NAVIGATING TURBULENT TIMES: STRATEGIC GROUPS AND PERFORMANCE IN THE HOSPITAL INDUSTRY, 1983 TO 1993

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This study confirms and extends previous research by providing a detailed longitudinal examination of the strategic group and performance relationship in the hospital industry from 1983 to 1993. Based on a deductive approach using Porter's (1980) typology, we find that matching strategy to environment affects hospital performance, that the appropriate match between strategy and environment changed over the 1983 to 1993 time period, and that hospitals combining a low cost and differentiation strategy (i.e., a best-cost approach) performed well during most of the time period examined. We also find significant movement between strategic groups, thus calling into question the degree to which mobility barriers affect between group performance differences. Finally, our research suggests the existence of multiple groups following the same strategic approach, a result that calls into question the view that groups within an industry are monolithic.

The normative view that an organization's strategy should be matched to the environment has long been a cornerstone of strategic management research (e.g., Hrebiniak & Joyce, 1985; Lawrence & Lorsch, 1967; Luo & Park, 2001; Marlin, Lamont, & Hoffman, 1994; Venkatraman & Prescott, 1990; Zajac, Kraatz, & Bresser, 2000). The basic premise underlying this body of research is that firm performance is dependent on the organization's ability to plan and implement a strategy that

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matches the functional demands of its environment. Superior financial performance should thus be an outcome of a good strategy-environment fit that is sustained over extended periods of time. Unfortunately, the often-turbulent environments of today's organizations make the process of achieving and maintaining a strategy-environment fit over time a difficult proposition.

The development of effective strategic responses to environmental change is critical to the long-term survival and performance of any organization (Barkema, Baum, & Mannix, 2002; Zajac et al., 2000). The need for the development of effective strategic responses in a turbulent environment is especially salient in health care (Shortell, Morrison, & Friedman, 1990). Health care accounts for over 13% of the expenditures in the U.S. economy (Levit et al., 2000). At the time of this writing it has been over two decades since the first shock waves of massive change within health care have occurred, but adaptation to the fundamental changes of the 1980s has been and continues to be problematic, particularly for hospitals.

Fundamental changes in health care have generated increased competition among hospitals. These changes can be traced to the adoption and use of set limits on reimbursements to hospitals. Referred to as Diagnosis-Related Groups (DRGs), these reimbursement limits are the foundation for the Medicare Prospective Payment System (PPS) introduced by the U.S. government in 1983. The intent of this legislation was to control spiraling healthcare costs by forcing cost discipline on hospitals. From the beginning, PPS was recognized as a revolutionary change in Medicare reimbursement (Russell, 1989). The passage of PPS has been followed by many other cost and efficiency related changes in the industry. These changes include increases in the number of managed care systems, the development of fixed payment systems by private insurers and Blue Cross / Blue Shield plans, the growth of outpatient services, the development of integrated delivery networks, and increases in the number of mergers and acquisitions in the industry. Shortell et al. (1990) argued that the net effect of these changes was a mandate for hospitals to begin thinking and acting strategically if they wanted to survive and perform well.

Several empirical studies provide evidence of the initial strategic responses of hospitals to these environmental pressures and their resulting performance consequences (e.g., Forte, Hoffman, Lamont, & Brockmann, 2000; Ginn, 1990; Ketchen, Thomas, & Snow, 1993; Lamont, Marlin, & Hoffman, 1993; Zajac & Shortell, 1989). Other studies examine the hospital strategy and performance relationship during later and more recent times (e.g., Kumar, Subramanian, & Yauger, 1997; Marlin, Huonker, & Sun, 2002; Short, Palmer, & Ketchen, 2002). However, a more detailed longitudinal examination of how the underlying structure of the industry changed is needed to determine the legislation's longer-term effect on the strategy and performance relationship. A longitudinal approach would address at least three questions: (1) what was the nature of the strategy-performance relationship? (2) how did this relationship change over time? and (3) what impact did changes in the bases of competition in the industry have on the strategy and performance relationship? Answers to these questions are both timely and useful and should provide evidence of the robustness of the results of previous studies.

To examine the strategy-performance relationship we used the strategic group model, which develops a unique basis to conceptualize strategic positioning and compare the resources required to pursue alternative strategies in a specific industry (Mehra & Floyd, 1998). Strategic groups are clusters or groups of firms that compete by following similar strategies within an industry (Porter, 1979). Strategic groups are assumed to be highly stable due to mobility barriers (McGee & Thomas, 1986), which limit movement between groups and are expected to lead to performance differences between groups (Porter, 1979). Despite the logical appeal of these arguments, the results of previous

research on the strategic group and performance relationship have been largely equivocal and have generated considerable debate (cf. Barney & Hoskisson, 1990; McGee & Thomas, 1986; Thomas & Venkatraman, 1988). However, a recent review and meta-analysis by Ketchen et al. (1997), does suggest that organizational performance is at least partially explained by strategic group membership.

