Strategic Management and Performance Differences: Nonprofit versus For-Profit Health Organizations

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Abstract:
Despite mixed and contradictory findings, for-profits (FPs) and nonprofits (NPs) are assumed to be similar health services organizations (HSOs). In this study, a fifteen-item scale assessing HSO's strategic management capacity was developed and tested using fifty-seven FP and twenty NP organizations. Then, using item response theory, the items were hierarchically profiled to produce two strategic profile models, a general and an FP anchored model. We find that deviation from the general profile, but not capability attainment level, is related to two of three financial measures. We conclude that studying FPs and NPs together is appropriate.
Keywords: financial performance, for-profit organizations, nonprofit organizations, Rasch analysis, strategic management

Article:

The amount of research comparing for-profit (FP) and nonprofit (NP) health services organizations (HSOs) is very large. Comparisons frequently include measures of quality, efficiency, financing, and the amounts of charity care provided. From either a research or policy perspective, it is reasonable to expect that these independent variables should be comparable across settings. However, the assumption that the FP versus NP tax status of an organization will, in and of itself, provide adequate explanatory power on any differences that arise is a powerful one. Researchers have begun to explore the organizational missions of FP and NP HSOs and compare differences in goals with performances and/or outcomes measures.[1]

Concomitant with the assumption that differing missions will directly affect organizational objectives and outcomes is the implicit supposition that FP and NP HSOs employ different strategic capabilities to pursue their missions. However, given highly competitive market conditions, the missions of NP HSOs and the means used to pursue them may have become more closely aligned to those of FP HSOs in recent years. To the extent that the two types of organizations' missions have grown more comparable, it stands to reason that the strategic capabilities they employ to implement those missions could also be converging.

Strategic capabilities are a subset of dynamic capabilities,[2] which are, in turn, a subset of organizational capabilities. Organizational capabilities are part of an organization's economic and capital assets, both tangible and intangible,[3] and include assets such as human organizational resources and processes, formal and informal structures, planning, controlling, and coordination processes, and relations among organizational groups and between the organization and its environment. [4] Dynamic capabilities are intangible processes that contribute to competitive advantage in certain environments.[5]

Strategic capabilities as defined here, are specific organizational dynamic capabilities. They are those mechanisms and systems that integrate organizational structures, human resources, and strategic planning processes in order to define and attain strategic objectives. Unlike dynamic capabilities, which have been discussed in terms of gaining competitive advantage,[5] strategic capabilities are focused on attaining an organization's strategic objectives whether those include competitive advantage or not. Thus, if the two types of organizations have differing organizational missions that result in differing strategic objectives, the strategic capabilities of the two types might be expected to differ.

The broad purpose of this article was to determine whether the same pair of metrics could be applied to both FP and NP HSOs, and if they were meaningfully correlated with financial performance measures. Four steps of analyses were necessary to yield the desired metrics and to understand their utility. The first step of the analysis was to develop a hierarchical scale of strategic capability items using item response theory (IRT). IRT is based on the idea that easier or lower-order items must be mastered before more difficult or higher-order items can be mastered, just as a mastery of calculus assumes mastery of arithmetic. Second, based on the hierarchical scale, organizations could be measured on two dimensions. The first dimension is the overall strategic capability attainment of HSOs, measured individually or in groups. The second dimension is HSOs' adherence to the optimal hierarchy, that is, whether HSOs' strategic capabilities matched, or fit, the hierarchy's ordering or profile. These two variables represent quantitative and qualitative measures of HSOs' strategic capabilities respectively. Third, these analyses were repeated anchoring the hierarchical profile to the IRT model that best fit the FP HSOs' strategic capabilities. FP HSOs were used for this analysis because efficiency is often associated with financial performance and because there is evidence that FPs are more efficient (and less socially responsible) than their NP counterparts,[6] so an FP anchored analysis may yield greater explanatory power with respect to financial performance. Fourth, both sets of quantitative and qualitative strategy measures were regressed on three financial variables—equity growth, financial flexibility, and financial efficiency.[7]

