin. The independent variable was the strategic group membership that is a categorical variable with four groups includes: cost-leadership, differentiation, hybrid, and stuck-in-the-middle. Furthermore, we used the interaction term to examine the moderation effect of environmental factors on strategic group-financial performance relationship. The interaction was between four strategic groups (cost leaders, differentiators, stuck-in-the-middle, and hybrid) and the environmental instability composite score. We used Generalized estimating equation (GEE) regression time-invariant with control for time-invariant and state-fixed effects that may affect financial performance and strategy. Rather than modeling the within-subject covariance structure, GEE treats it as a nuisance and models the mean response [53]. We controlled for organizational

and environmental factors. The beta coefficient was reported for significant associations (p-value<0.05). Stata 14 was used for data management and analyses.

RESULTS

The analysis of variance and chi-square test results for the relationship between the independent and dependent variables with strategic groups are presented in Table 2. We found significant differences across the four strategic groups in all dependent and independent variables except HHI, suggesting that the cluster analyses produced distinct clusters. As can be seen in table 5, hybrids have the highest (1.29) operating margin, and the stuck-in-the-middle group has the lowest (-.46) operating margin. Regarding the environmental instability composite score, hospitals in the cost-leadership group are in the most stable environment, and hospitals in the differentiation group are in the most unstable environment. Hospitals in the differentiation group are the largest hospitals with an average size of 370 beds. In terms of teaching status, about 99 percent of hospitals in the cost-leadership group are in the non-teaching category.

On the other hand, about 78 hospitals in the differentiation group are teaching hospitals. Moreover, hospitals in the stuck-in-the-middle group are the smallest once with the average size of 152 beds. In terms of the hospital environment, differentiators are in the environment with a higher number of active physicians, higher competition, Medicare Advantage Penetration, higher per capita income. On the other hand, hospitals in the stuck-in-the-middle strategic group are in the environment with the lowest number of active physicians, least competition, lowest Medicare Advantage penetration, and lowest per capita income.

Table 2. Descriptive analyses of dependent and independent variables (2016)

Variable	**Strategic Group Membership**				
	Cost-Leadership	Differentiation	Hybrid	Stuck-in-the-Middle	*P Value
Operating Margin	.96 (12.26)	.90 (11.45)	1.29 (10.76)	-.46 (14.20)	0.001
Environmental Instability (M/SD)	-.024 (.60)	.042 (.65)	.008 (.61)	.021 (.65)	0.001
Control variables (Organizational Characteristics)					
Hospital Size (M/SD)	188.82(177.85)	370.24 (325.19)	257.84(194.44)	152.12 (171.92)	0.001
Teaching Status (N/ %)					
1 (teaching)	10 (0.98)	84 (77.78)	70 (10.23)	0	0.001
0 (non-teaching)	1,015(99.02)	24 (22.22)	614(89.77)	707 (100)	
Ownership (N/ %)					
1 non-profit	763 (74.44)	103 (95.37)	591(86.40)	509 (71.99)	0.001
0 for-profit	262 (25.56)	5 (4.63)	93 (13.60)	198 (28.01)	
System Affiliation (N/ %)					
1 (system affiliated)	793 (77.37)	93 (86.11)	555 (81.14)	516 (72.98)	0.0002
0 (independent)	232 (22.63)	15 (13.89)	129 (18.86)	191 (27.02)	
Medicare Payer Mix(M/SD)	43.40 (23.10)	41.02 (19.84)	44.31(20.81)	43.66 (24.580	0.003
Medicaid Payer Mix(M/SD)	15.50 (14.10)	17.37 (13.28)	15.96 (12.41)	14.92 (14.18)	0.001
Control Variables (Environmental Factors)					
Number of Active Physicians	6.39 (1.91)	8.21 (.94)	7.14 (1.59)	5.10 (2.24)	0.001
HHI (M/SD)	.68 (.34)	.43 (.33)	.60 (.34)	.73 (.33)	0.272
Medicare advantage penetration	31.33 (14.16)	34.21 (12.85)	30.05 (13.83)	29.95 (16.02)	0.0198
Per Capita Income(M/SD)	40598.53 (11056.6)	48769.23 (17599.66)	42826.87 (12497.84)	38751.06 (10259.49)	0.001

- Significant differences among four strategic groups based on each dependent and independent variable

Tables 3 and 4 present the regression results. Hypothesis 1 states that hospitals with a cost leadership strategy have a better financial performance than differentiators in more stable environments compared to unstable environments. The result of the interaction analysis between strategic group membership and environmental instability composite score did not show any significant moderating effect (Table 3).