The purpose of this longitudinal study is to examine the efficacy of different hospital strategic groups during a time period (1983-1993) when significant changes were occurring in the industry. We believe that examining results during this particular time period will establish a baseline for comparison with later and preceding time periods. These relationships are examined using a deductive approach based on Porter's (1980) business level strategy typology. At the core of this paper are two notions: (1) in any given industry environment some strategies will fit better than others resulting in some well aligned and some poorly aligned organizations, and (2) changes in the underlying bases of competition in an industry environment will affect the appropriateness of the various strategies. More specifically, we seek to determine whether theoretically based strategic groups are associated with different performance levels and whether the strategic group and performance relationship changed over time in light of industry level changes.

THEORETICAL BACKGROUND

Our examination of the strategy-performance relationship requires the adoption of a conceptual scheme that articulates the types of strategies that are available to firms. The literature provides many conceptualizations including one by Porter (1980) that is perhaps the most heavily researched. Porter (1980) argues that organizations can choose from two general approaches to compete at the business level. One such approach is low cost (wherein a firm seeks to become the lowest cost producer in an industry) and the other is differentiation (wherein a firm tries to create a product or service that consumers perceive as unique and desirable). Wright (1987) suggests the existence of a hybrid of these two approaches defined as a "best-cost" approach. This strategy of combining low cost and differentiation strategies is an option not ruled out by Porter (1985) and others (Hill, 1988; Murray, 1988). Porter (1980) considers organizations with no coherent strategy (i.e., those not satisfying the functional demands of either low cost or differentiation) as being "stuck in the middle" or "muddlers".

Implicit in Porter's (1980) approach is that low cost and differentiation strategies each involve the pursuit of a different basis for achieving a competitive advantage thus enabling the firm to address different types of environmental demands. For example, if the environment requires that the organization pursue economies of scale, reduce, control, and minimize costs, then the organization should try to achieve a low cost advantage (Porter, 1980). Conversely, if the environment requires that the organization develop a unique product or service through heavy investment in research and development, product/service design, and marketing, then achieving a differentiation advantage is more appropriate (Porter, 1980). More recent evidence suggests that the efficacy of cost leadership and differentiation varies depending upon environmental conditions. For example, cost leadership strategies have been hypothesized to be more appropriate in stable and predictable environments while differentiation strategies have been argued to be more appropriate in dynamic and uncertain environments (e.g., Hambrick, 1983; Miller, 1988; Kim & Lim, 1988).

For this study, we rely on Porter's (1980) typology to examine the hospital industry for several reasons. First, many argue that this typology is more theoretically sophisticated than others (Lamont

et al., 1993; Miller, 1988; Miller & Dess, 1993; Zajac & Shortell, 1989). Second, Porter's (1980) typology has received more empirical support from previous research than have other typologies (Kim & Lim, 1988) and has been used in previous configurational studies (e.g., Dess & Davis, 1984; Kumar et al., 1997). Third, prior research has supported the utility of Porter's strategy in predicting hospital performance (Kumar et al., 1997; Lamont et al., 1993; Marlin et al., 1994, 2002). Fourth, the environmental conditions within the hospital industry enable us to be certain about one of the potential factors affecting the strategy and performance relationship. Finally, clear distinctions can be made between Porter's strategy types and the environmental demands placed upon firms in the industry under study.

HYPOTHESES

The context for this study is the U.S. hospital industry from 1983 to 1993. Since the early 1980s dramatic structural changes have swept through the industry. It is our belief, and a major assumption of this paper, that the primary result of these changes was a change in the base of competition in the industry from differentiation to low cost. Furthermore, as depicted in Figure 1, we posit that the importance of achieving a differentiation advantage decreased during the time period examined while the importance of achieving a low cost advantage increased over the same time period. In the following section we offer evidence to support this assumption and develop three testable hypotheses concerning the strategic group and performance relationship.

Strategic Groups and Hospital Performance

The impetus for most changes that occurred in the hospital industry was the Medicare Prospective Payment System (PPS) introduced by the U.S. government in October 1983 and fully implemented by 1986. The PPS, which was the result of a public policy shift toward a pro-compet-
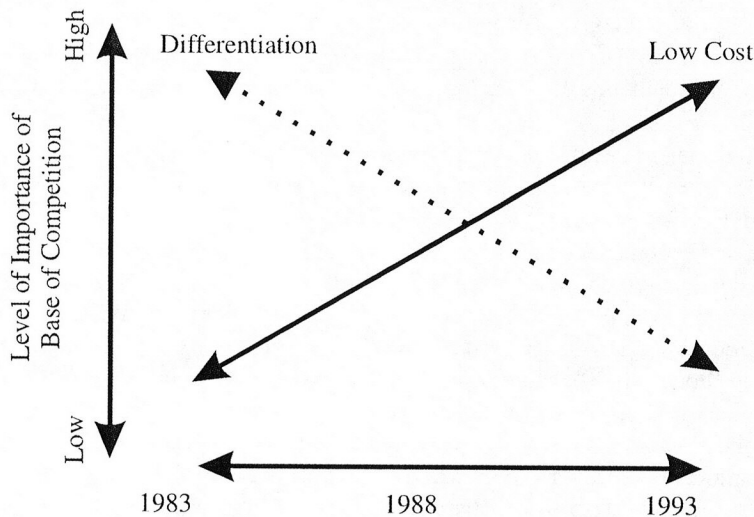

FIGURE 1
Change in the Bases of Competition in the Hospital Industry from 1983 to 1993

itive ideology (Ginn, 1990), forever changed the bases of competition for hospitals in the U.S. Prior to PPS, cost-plus reimbursement was the norm and hospitals experienced a placid, munificent environment that generated little concern for operating efficiency, cost control or competition. In this environment, hospital managers differentiated their facilities to claim higher than normal returns. In high strategic choice environments, firms pursuing a differentiation advantage can be expected to be most prevalent and successful (Hrebiniak & Joyce, 1985; Marlin et al., 1994). Although a low cost advantage was not necessarily detrimental to performance, the reimbursement system did not reward this strategy since lower costs resulted in lower levels of reimbursement.