The unique value of this research agenda is twofold. First, it employs IRT to establish that FP and NP HSOs can be meaningfully analyzed using a common metric of strategic capacity and measure of strategic fit. Second, a hierarchical scale of strategic capabilities with a uniform progression of individual capabilities is created through the IRT analysis. This latter contribution is particularly important because the metric can then be used in conjunction with other analyses, such as regression, and the coefficients of the variables can be interpreted as incremental movement along the established scale. In addition, the Rasch statistical technique, imported from the psychometric disciplines but used here to produce the hierarchical profile against which organizations are measured, is also used to determine whether an organization's characteristics deviate from that hierarchical profile. It is, thus, a measure in keeping with the "Fit as Profile Deviation" conceptualization.[8] Collectively, these analyses yield a set of measures and statistical techniques that inform the FP versus NP comparisons beyond the simple dichotomy and that can be readily applied in future research.

The article first provides a brief review of the empirical literature examining differences between FP and NP health care organizations. Next, the sample, variables, and analytic methodologies are described. The results and discussion follow. Finally, implications for practitioners, policymakers, and researchers are discussed and areas of future research are identified.

A BRIEF SUMMARY OF THE COMPARATIVE RESEARCH ON FP AND NP HSOs

Principal–agency theory suggests that FP HSOs should be more efficient than NPs because managers seek to maximize shareholders' returns.[9] In contrast, NPs should provide better quality by serving the community, providing charity care, conducting research, and courting philanthropic supporters.[10] However, this distinction has not been supported uniformly across the literature. A synthesis of studies carried out over the past twenty years indicates that differences between FP and NP HSOs may exist, but the findings were not conclusive and were contradictory in some instances.[11]

COST AND EFFICIENCY DIFFERENCES

Most studies have focused on differences in profits, quality of care, or some combination thereof. Profits and equity growth of an HSO, regardless of how these are measured, are impacted both by revenues and by costs or efficiency, [12] so both must be considered in assessing measures related to them. NPs typically have lower daily adjusted costs than FPs for Medicare psychiatric patients. [13] Per capita Medicare spending rates and increases in rates were also found to be greater in areas predominately served by FPs compared to those served mainly by NPs.[14] All cost categories were higher for FP than for NP hospitals even adjusted for taxes [12] and administration costs were found to be higher and to have increased more at FP hospitals.[15] Ettner and Hermann [13] found NP patients had longer stays per admission suggesting less efficient operations, but Shukla and Clement [12] found

longer lengths of stay in FPs and higher occupancy rates. FPs have fewer nurses per patient. [16] King and Avery[17] found that when converting from one form to another, FPs reduced the staff-to-patient ratios following acquisition of an NP hospital, reduced money-losing clinical programs, eliminated research and educational programs, and decreased community health and welfare programs. Although Mark [18] found very little difference in general, whether FP hospitals converted to NPs, or NPs converted to FPs, NPs tended to increase nurse-to-patient and administrator-to-patient ratios after acquisition of an FP hospital. Mobley and Magnussen[19] calculated both long-run and short-run efficiency— defined as an increase in one output requiring a decrease in another output or an increase in at least one input—for hospitals in California and in Norway. In the long run, they found that "the FP hospitals have a significantly lower level of groupwise efficiency than both the Norwegian and the urban California non-profit hospitals (p. 1095)," and the most efficient of all groups is the California urban NP hospital group.

REVENUE DIFFERENCES

Medicare payments were higher for patients admitted to FP hospitals than for those admitted to other hospitals. [20] Generally, FPs' prices were found to be about 10 percent higher than NPs for a given diagnosis [21] and in Virginia, FP hospitals charged 25 percent more for outpatient services and 29 percent more for inpatient services. [12] Thus, although many different measures have been used, across a wide range of studies, many studies corroborate the Shukla and Clement finding [12] that FPs may have greater profits, but they also have higher costs. In the Rosenau and Linder research reviewed[11] only 23 percent of the studies found superior cost or efficiency among FPs compared with NPs.