Hypothesis 2 states that hospitals with a differentiation strategy have a better financial performance than cost-leaders in more unstable environments compared to stable environments. The result of the interaction analysis between strategic group membership and environmental instability composite score did not show any significant moderating effect (Table 3).

Hypothesis 3 suggests that hospitals with a hybrid strategy have better financial performance than hospitals with a cost-leadership strategy in an unstable environment. The result of the analysis showed an opposite moderating effect of environmental instability on the relationship between strategic group membership and hospital financial performance. Hospitals in the hybrid strategic group have a 0.61 percent lower operating margin compared to hospitals in the cost-leadership strategic group for one unit increase in the instability of the environment (Table 3).

Hypothesis 4 posits that hospitals with a hybrid strategy have better financial performance than hospitals with a differentiation strategy in a stable environment compared to unstable environments. The result of interaction analysis between strategic group membership and environmental instability composite score did not show any significant moderating effect (Table 4).

Table 3. Regression results for each dependent variable

VARIABLES	Operating Margin
Differentiation	0.425 (0.531)
Hybrid	0.523*** (0.177)
Stuck-in-the-Middle	-0.446*** (0.150)
Instability	0.590*** (0.162)
Differentiation * Instability	-0.0809 (0.416)
Hybrid * Instability	-0.631*** (0.226)
Stuck-in-the-Middle * Instability	-0.108 (0.232)
Control variables (Organizational Characteristics)	
Hospital Size	0.000134 (0.000352)
Ownership	-4.385*** (0.330)
Teaching Status	-1.567*** (0.584)
System Affiliation	0.238 (0.146)
Medicare Payer Mix	-0.0111*** (0.00255)
Medicaid Payer Mix	-0.00978** (0.00460)
Control Variables (Environmental Factors)	
Active physicians in the county	0.375*** (0.0976)
HHI	0.232 (0.268)
Medicare Advantage Penetration	0.00523 (0.00978)
Per Capita Income	-0.0579*** (0.0117)

*** p<0.01, ** p<0.05, * p<0.1
*Reference group=Cost-Leadership

Table 4. Regression results for each dependent variable

VARIABLES	Operating Margin
Cost-Leadership	-0.425 (0.531)
Hybrid	0.0980 (0.514)
Stuck-in-the-Middle	-0.871 (0.536)
Instability	0.509 (0.385)
Cost * Instability	0.0809 (0.416)
Hybrid * Instability	-0.550 (0.416)
Stuck-in-the-Middle * Instability	-0.0271 (0.418)
Control Variables (Organizational Characteristics	
Hospital Size	0.000134 (0.000352)
Ownership	-4.385*** (0.330)
Teaching Status	-1.567*** (0.584)
System Affiliation	0.238 (0.146)
Medicare Payer Mix	-0.0111*** (0.00255)
Medicaid Payer Mix	-0.00978** (0.00460)
Control Variables (Environmental Factors)	
Active physicians in the county	0.375*** (0.0976)
HHI	0.232 (0.268)
Medicare Advantage Penetration	0.00523 (0.00978)
Per Capita Income	-0.0579*** (0.0117)
Constant	4.419*** (0.954)
Observations	23,365

*** p<0.01, ** p<0.05, * p<0.1
*Reference group=Differentiation

DISCUSSION

In this longitudinal study, we examined the relationship between strategic group membership and hospital financial performance in terms of operating margin. The main goal of this study was to look at the moderating effect of environmental instability on the relationship between strategic group membership and financial performance. Our results suggest that (a) hospitals in the cost-leadership group are in the most stable environment and hospitals in the differentiation group are in the most unstable environment; (b) hospitals with cost-leadership strategy have better financial performance than hospitals with a hybrid strategy in more unstable environments; (c) there was no performance difference between hospitals in the cost-leadership strategic group and differentiation strategic group based on environment instability; (d) there was no difference in operating margin of hospitals in the hybrid strategic group versus hospitals in the differentiation strategic group based on environmental instability; and (e) environmental instability moderates to some extent the relationship between hospital strategic group membership and financial performance. The implications of these findings are discussed below.