Hypothesis 1: During the earlier years of this study, differentiators and best-cost providers outperformed cost leaders, which outperformed muddlers.

With the full implementation of PPS by 1986, however, the hospital industry became a highly dynamic and competitive environment. The system of hospital reimbursement changed from one driven by the decisions of health care professionals to one driven by revenue constraints. Hospitals were now experiencing revenue constraints because the new system prescribed a fixed Medicare payment rate for each of over 400 categories of illness. As a result, the full implementation of PPS greatly increased competition among hospitals.

Differentiation strategies have been argued to be most appropriate in dynamic environments (Hambrick, 1983; Lamont et al., 1993; Miller, 1988; Kim & Lim, 1988) because of their ability to insulate a firm from costly price competition (Hambrick, 1983, Miller, 1988; Porter, 1980). The results of previous studies in the hospital industry (e.g., Forte et al., 2000; Ketchen et al., 1993; Lamont et al., 1993) generally support this contention. However, maintaining only a differentiation advantage was likely paradoxical since differentiation strategies are more costly for hospitals (Porter, 1985) and the dominant buyers of health services (i.e., private insurers and the Federal Government) were demanding cost containment. Thus, it became imperative that decisions concerning patient care be made after considering not only the welfare of the patient, but also the costs involved and their long-term effect on the competitive posture of the hospital.

Restricted revenues also forced hospitals to compete for patient admissions in order to better utilize their assets and hold down costs. According to Guterman, Ashby, and Greene, (1996), the pressures on hospitals for cost containment became essentially inescapable by 1990. Given the importance of both low cost and differentiation as bases of competition in the hospital industry during most of the late 1980s, we expect that low cost, differentiation, and best-cost strategies will be equally viable competitive approaches.

Hypothesis 2: During the middle years of this study, cost leaders, differentiators, and best-cost providers outperformed muddlers but not each other.

By the early 1990s it became apparent that competition and survival in the industry depended on the ability to compete on costs regardless of a firm's differentiation position. Not only did PPS constrain revenue, but managed care systems and other insurance plans adopted fixed reimbursement rates similar to the PPS model. Evidence of the cost containment pressure can also be found in the shift from high cost inpatient (within hospital) care to lower cost outpatient care as hospitals nationwide reduced the lengths of hospital stays and upgraded outpatient care units.

However, differentiated firms were not necessarily at a disadvantage in the industry to the extent that they were also able to reduce costs. While the approaches to differentiation (i.e., use of

the latest technology, offering rare services, performing the most sophisticated procedures) tend to be more costly, reimbursement rates still allowed these hospitals to be profitable when they were combined with cost control efforts. With competition in the industry based primarily on a firm's ability to reduce and control costs, cost leadership and best-cost provider strategies should be among the highest performers.

> *Hypothesis 3:*During the later years of this study, cost leaders and best-cost providers outperformed differentiators, which outperformed muddlers.

METHODOLOGY

Sample and Data Collection

The study sample consisted of all general short-term acute-care hospitals in the state of Florida for the years 1983 through 1993. We limited the sample to general short-term acute-care hospitals since other types of hospitals (e.g., long-term, psychiatric, substance-abuse, teaching) would be expected to perform differently. The sample was limited to hospitals in a single state due to the dramatic differences in governmental regulations between states (Blair & Boal 1991; Forte et al., 2000; Lamont et al., 1993; Zajac & Shortell 1989). Furthermore, since an adequate examination of the research questions required substantial variance in the strategy dimensions, we considered the hospital industry an ideal setting. Prior research (e.g., Forte et al., 2000; Ginn, 1990; Lamont et al., 1993; Meyer, Brooks, & Goes, 1990; Short et al., 2002; Zajac & Shortell, 1989) suggests that hospitals pursue a variety of different strategies. We chose the 1983 through 1993 time period since:

1. 1983 was the beginning point for the changes occurring in the industry;
2. we considered 1993 a sufficient time lag for the changes in the industry to be in full effect;
3. it provided a naturally occurring experimental setting to study the longer term effects of industry level changes on the strategy and performance relationship;
4. and it establishes a baseline for comparison with other studies (i.e., Forte et al., 2000; Lamont et al., 1993; Zajac & Shortell, 1989) and with later and preceding time periods.

Archival data were obtained from the State of Florida's Agency for Health Care Administration.