QUALITY OF CARE DIFFERENCES

Analyzing the Health Plan Employer Data and Information Set (HEDIS), Himmelstein et al.[22] found that FP HMOs had lower quality of health care scores on all 14 items measured, including routine preventive services. Medicare recipients rated FP health plans lower on overall quality of care, customer service, and access to care. [23] Although FPs were as likely as NPs to collect quality information, FPs were less likely to feed this information back to providers, and NPs were more likely to implement quality improvements.[24] Analyzing almost all nursing homes in the United States on deficiency citations issued by inspectors, Harrington et al., [16] found that FPs provide worse care, have fewer nurses per patient, and average over 40 percent more deficiencies than NPs and publicly administered homes. The finding that among U.S. FP hospitals, the one-year mortality rate and the rate of complication occurrence among patients treated for acute myocardial infarction was higher in FP than in NP hospitals [25] is supported by a Canadian study in which FP status resulted in an increased risk of death for patients. [26] Further, when an NP hospital changes its status to FP, adverse outcomes increase, whereas there appears to be little change when FP hospitals convert to NP status. [25] Fifty-nine percent of the studies included in a twenty-year review showed NPs to have higher quality.[11]

NO DIFFERENCES BETWEEN FP AND NP HSOs

In the face of intensifying competition, differences between FPs and NPs should decrease [27] and some health economists have shown that there were decreasing differences between FPs and NPs. [28] For example, Melnick et al.[21] found that mergers between hospitals resulted in higher costs, no matter whether the merger was between NPs and FPs or a combination. NP and FP nursing homes also look increasingly alike with respect to spending on patient care, [29] and in the short run, most of the efficiency differences disappeared too, and long-run differences may be attributable to overcapitalization among FP hospitals or to competitive differences across areas.[19] There was no evidence that NPs treat sicker patients or differ in the number of readmissions they experience relative to FPs [13] and in terms of patient survival, changes in functional status, and cognitive changes, there appear to be no significant differences between NPs and FPs. [20] Of the studies included by Rosenau and Linder comparing FPs and NPs,[11] no differences or mixed results were found in 30 percent of those studying quality and 27 percent studying cost/ efficiency.

Even those whose research has consistently found FP versus NP cost and quality differences [14–16,22,24] point out that NP hospitals are forced to adopt FP strategies in competitive markets to compete. [30] Hospitals in non-competitive markets are likely to aggressively raise prices regardless of profit status. [21] NP nursing home chains

appear to be moving from the lower-payment Medicaid market to the private-pay market where profits are higher. [29] As NPs join larger systems, their traditional community boards are superseded by corporate style boards at headquarters, which pursue different objectives than their community counterparts. This trend also adds pressure to raise prices among NPs. [21] In short, the literature has produced neither a definitive outline of profit and quality differences between FPs and NPs, nor conclusive evidence that there are no differences. (The recent literature is summarized in Table 1).

TABLE 1

Cost, Efficiency, Revenue, and Quality Comparisons of FP and NP HSOs

Study	Findings
Devereaux et al., 2002[26]	Higher mortality rates in Canadian FPs
Ettner & Hermann, 2001[13]	Lower costs, longer LOS, in NPs for Medicare psychiatric patients; no difference in acuity or readmissions
Harrington et al., 2002[16]	Fewer nurses per patient, lower quality, more deficiencies in FPs
Woolhandler & Himmelstein, 1999[22,30]	Lower quality in FPs
Holmes, 1996[29]	No difference in spending
King & Avery, 1999[17]	Reductions in staff/patient and clinical, educational, research, community programs when FP acquires NP
Landon & Epstein, 2001[24]	Less quality feedback and fewer quality improvement program in FPs
Landon et al., 2001[23]	Lower quality in FPs as rated by consumers
Mark, 1999[18]	Increase in nurse/patient ratio when NP acquires FP
Melnick et al., 1999[21]	Higher prices in FPs; higher prices after any merger
Mobley & Magnussen, 1998[19]	Lower efficiency in the long run in FPs, higher short-run efficiency in FPs
Rosenau & Linder, 2003[11]	In the majority of studies, lower costs or greater efficiency in FPs: higher quality in NPs
Shen, 2001[25]	Higher 1-year mortality and complication rate in FPs; increased adverse outcomes when FP acquires NP
Shukla & Clement, 1997[12]	Higher costs (total, labor, nonlabor, capital, tax adjusted), higher prices, longer LOS, higher occupancy rates in FPs
Silvermann et al., 1999[14]	Higher Medicare spending and greater rate increases when FPs predominate in area
Sloan, 1998[28]	Few and decreasing differences between FPs and NPs
Sloan et al., 2001[20]	Higher payments for Medicare patients in FPs; no difference in survival, functional status, cognitive change
Woolhandler & Himmelstein, 1997[15]	Administrative costs are systematically higher in FPs