First, hospitals in the cost-leadership group are in the most stable environment, and hospitals in the differentiation group are in the most unstable environment. An unstable environment is characterized by rapid changes in the external environment that may present uncertainty around an organization and affect its strategy [7]. As it was mentioned before, the main characteristic of the cost-leadership strategy is focusing on internal activities to identify the most efficient ways of operating. On the other hand, differentiators are more externally oriented and tend to be more proactive in response to their environment [2, 21]. Due to these characteristics, hospitals in stable environments tend to adopt an internally oriented strategy and pursue a cost-leadership strategy. On the other hand, hospitals in unstable environments may prefer to pursue a differentiation strategy.

Second, hospitals with a cost-leadership strategy have better financial performance than hospitals with a hybrid strategy in more unstable environments. We had proposed that in more unstable environments, hospitals with a hybrid strategy may have advantages over cost leaders due to their dual pursuit of cost leadership and differentiation strategy. We argued this might better position hybrids to respond to environmental instability compared to hospitals, only pursuing a cost leadership strategy and ultimately result in better financial performance. However, the results were counter to what we had hypothesized. One potential reason may be the costs associated with pursuing a hybrid strategy in an unstable environment. Pursuing both a differentiation strategy and a cost-leadership strategy may increase administrative and other costs for hospitals with a hybrid strategy, and that may negatively affect their operating margin compared to cost-leaders.

Third, there was no performance difference between hospitals in the cost-leadership strategic group and differentiation strategic group in more unstable environments. According to Porter [2], both differentiation and cost-leadership strategy are expected to create competitive advantage regardless of context to improve the performance. Our results are aligned with Porter's competitive advantage typology.

Fourth, there was no difference in the operating margin of hospitals in the hybrid strategic group versus hospitals in the differentiation strategic group in more unstable environments. Hospitals with a differentiation strategy are more externally oriented and they focus on providing unique

services or high-quality care to improve their financial performance. On the other hand, hospitals with a hybrid strategy pursue both generic strategies (cost leadership and differentiation). It seems that despite the greater investment of resources, differentiators are able to perform as well as hybrids in more unstable environments.

Finally, environmental instability does not appear to strongly moderate the relationship between hospital strategic group membership and financial performance. Even though we did not find supportive evidence for three hypotheses (H1, H2, H4), we found a counter result for the third hypothesis (H3). Cost leaders perform better financially than hybrids in more unstable environments. These findings can be useful for hospital administrators when the develop their strategy.

MANAGERIAL IMPLICATIONS

The results of this study showed that pursuing strategies like cost-leadership and differentiation can improve the financial performance of hospitals despite the context or environment of hospitals. These findings suggest that hospital administrators can develop and pursue one of these generic strategies to have better financial performance.

Additionally, the results of this study showed that hospitals with a hybrid strategy do not perform well in an unstable environment compared to hospitals with a cost-leadership strategy. As mentioned before, one potential reason may be the cost of pursuing a hybrid strategy in such environments, and cost leaders may be better positioned. Thus, it is crucial for hospital managers to assess the cost of pursuing their strategy as well as the effectiveness of the strategy before implementation. Finally, managers of hospitals need to understand that, even though pursuing hybrid strategy is considered as one of the performance-enhancing strategies because of it has the advantages of both cost-leadership and differentiation strategy simultaneously, it may create internal instability due to pursuing two different strategies (cost-leadership, differentiation), since each strategy may need different organizational arrangements for implementation.

The main limitation of this study was using a secondary dataset. Inherent to the nature of the secondary data, the available data are not collected to address the specific research question or to test a particular hypothesis. It is not unusual that some essential variables were not available for the analysis. [54]. Using secondary data also has other limitations, including missing values, a limited number of variables, and the retrospective nature of the dataset. Finally, we used three variables including change in population growth in the county, change in county poverty level and change in the county unemployment rate to create the environmental instability composite score. It would be beneficial to use other environmental variables to operationalize environmental instability. Despite these limitations, we hope that the results of this study can serve as a point of reference for future studies.

CONCLUSION

This study focused on the moderation effect of environmental factors on hospital business strategy- financial performance relationship — strategic groups of hospitals operationalized by Porter's typology. Contingency theory was used to explain the moderation effect of environmental factors on hospital business strategy-financial performance relationship. The result of this study showed that environmental instability could influence the viability of the strategy. The results of this study may be useful for researchers as well as managers of hospitals.

Corresponding author Name: Akbar Ghiasi, Ph.D.

Email: ghiasi@uiwtx.edu

Phone: (210) 283-6484

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