Strategy Measures

Based on previous research (Forte et al., 2000; Ketchen et al., 1993; Lamont et al., 1993; Marlin et al., 1994) and consultations with industry experts, we chose nine variables to capture Porter's (1980) strategy typology. We used three variables to capture hospital costs associated with delivering healthcare and Porter's (1980) cost leadership dimension: *cost adjusted per patient day, salary adjusted per patient day*, and *man-hours adjusted per patient day*. As expected, we found strong positive correlations among the three low cost variables in each year. Furthermore, a factor analysis of each year revealed that the variables loaded on a single factor so we proceeded to standardize (mean = 0 and standard deviation = 1) the variables and summed them into an overall measure of low costs.

We chose six variables to capture (1) the extent to which a hospital was differentiated, and (2) the basic approaches used to achieve differentiation within the industry (i.e., service and patient care differentiation). We used three service differentiation variables to capture the level and types of resources used in the actual delivery of health care. The first was the total *number of high technology services* offered, where high technology services included a cardiac catheterization laboratory, an extracorporeal lithotripter, magnetic resonance imaging, open heart surgery, and organ transplantation capability (Hartz et al., 1990; Marlin et al., 1994). The second variable, the total *number of services,* was included to indicate each hospital's breadth of operations (Forte et al., 2000; Marlin et al., 1994; Ketchen et al., 1993). We included the total *number of rare services*, with rare defined as a service offered by less than 50 percent of all hospitals in the sample, as the third differentiation variable (Marlin et al., 1994). We found strong positive correlations among the three service differentiation measures, and factor analysis for each year indicated that the variables could be combined into an overall measure of service differentiation.

To capture the extent to which hospitals differentiate themselves through patient care and market segment decisions, we used the following three variables: the *ratio of intensive care patient days to total patient days*, the *ratio of ancillary costs to total costs*, and the *ratio of Medicare patient days to total patient days*. Higher percentages of intensive care patient days, Medicare patient days, and ancillary costs can be expected to indicate the extent to which the hospital emphasizes non-routine types of services (Ketchen et al., 1993). We found positive correlations among the three patient care differentiation variables in most but not all years. Factor analysis in 6 of the 11 years indicated that the measures could be combined into an overall measure of service differentiation. For the remaining 5 years a two-factor solution was developed which resulted in two separate measures of patient care differentiation.

Performance Measures

Based on previous research (Forte et al., 2000; Friedman & Shortell, 1988; Ketchen et al., 1993; Marlin et al., 1994) and consultations with industry experts, we chose four performance measures for this study: *operating margin, return on assets* (ROA), *profit per patient day*, and *percent occupancy*. These indicators are considered to be useful in discriminating between the high and low performing hospitals in the state. We found strong positive correlations among the three financial performance measures (i.e., operating margin, ROA, and profit per patient day) and factor analysis in each year indicated that the variables could be combined into an overall measure of financial performance.

Control Measures

Four other measures were examined as control measures in affecting hospital performance. *Ownership status* (coded 1 for not-for-profit and 2 for for-profit) was included because the incentive of for-profit hospitals to maximize profits may lead them to behave differently from not-for-profit hospitals (Zajac & Shortell, 1989). We also included *location* (coded a 1 for urban and 2 for rural) because local environmental factors (i.e. local resource supply and degree of local competition) can also affect a hospital's strategic orientation. We used these two measures as a basis for post-hoc analyses because their inclusion as categorical measures in the cluster analyses along with our continuous strategy measures could produce clusters that are determined mainly by these two categorical measures. We also included total *number of beds*, a commonly used indicator of hospital size,

and the *ratio of outpatient costs to total costs* as controls since cost advantages for hospitals may be different depending on size and/or on inpatient versus outpatient activities.

Strategic Group Analysis

For each year examined, a cluster analysis of the strategy measures was used to identify hospital strategic groups. We trimmed all clustering measures at three standard deviations from the mean to reduce the sensitivity to outliers. Next, the data was preprocessed using the ACECLUS procedure available in SAS. We used Ward's minimum variance method for clustering the strategy measures. To identify the optimal cluster solutions we used the following decision criteria in conjunction with visual inspection of the tree-plots:

1. the clusters explain at least 65% of the overall variance;
2. with an additional cluster increasing the overall fit by less than 5%;
3. with a local peak in the Cubic Clustering Criterion;
4. with a local peak in the pseudo F statistic;
5. with a small value of the pseudo t^2 statistic and a larger pseudo t^2 statistic for the next cluster fusion.

When discrepancies existed across these rules, we relied on visual inspection of the tree-plots and prioritized our use of each rule in the order in which they are listed above. These decision criteria are consistent with those used in prior strategic group research (i.e., Forte et al., 2000; Fiegenbaum & Thomas, 1990; Ketchen et al., 1993; Mehra, 1996; Marlin, Sun, & Huonker, 1999) and with clustering stopping rules recommended by the SAS Manual and by the SAS Technical Report A-108.