METHODS

SAMPLES AND DATA

The sample of health care service providers used in the study contained fifty-seven FP and twenty NP HSOs. The organizations studied were from the same Standard Industrial Classification (SIC) codes for HSOs. Data used to score the organizations' strategic capabilities and financial performances were obtained from two sources: (a) Securities and Exchange Commission (SEC) annual filings, and (b) strategic management cases.* Information was obtained from about 81 FP organizations; among those organizations in which revenues were predominately derived from actual patient care, 57 complete sets of SEC documents allowing all variables to be scored were found. NP's information was gathered from the case literature.

MEASURES AND SCORING

Three sets of measures were developed to test the quantitative and qualitative differences between FP and NP HSOs. First, a set of strategic capability measures was developed for each organization based on a framework developed by Miller and Friesen.[31] Second, quantitative and qualitative measures of each organization's position along a strategic capability continuum were calculated using IRT (specifically, Rasch analysis).

Finally, a financial performance measure designed to allow comparisons between FP and NP organizations was derived using an algorithm proposed by Cleverley.[7] Each set of measures is discussed in turn.

Strategic Capability Variables. The strategic capability items used here are based on Miller and Friesen's[31] configuration research. In the interest of parsimony and statistical power, variables that failed to differentiate successful from unsuccessful organizations in previous research were eliminated. In addition, the cues to scorers were modified to reflect the HSO context.

Previous studies identified the fifteen strategic capability variables. Individually, the strategic management variables are referred to here as capabilities. The collective measures of the capabilities are referred to as strategic capacity. Scored on a Likert scale with values ranging from one to seven, a value of one indicated that an organization lacked, or possessed very low amounts of the characteristic or capability and a seven indicated that the organization had a significant amount of the capability. Expert raters were used to score the organizations' strategic management capabilities. The capabilities are defined in Table 2.

After extensive training, several practice rounds, and reconciliation of those practice rounds, multiple raters scored each organization's documents. Each of the raters had extensive health care work experience, at least a master's degree in a health-related discipline (M.H.A., M.B.A., or M.P.H.), a Ph.D., or was working toward a doctorate. On 99.4 percent of those organizations' scores, evaluations varied by less than 2 between raters. Given this high level of agreement, scores were recorded as the average of the raters' scores.

Performance Measure. HSO performance has been variously measured in FP ersus NP studies,[11] but a single financial measure is not appropriate in determining whether all HSOs can maintain financial viability. HSOs often vary considerably as to profit status, industry sector requirements, or balance sheet structure. For example, a hospital's balance sheet will include a very large fixed asset component compared to a home health agency. Using Cleverley's algorithm,[7] the performance measure for this study was a composite of financial measures, which included growth in equity or net profit, liquidity or flexibility measures, and efficiency measures. (Equity refers to fund balance for NP HSOs.) Measures in each piece of the composite could fall into one of four quartiles, representing HSOs with financial performance in the top 25 percent of HSOs (a score of 4), HSOs with financial performance from average to 25 percent above average (a score of 3), HSOs with financial performance from average to 25 percent below average (a score of 2), and HSOs with financial performance in the bottom 25 percent (a score of 1).

First, without net income, equity growth is impossible, an NP HSO cannot meet its mission, and a FP HSO cannot generate a return to its shareholders. Thus, if net income was less than zero, the HSO was scored 1 on equity growth. If net income was above zero, then the total margin, return on assets, and return on equity were computed for the organization, each of these was compared with other organizations in the same sector, assigned a score, and the scores were averaged.

Secondly, being able to access funds when needed is an important performance indicator for any organization. This, in turn depends upon financial flexibility.[7] An organization with a high bond rating has easier access to funds than one with a lower rating, so for HSOs with assigned bond rating, flexibility scores were assigned based on Cleverley's assessment of bond ratings, with the highest rating receiving a score of 4 and the lowest a score of 1. If an organization had no bond rating, flexibility was calculated as the average score of equity/asset and long-term debt/equity ratios, compared with others in its sector.

Third, financial efficiency was measured as the average of current financial flexibility, fixed asset turnover, current asset turnover, and total asset turnover computed for each organization and compared to others in its sector to determine its score. These three financial measures— equity growth, financial flexibility, and financial efficiency— served as the three independent variables for the regression analyses.

IRT, ANALYSES OF STRATEGIC CAPABILITIES, AND CREATING STRATEGIC CAPACITY MEASURES

There are two basic premises underlying IRT (Rasch analysis is the specific technique employed). The first is that it probabilistically tests the fit of the model to the sample rather than the sample to the model, as is the norm in most inferential statistics. The need for such an approach was identified in educational settings. For example, the applicability of different assessment tools, such as the Scholastic Aptitude Test (SAT), was unclear across student populations that differed culturally or racially.[32] IRT answers the question: Can a single instrument be meaningfully applied to samples that differ in substantively different ways? The second premise underlying IRT is that multiple-item instruments designed to measure an overall capacity should have a scalar or hierarchical pattern ranging from "less difficult" to "more difficult" along a single continuum. [33] Like measures on Guttman scales, firms possessing a higher-order capability will also exhibit a capacity for all the capabilities of a lower order.

From these two premises, four applications of the Rasch procedure are: (1) to compare different samples of subjects to see if they can meaningfully use the same instruments, (2) to identify and array a scale's items into a single hierarchical continuum, (3) to quantitatively measure each subjects' ability attainment on the scale, and (4) and to measure qualitative differences in individual's responses to the scale's structure. [34] The first two applications allows for a testable hypothesis:

Null Hypothesis 1: FP and NP HSOs can be accurately assessed using a commonly calibrated strategic capacity instrument.

Alternative Hypothesis 1: FP and NP cannot be accurately assessed using a commonly calibrated strategic capacity instrument.

The comparative evidence on FP versus NP efficiency is mixed.[6,12] Nevertheless, there is some strong longitudinal evidence that FPs are operated more efficiently than NPs and this differential impacts financial performance.[35] Specifically, FP's strategic capacity may be more closely related to financial performance. Thus, a second set of IRT analyses was conducted anchoring the scale to the FP portion of the sample. The composite strategic capacity profile and the FP anchored profiles were compared. Provided that the IRT analyses support the hypothesis that the two types of HSOs can be conjointly examined, the resultant measures of quantitative capacity and qualitative "fit" could be regressed on the financial measures.

Interpreting IRT Measures. The measures of quantitative achievement and qualitative fit and how they differ are illustrated using a set of fabricated responses depicted in Table 3. For ease of explanation, each item is a binary assessment of capability (seven-point Likert scales were used in the actual analysis). Calculation of the quantitative measure is relatively straightforward. Because the items are meaningfully ordered, an individual organization's overall strategic capacity is measured using the highest capability that the organization has mastered. Taken alone, this measure is problematic because it does not fully account for any strategic capabilities an organization may have not mastered that should be in its profile. In other words, because IRT creates hierarchical scales, organizations with a higher-order capacity are expected to have all of the lower- order capabilities preceding the highest measured capability in order to properly fit the model. In the example provided in Table 3, both organizations 2 and 3 meet the hierarchical completeness criterion—all the lower-order capabilities that precede the highest-order capability achieved are present (i.e., A, B, C, and D) and checked. These organizations are qualitatively close to the norm and would have an individual infit score near one. Alternatively, organization number one, which possess abilities A through C, E and G but lacks abilities D and F, would have an infit score that varied significantly from 1 and that indicates a poor qualitative fit to the model, despite what might be a rather high overall capacity score. Therefore, both the quantitative measures of overall strategic capacity and the qualitative measure of strategic "fit" must to be considered parts of the model in any further analysis conducted, such as regression.