To ensure that our results were not an artifact of the clustering method chosen we used a two-stage clustering approach with the seed values obtained from the Ward's clustering method as the initial seeds for our second clustering procedure, the FASTCLUS procedure (also available in SAS). Next, an objective classification procedure was used to classify the identified clusters into one of four strategy categories based on Porter's (1980) typology: differentiation, low cost, best-cost, and muddler. We identified muddlers as groups whose low cost measure was above the sample mean with all of their differentiation measures below the sample means (i.e., firms with a high cost position and a low differentiation position). The differentiators were hospitals that contained one or more differentiation measure and their low cost measure above the sample mean. The best-cost providers had one or more differentiation measure above the sample mean with their low cost measure below the sample mean. We identified low cost leaders as those groups with all measures below the sample means.

We tested between group performance differences in each year using MANCOVA and ANCOVA. During these analyses we controlled for ownership type and rural/urban location and used number of beds and the ratio of outpatient costs to total costs as covariates. We used least-squares means (i.e., means adjusted for our controls and covariates) comparisons to examine the performance differences between the strategic groups in each year.

RESULTS

Using descriptive statistics for all variables in each year we found that the hospitals sampled varied in performance and along the strategic grouping variables in each year. In addition, some interesting

patterns can be noted in the data. First, our data appear to indicate an increase in intensive care, ancillary, and in particular outpatient costs as percentages of total hospital costs during the time period examined. Second, our data appear to indicate a rather dramatic increase in the variance of costs and profit per patient-day over time. Third, average industry financial performance generally increased from 1983 to 1985, generally decreased from 1985 to 1989, and generally increased from 1989 to 1993 to at or near 1983 levels. Lastly, percent occupancy decreased nearly 17% over the time period examined. The descriptive statistics of the study are presented in Table 1.

We report MANCOVA and ANCOVA tests of performance differences across strategic groups while controlling for the effects of ownership type, urban/rural location, number of beds, and ratio of outpatient to total costs in Table 2. All multivariate tests were significant ($p < .01$ to $p < .001$) in each year as were all univariate tests for performance differences between the identified strategic groups ($p < .05$ to $p < .001$). Taken together, these results indicate that strategic group membership is an important predictor of hospital performance.

Table 3 displays the least squares means comparisons for specific between strategic group performance differences and the results of our objective classification procedure used to identify the strategies of our groups. The pairwise comparisons reveal significant performance differences between the identified strategic groups. These differences were consistent with the theory driving this study and generally supported each of our hypotheses.

The results of our cluster analyses produced five strategic groups in 1983 and 1987 and six strategic groups in each of the remaining nine years. In the first year of the study (i.e., 1983), the top performing groups pursued differentiation or best-cost strategies and the worst performing groups were cost leaders and muddlers, thus supporting Hypothesis 1. During the next three years (i.e., 1984, 1985, and 1986) we witnessed a general decline in the performance of firms pursuing differentiation and a general increase in the performance of firms pursuing a low cost strategy. The years 1986 and 1987 are most consistent with Hypothesis 2 with differentiators, cost leaders, and best-cost providers all outperforming muddlers but not one another. This pattern generally continued during the next three years (i.e., 1988, 1989, 1990). During the last three years of the study (i.e., 1991, 1992, and 1993) differentiators and muddlers were always among the lowest performing groups while best-cost providers and cost leaders generally performed the highest, thus supporting Hypothesis 3. In total, the results provide reasonably good support for each of the hypotheses guiding this study.

Discussion and Conclusions

The purpose of this study was to confirm and extend previous research by providing a more detailed longitudinal examination of the strategic group and performance relationship in the hospital industry. Based on a deductive approach using Porter's (1980) typology, our results indicate that

1. matching strategy to environment affects hospital performance;
2. the appropriate match between strategy and environment changed over time, and;
3. hospitals combining low costs with differentiation (i.e., a best-cost approach) performed well.

Our findings also suggest significant movement between groups thus calling into question the assumption that between strategic group performance differences exist within an industry due to the highly stable nature of the groups and the existence of mobility barriers. Finally, our research suggests the existence of multiple groups following the same or similar strategic approach. This chal-