TABLE 2

Strategic Capability Variable Names, Definitions, and Weights[a]

Variable Name and FP/NP Combined Anchoring Order	Definition	FP/NP Combined Anchoring Measure	FP Anchoring Order/Measure
1. Centralization of strategy-making power	The distribution of power to make long-term, strategic decisions Is power is distributed throughout the firm and decentralized or centralized in top management?	2.32	1/3.43
2. Technocratization	The percent of staff with professional qualifications	0.82	2/1.14
3. Strategic reappraisal	The degree to which the organization rethinks its strategies and the way in which it will attain its strategies	0.66	3/0.7
4. Communication	The ease and fidelity with which information flows throughout the health service company	0.07	4/0.23
5. Differentiation	The degree of differences in goals, administration, behavior, operations, management style between units or departments in the organization	0.07	5/0.21
6. Risk taking	The degree to which top managers are risk averse or willing to make changes based on intuitive assumptions or where failure is a distinct probability	−0.01	**8**/−0.27
7. Innovation	The amount of innovation used in terms of number and novelty of new services/ products	−0.13	6/−0.10
8. Integration of decisions	The degree to which actions in one unit of the organization complement or support those in other units	−0.14	7/−0.17
9. Multiplexity of decision-making	The range of factors considered by top managers when making strategic decisions	−0.21	**10**/−0.31
10. Delegation of operating authority	The amount of authority for day-to-day operational decisions transferred from top managers to mid- or lower-level managers	−0.29	9/−0.31
11. Controls	The number and scope of systems to measure performance trends or budgeting or accounting systems, management by objective systems, or quality control/ improvement systems	−0.31	**12**/−0.65
12. Scanning	The amount of tracking and the number of firm members scanning the environment in terms of consumer issues and administrative developments	−0.41	11/−0.60
13. Futurity	The time frame used by the firm in strategic planning	−0.64	13/−0.90
14. Adaptive behavior	The responsiveness of the organization to external environmental conditions and the appropriateness of those responses	−0.76	14/−1.05
15. Conscious analysis	The amount of time and thought devoted to real or perceived problems and ways to deal rationally with the problems	−1.04	15/−1.33

[a]Item orderings that differed between the FP anchored analysis and the combined analysis are highlighted.

REGRESSION ANALYSES OF STRATEGIC CAPACITY AND FINANCIAL PERFORMANCE

A series of three linear regressions was performed to test the utility of the model on each of the financial measures—equity growth, financial flexibility, and financial efficiency. A second set of three regression analyses was conducted on the FP anchored model to see whether its resultant measures provided greater explanatory

power of financial performance. For the former set of analyses, a dummy variable for FP versus NP status was included, but the dummy variable was excluded from the latter. The general and specific hypotheses related to the combined strategic capacity models were:

Hypothesis 2: The combined sample model using quantitative (strategic capacity) and qualitative (strategic fit) measures will be significantly related to financial outcome variables controlling for profit status.

Hypothesis 3: The individual variables' coefficients measuring strategic capacity and strategic fit will be significant.

TABLE 3

Sample Data Matrix Depicting Capacity and "Fit" Explanation

	Items								
Organizations	A	B	C	D	E	F	G	H	Strategic Capacity
1. High capacity and poor fit	✓	✓	✓	X	✓	X	✓	✓	8
2. Low capacity and good fit	✓	✓	✓	X	X	X	X	X	4
3. Average capacity and good fit	✓	✓	✓	✓	✓	X	X	X	5

Hypothesis 4: The coefficient on the dichotomous control variable FP/NP will not be significant or add significantly to the overall explanatory power of any of the three models.

For the model developed using the FP anchored strategic capacity profile, the following hypotheses were made:

Hypothesis 5: The model anchored to the FP HSOs strategic capacity profile will be significantly related to financial outcome variables controlling for profit status.

Hypothesis 6: In the model anchored to FP HSOs strategic capacity profile, the individual variables' coefficients measuring strategic capacity and strategic fit will be significant.

RESULTS

The interrater reliability of the initial scoring for the strategic capacity instrument was found (using all of the data) to be .74 (Cronbach's alpha). This study's reliability score exceeds the needs of the research design, which is confirmatory in nature. [36] This level of scale reliability, in turn, indicates that the IRT analysis protocols can be applied effectively.