Table 1
Variable Means (and Standard Deviations), 1983-1993

Variables	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Cost adj. per patient day	421.54 (77.27)	493.43 (92.77)	563.16 (103.30)	626.75 (119.15)	694.37 (136.46)	790.00 (163.93)	883.15 (167.18)	974.36 (184.33)	1083.50 (207.12)	1142.05 (226.01)	1237.14 (257.78)
Salary cost adj. per patient day	175.31 (36.10)	196.95 (40.37)	218.66 (42.83)	233.92 (47.00)	259.96 (50.73)	293.70 (57.85)	331.66 (67.90)	369.01 (72.76)	412.33 (83.53)	439.99 (88.96)	475.35 (99.13)
Man hours adj. per patient day	21.41 (3.54)	22.81 (3.78)	24.21 (4.20)	24.95 (4.46)	26.31 (4.67)	27.81 (5.96)	29.26 (6.63)	30.28 (5.95)	32.20 (6.83)	33.21 (7.31)	35.08 (10.00)
Number of high tech. services	0.45 (0.84)	0.46 (0.84)	0.44 (0.81)	0.49 (0.84)	0.53 (0.87)	0.59 (0.89)	0.71 (0.93)	1.15 (1.23)	1.27 (1.25)	1.36 (1.24)	1.45 (1.20)
Number of services	14.07 (4.48)	14.31 (4.57)	14.18 (4.33)	14.27 (4.36)	13.23 (4.42)	14.41 (4.36)	14.72 (4.34)	21.77 (5.17)	21.96 (5.18)	22.06 (5.36)	22.24 (5.35)
Number of rare services	4.18 (2.69)	4.22 (2.75)	4.14 (2.64)	4.15 (2.59)	4.13 (2.63)	4.26 (2.54)	4.39 (2.64)	4.55 (3.32)	4.71 (3.26)	4.86 (3.40)	4.96 (3.42)
Ratio of intensive to total days	7.20 (3.33)	8.05 (3.70)	9.01 (4.25)	9.23 (3.91)	9.92 (4.09)	10.46 (4.61)	10.81 (4.88)	11.27 (5.21)	11.86 (6.17)	11.60 (5.39)	11.49 (5.41)
Ratio of ancillary to total costs	28.19 (4.11)	28.39 (4.23)	27.96 (3.56)	27.48 (3.52)	27.86 (3.96)	28.15 (3.83)	28.39 (4.14)	29.74 (3.92)	30.32 (4.01)	31.42 (4.42)	31.63 (4.76)
Ratio of Medicare to total days	57.42 (14.38)	57.00 (13.46)	55.61 (12.96)	55.51 (13.45)	54.13 (13.60)	53.99 (13.80)	54.44 (13.73)	54.95 (14.23)	55.88 (14.43)	56.87 (15.40)	57.74 (16.17)

Ownership	1.51 (0.50)	1.50 (0.50)	1.53 (0.50)	1.51 (0.50)	1.51 (0.50)	1.53 (0.50)	1.53 (0.50)	1.51 (0.50)	1.51 (0.50)	1.52 (0.50)	1.53 (0.50)
Location	1.42 (0.50)	1.44 (0.50)	1.47 (0.50)	1.47 (0.50)	1.46 (0.50)	1.48 (0.50)	1.49 (0.50)	1.48 (0.50)	1.49 (0.50)	1.49 (0.50)	1.49 (0.50)
Number of beds	237.89 (161.76)	242.33 (162.90)	237.71 (159.89)	232.37 (154.72)	234.95 (159.19)	237.01 (161.22)	240.48 (165.98)	237.68 (164.67)	235.71 (169.91)	239.91 (173.70)	236.41 (172.34)
Ratio of outpat. to total costs	8.66 (4.04)	10.31 (4.22)	13.23 (5.14)	15.39 (5.57)	17.95 (5.67)	20.49 (6.58)	21.25 (7.38)	22.94 (6.91)	25.45 (8.33)	26.39 (8.48)	28.36 (9.72)
Operating margin	5.80 (8.42)	8.33 (8.44)	9.28 (8.93)	3.66 (11.54)	1.34 (12.84)	2.16 (9.48)	1.18 (8.54)	1.98 (8.10)	2.37 (10.16)	4.49 (9.20)	6.07 (9.16)
Return on assets	6.86 (12.30)	9.08 (12.20)	9.65 (11.59)	3.67 (12.95)	1.60 (11.71)	2.71 (11.17)	1.25 (10.39)	2.24 (9.01)	2.58 (13.01)	5.32 (12.00)	6.83 (11.93)
Profit per patient day	28.45 (38.448)	46.86 (48.62)	59.44 (58.92)	26.12 (71.95)	12.38 (83.77)	16.45 (80.40)	11.48 (77.78)	20.89 (81.96)	30.17 (107.96)	56.86 (109.69)	84.19 (119.71)
Percent occupancy	67.22 (14.11)	60.17 (14.13)	55.97 (13.51)	55.00 (14.73)	52.96 (14.36)	52.72 (14.45)	51.98 (15.09)	52.66 (15.58)	51.45 (14.62)	51.16 (14.28)	50.25 (15.06)
N	157	153	160	169	167	169	170	171	169	169	169

Table 2
Multivariate and Univariate Performance Results, 1983-1993

Financial Performance

Year	1983	1984	1985	1986	1987	1988
Strategic Group	6.54***	3.95**	13.07***	9.46***	5.83***	14.01***
Ownership	45.15***	20.92***	31.84***	2.75+	1.52	1.24
Location	0.43	0.43	1.60	1.12	1.79	0.16
Beds	0.34	1.46	2.38	0.37	2.91+	0.61
Outpatient	0.01	0.28	0.74	1.64	0.11	0.18
F	9.01***	4.76***	11.32***	5.91***	3.71***	8.02***
(df)	(5, 151)	(5, 147)	(5, 154)	(5, 163)	(5, 161)	(5, 163)

Year	1989	1990	1991	1992	1993
Strategic Group	11.63***	5.42***	4.82***	3.08*	5.19***
Ownership	1.65	0.53	5.41*	4.87*	1.74
Location	0.19	0.04	0.85	0.47	2.69
Beds	1.41	1.50	1.11	1.49	0.01
Outpatient	4.06*	2.86	3.46+	2.78+	0.74
F	7.28***	3.56***	3.88***	2.78**	3.46***
(df)	(5, 164)	(5, 165)	(5, 163)	(5, 163)	(5, 164)

Percent Occupancy

Year	1983	1984	1985	1986	1987	1988
Strategic Group	9.15***	6.96***	8.58**	10.78***	14.07***	20.51***
Ownership	7.86***	8.23**	6.79*	3.85+	2.14	5.86*
Location	2.88+	2.68	9.42**	3.39+	1.18	4.88*
Beds	0.42	6.13*	6.24*	2.78+	6.31*	0.07
Outpatient	0.34	0.68	0.70	4.75*	4.62*	7.64**
F	6.01***	5.84***	7.34***	7.63***	8.81***	13.44***
(df)	(5, 151)	(5, 147)	(5, 154)	(5, 163)	(5, 161)	(5, 163)

Year	1989	1990	1991	1992	1993
Strategic Group	24.36***	3.70**	20.99***	12.66***	17.55***
Ownership	0.56**	0.80	0.65	5.66*	6.76*
Location	2.41	1.07	0.39	0.40	0.24
Beds	2.91+	0.18	0.43	1.49	0.04
Outpatient	9.74**	2.86+	13.80***	16.26***	42.81***
F (5, 164)	15.27***	3.56***	13.36***	9.68***	15.29***
(df)	(5, 164)	(5, 165)	(5, 163)	(5, 163)	(5, 164)

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

lenges the view that groups within an industry are monolithic. We discuss the implications concerning each of these results below.

     This study supports the assertions of Hill (1988) and Murray (1988) that an approach combining low cost and differentiation can be successfully pursued, at least under certain conditions. Data from each of the 11 years we examined demonstrated that hospitals combining low costs with differentiation (i.e., a best-cost approach) performed well. This approach appears to have allowed these

Table 3
Least Squares Performance Means Across Strategic Groups and Results of Means Comparisons, 1983-1993

Year	Variable	Strategic Group						Mean Comparisons+
		1	2	3	4	5	6	
1983	Financ. Perf.	0.95	0.82	0.17	-1.39	-1.95		1,2,3>4,5
	% Occupancy	69.07	72.32	69.21	59.16	65.30		2,1,3>4
	Strategy	D	D	BC	M	LC		
	N	31	30	49	40	7		
1984	Financ. Perf.	1.42	0.40	0.07	0.03	-0.10	-1.45	1,2,3,5>6; 1>5
	% Occupancy	68.04	60.77	55.01	59.07	64.00	54.14	1>2,4,3,6; 5>3,6
	Strategy	BC	BC	LC	D	BC	M	
	N	13	27	27	23	42	21	
1985	Financ. Perf.	1.25	1.18	0.46	-0.39	-0.88	-3.41	all>6; 1,2>4,5; 3>5
	% Occupancy	60.27	61.54	58.96	54.82	50.34	49.82	2,1,3>5,6; 2>4
	Strategy	BC	LC	D	D	M	M	
	N	18	44	16	23	46	13	
1986	Financ. Perf.	1.52	1.46	0.66	0.46	-1.47	-2.07	1,2,3,4>5,6
	% Occupancy	60.15	61.00	59.61	55.07	48.80	46.99	2,1,3>6,5; 2>4>6
	Strategy	BC	LC	D	BC	M	M	
	N	11	21	45	40	17	35	
1987	Financ. Perf.	0.88	0.70	0.38	0.28	-1.28		1,2,3,4>5
	% Occupancy	53.85	54.63	60.33	53.69	47.09		3,2,1,4>5
	Strategy	LC	BC	D	BC	M		
	N	29	17	25	51	45		
1988	Financ. Perf.	1.58	0.83	0.53	0.12	-0.50	-3.88	all>6; 1,2>5; 1>4
	% Occupancy	57.05	61.13	51.88	52.76	48.30	38.97	all>6; 2>4,3,5; 1>5
	Strategy	BC	BC	D	LC	M	M	
	N	31	42	12	22	43	19	
1989	Financ. Perf.	1.73	1.31	0.76	0.27	-2.06	-2.87	1,2,3,4>5,6; 1>4
	% Occupancy	56.41	55.45	52.45	60.11	44.32	38.04	4,1,2,3>5>6; 4>3
	Strategy	BC	BC	LC	D	M	M	
	N	29	10	48	37	28	18	
1990	Financ. Perf.	0.91	0.78	-0.20	-0.32	-0.35	-2.55	all>6; 1,2>5
	% Occupancy	52.57	56.27	60.36	55.67	48.15	37.19	all>6; 3,2,4>5; 3>1
	Strategy	BC	BC	D	LC	M	M	
	N	36	40	30	14	36	15	
1991	Financ. Perf.	0.55	0.49	0.17	0.11	-0.11	-2.16	all>6
	% Occupancy	58.86	57.87	50.75	39.32	52.65	37.49	all>4,6; 1>5,3; 2>3
	Strategy	BC	BC	LC	D	D	M	
	N	39	17	59	12	25	17	
1992	Financ. Perf.	0.45	0.24	0.08	-0.18	-0.40	-2.01	1,2,3>6
	% Occupancy	49.19	54.89	56.61	53.28	41.67	41.21	3,2,4,1>5,6; 3,2>1
	Strategy	LC	BC	D	D	M	M	
	N	37	55	30	16	19	12	
1993	Financ. Perf.	1.10	0.61	0.28	0.08	-1.94	-2.15	1,2,3,4>5,6
	% Occupancy	50.64	57.87	50.89	52.12	43.83	41.97	2>4,3,1>5,6
	Strategy	BC	BC	LC	D	M	M	
	N	37	38	37	20	12	26	

Note: LC = Low-Cost; BC = Best-Cost; D = Differentiation; M = Muddler.