IRT ANALYSIS OF THE STRATEGIC CAPACITY SCALES

IRT estimates both the items' measures in a latent trait scale and the hierarchy of respondents (organizations) with regard to the latent trait, here strategic capacity, using standardized measures called logits. Measure estimates describe the relative difficulty of items: the difficulty of an item is that point on the logit scale where an organization would be predicted to have a 50 percent chance of attaining the capability item. The complete sample model performed very well with an organizational infit mean square of 0.98 (z-score —.3) and item mean fit score of .098 (z-score —.4). An ideal fit would have a mean score of 1 and a z-score of zero.[37]

Table 2 gives each item's weight derived using the complete sample in the third column and its derived weight from the FP anchored analyses in the fourth column. The IRT analysis conducted using only the FP portion of the sample yielded results comparable to the complete sample model in terms of general fit. Further, the lack of significant differences between the FP anchored model and the combined model provide strong evidence that FP and NP firms share a common latent strategic capacity construct.

There are three strategic capability variables for which ordering differed slightly in the combined model compared to the FP anchored model. Risk taking, multiplexity of decision-making, and control were all of a higher order for the combined group than for the FP group. In other words, differences between the pair of IRT analyses indicated that for NP HSOs those three strategic capabilities were of a higher order than they were for their FP counterparts—or vice versa. Regardless, in aggregate the two scales, combined or anchored, seem to indicate that the two types of HSOs can be meaningfully considered together even though some NP's capabilities were in a slightly different hierarchy. Thus, the next overarching question can be addressed: Do the differences in overall strategic capacity and in strategic fit correlate with financial performance?

REGRESSION ANALYSIS OF STRATEGIC CAPACITIES AND THEIR "FIT" ON FINANCIAL VARIABLES

The linear regression results for the models considered are presented in Tables 4 and 5. Results varied with several hypotheses being supported and a few failing to be confirmed. The combined analyses findings are given first, followed by the FP anchored model's results.

Combined IRT Analysis Regressions. The first of three standard linear regressions included strategic capacity, strategic fit, and a dichotomous FP versus NP item as independent variables. All three models' measures of explained variances (R) were significantly different from zero (see Table 4). Overall, the model using financial efficiency as the dependent variable had the highest adjusted R^2. The three models' independent variables performed differently based on the dependent financial measures.

TABLE 4

Results of Regression Analyses for Combined IRT Models

	Financial Measures (Independent Variables)		
Variables	Model 1: Equity Growth	Model 2: Financial Flexibility	Model 3: Financial Efficiency
Strategic capacity measure	.066	.187	.127
Strategic fit measure	−.123	−.136*	−.129*
FP/NP control measure	.688*	−.200	.244
Intercept	2.135**	2.534**	2.335***
F	3.002*	2.235***	3.158*
R^2	.110	.084	.115
Adjusted R^2	.073	.046	.078

*$p < .05$.

**$p < .001$.

***$p < .10$.

TABLE 5

Results of Regression Analyses for FP Anchored IRT Models[a]

Variables	Financial Measures (Independent Variables)		
	Model 1: Equity Growth	Model 2: Financial Flexibility	Model 3: Financial Efficiency
Strategic capacity measure	.107	.128	.117
Strategic fit measure	−.422*	−.127	−.275*
Intercept	3.175***	.229***	2.873***
F	3.208*	1.574	3.769*
R^2	.080	.041	.092
Adjusted R^2	.055	.015	.068

[a]FP/NP control variable is omitted from these analyses because of the use of an anchored metric.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Overall, strategic capacity's regression coefficient was not significantly correlated with any of the financial measures, but the strategic fit variable was significantly and negatively correlated with the financial measures of financial flexibility and financial efficiency. The dummy variable differentiating FP and NP HSOs was significant in the equity growth model. In none of the models was more than one variable significant at the customary levels of reporting. Therefore, with respect to Hypotheses 2–4, (1) Hypothesis 2 is generally supported in that all the models are significant, (2) Hypothesis 3 is partially supported for the strategic fit variable and rejected with respect to strategic capacity variable, and (3) Hypothesis 4 is partially rejected because the FP versus NP dichotomy is correlated with equity growth.

FP Anchored IRT Analysis Regressions. The next three regressions, without the dummy variable, again used the financial measures as the dependent variables.