+ $p < .10$.

firms to weather the dramatic changes in the rules by which hospitals operate. We also found that low cost and differentiation strategies performed well in the industry, though the trend appeared to favor differentiation during the earlier years and low cost in the later years. This finding demonstrates that legislative changes in the bases of competition altered what constitutes the best performing strategies.

The success of low cost strategies in the most recent years is not surprising given the cost containment incentives imbedded in both prospective payment and increasingly pervasive managed care. In an industry often characterized as uncertain and turbulent, the efficacy of low-cost strategies actually suggests that at least the criterion of an effective strategy in the industry may well be predictable. That is, it seems as if a low cost strategy is viable, but a hospital can also hedge its bets by pursuing a best-cost strategy. What we do not know, is whether the trend favoring low-cost strategies will continue, and, if so, whether the best-cost strategy will continue to perform well in the future. The time frame of this study may well have caught the industry poised on the brink of a shakeout among insurers that placed an especially high premium on cost containment in an environment where determining how to manage costs generated a high degree of uncertainty. If so, then experience with cost reduction and changes in the number of competitors may alter competitive conditions sufficiently to change the strategy and performance relationship. All of this presumes that the pursuit of cost containment will continue to be the predominant public policy objective. Clearly, the issues in this study need to be tracked as the industry evolves.

It is also interesting to note that, consistent with previous research (e.g., Ketchen et al., 1993; Forte et al., 2000), the deductive approach we used to identify strategic groups consistently yielded a similar number of and similar types of groups during each of the years examined, suggesting the typology produces reliable classifications. Moreover, our findings suggest that the results of previous studies concerning the strategy and hospital performance relationship using different typologies (Miles & Snow, 1978; Zammuto, 1988) are robust. Thus, these conclusions may move us closer to the goal of a less complex body of theory for specifying organizational configurations (Ketchen et al., 1993). For example, both Zajac & Shortell (1989) and Forte et al. (2000) found that Miles and Snow's "prospector" and "analyzer" strategies (which are theoretically similar to Porter's differentiation strategy and the best-cost strategy used in this study) performed well. Similarly, both of these studies suggest that Miles and Snow's "reactors" (which is comparable to Porter's "muddlers") performed poorly. Our results are also generally supportive of Ketchen et al. (1993) findings that Zammuto's "entrepreneurs/r-specialists" and "prospector/r-generalists" performed well. Contrary to the results of these studies but consistent with the results of more recent studies (Kumar et al. 1997; Marlin et al., 2002), we found the low cost strategy (which is theoretically similar to Miles and Snow's "defender" strategy and Zammuto's "defender/k-specialist" strategy) also performed well.

Also, consistent with previous research (Forte et al., 2000; Ketchen et al., 1993) our results suggest that a significant number of hospitals changed strategies and thus moved between groups during the study period. These changes appear to have occurred over short periods of time and call into question the assumption that between strategic group performance differences exist within an industry due to the highly stable nature of the groups and the existence of mobility barriers. While speculative, it could be argued that groups are less stable than often assumed or that in some cases firms vary significantly in the degree to which they are members of a particular group (cf. McNamara, Deephouse, & Luce, 2003; Reger & Huff, 1993). Whether this finding is peculiar to the industry examined or has broader implications for strategic group research is a matter for future investigations.

There are also managerial implications of both a specific and general nature of the results of this study. In general, the results should remind managers to be attentive to finding and achieving a proper strategy-environment fit to assure high performance. A limited number of strategic groups appear to exist, and only certain groups are associated with higher performance. Thus, for managers our results underscore the utility of understanding the configurations of successful firms in their industry. We suspect that most managers are acutely aware of the requirements of their own strategy, but often less familiar with those of other strategic approaches, particularly if their industry has not been subject to the magnitude of change characteristic in the hospital industry. Normally it may seem quite reasonable not to pay much attention to other strategic approaches, but during times of significant industry change, organizations should be wary of the possibility that the benefits of their particular configuration may deteriorate.

There are also limitations associated with the current study. Our findings must be tempered with the recognition that we only examined a single industry. This study cannot prove that similar strategic groups and results will be found in other industries. In addition, since we only examined hospitals in a single state, we cannot generalize that similar strategic groups and results will be found in other states. One could also argue that in a turbulent environment, such as the hospital industry, the strategic group and performance relationship we identified could change over some interval if and when the environment becomes more stable. Finally, we relied mainly on financial measures in judging performance. It may be that our analyses would have produced different results with clinical measures of performance. We believe that even with these limitations, the findings reported here will serve as a point of reference for future studies on strategic groups and the strategy and performance relationship in this and other industries.

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