Two of the three models' measures of explained variances (R) were significantly different from zero (see Table 5), with the exception being the model using financial flexibility as the dependent variable. Overall, the model using financial efficiency as the dependent variable had the highest adjusted R^2—like the results in the previous series. Depending on the dependent financial measures used, the three models' independent variables performed differently.

Again, the measure of strategic capacity's regression coefficient was not significantly correlated with any of the financial measures. The strategic fit variable was significantly and negatively correlated with the financial measures of equity growth and financial efficiency. No dummy variable was used in this series because the anchoring should parse that variation into the other variables of interest. Nevertheless, as a test the regressions were run using the FP/NP dummy variable and every model's adjusted R^2 declined in value. In none of the models was more than one variable significant at the customary levels of reporting. Therefore, with respect to Hypotheses 5 and 6, (1) Hypothesis 5 was partially supported in that the models using equity growth and financial efficiency were significant, and (2) Hypothesis 6 is partially supported for the strategic fit variable and rejected with respect to strategic capacity variable. The strategic fit variable was significant and negative in the two significant equations.

Comparing the two sets of analyses, the model that seemed to hold the greatest promise for explaining differences in financial performance between FP and NP firms would use financial efficiency as the dependent variable and either the combined or anchored measure of strategic fit. The implications of these results are discussed in the next section.

DISCUSSION

These results indicate that FP and NP HSOs share a common strategic capacity profile. In other words, the pattern in which HSOs attain specific strategic capabilities and the degree of sophistication necessary to master those capabilities is similar across the two types of firms. Analyses of the IRT scale's two dimensions—strategic capacity and strategic fit—demonstrate that fit is significantly correlated with financial measures of success while the measure of capacity attainment is not. These results extend the research on environmental-strategic fit and suggest that fitting the strategic capacity profile is important, independent of the environment interaction, to achieving financial success. The overall capacity measure may play an important role in the environmental fit story, but that relationship was not tested here.

The differences between the two HSO types used to develop the IRT procedure provide valuable information about the effectiveness of Rasch analysis in creating profiles. Three strategic capabilities increased in difficulty of attainment on the complete sample scale compared to the FP anchored scale. Risk taking, multiplexity of decision-making, and strategic control capabilities all appeared to be more difficult to master when the NP organizations were included in the baseline analysis. Alternatively, FPs find it easier to master those three strategic capabilities than their NP counterparts. This alternative is consistent with the economic and management literature that suggests FPs will be more administratively sophisticated and more profit oriented than their NP counterparts. It also provides face validity to the strategic capability ordering differences found using the Rasch techniques.

While the two forms of scale anchoring may be effective in measuring organizations' strategic capacity and strategic fit, the two analyses sets did not yield results that can be tested in a set of nested regressions. It is thus not possible to definitively say which approach is superior in discriminating HSOs on financial measures. The composite scale (determined using the full sample) yielded models with systematically higher adjusted R2 estimates. On the other hand, the FP anchored scale yielded larger coefficients on the variables of interest in two of the models. Much like the profile patterns themselves, there is a high degree of face validity in the FP compared to the complete sample model differences. Specifically, the FP anchored model produced a significant and negative strategic fit coefficient when regressed on the measure of profitability. Such a pattern is consistent with other comparative literature that found FPs are consistently more profitable. However, it is difficult to conclude that one profile is superior to the other at this juncture.

AREAS OF FUTURE RESEARCH

Follow-up studies can expand on and improve these preliminary results in several ways. First, they should increase the sample size. Having a significantly larger number of NP health care organizations, and pairing them with comparable firms in their respective markets, would be particularly useful. In addition, gathering longitudinal data on such a sample could shed light on issues of long-term financial efficiency and organizational survival and transformation. Second, studying how strategic profiles are related to nonfinancial outcomes would be a valuable addition to the FP versus NP literature. Such a study could answer lingering questions about what management abilities directly impact the effectiveness of care different ownership structures seem to generate.

These types of broadened research designs could also help to rectify the limitations of this study. The primary limitations of this study are the lack of a continuous dependent variable and its small sample size. Having a refined financial viability measure, one more sensitive than the quartile system used herein, would also improve the reliability of regression results. Finally, a larger sample would also help to detect smaller effect sizes that quantitative differences in strategic capabilities may have and increase the power of the regression models.

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