



Governance, performance objectives and organizational form: evidence from hospitals

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Abstract

In a sample of California hospitals, we find that the composition of the board of directors varies systematically across ownership types. For all ownership types, except government-owned, we find that poor financial performance is related to board and CEO turnover. However, different ownership types place different weights on levels of charity care and administrative expenses. Our overall findings support the proposition that ownership type reflects heterogeneity across consumers and producers, and that differences in these groups lead to differences in the organization's objectives and governance.

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1. Introduction

Nonprofit organizations pose a dilemma for traditional economic analysis. Traditional analysis of for-profit corporations generally assumes that they choose actions that max-

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imize the present value of their profits; indeed, this assumption is so common that it rarely warrants mention in the first place. In the case of a for-profit firm, the purpose of corporate governance is clear: the governance structure manages the process of maximizing this objective function through incentives and monitoring of the top management.

However, in a nonprofit organization, it is not at all apparent what the managers are supposed to maximize. The literature has expressed differing views. [Alchian and Demsetz \(1972\)](#) argue that nonprofit organizations will tend to exist in places where more shirking is ‘desired,’ while [Fama and Jensen \(1983a,b\)](#) emphasize that donors’ utility is often an important consideration in nonprofits’ decisions. Both of these arguments are special cases of the general proposition that nonprofits maximize some function other than the present value of profits. The identity of this function is not obvious, nor is it obvious how this objective function is chosen inside an organization. We argue here that choosing this objective function is an important responsibility of the governance structure of nonprofit organizations, at least as important as managing the process of maximizing this objective function once it is chosen.

This paper considers a sample of acute-patient-care hospitals in California to examine the hypothesis that different types of organizations, which we conjecture have different objectives from one another, exhibit differences in governance. By focusing on a single industry in a restricted geographic area, we can isolate differences in governance due to likely differences in objectives. Moreover, the hospital industry is a good setting for this study since there are identifiable differences in ownership types. Some hospitals are for-profit firms owned by shareholders, while others are nonprofit and are managed by various different groups such as religious organizations, groups of physicians, governments and municipalities.¹

We begin our analysis by exploring differences in board composition. It has been documented that the makeup, size and other aspects of the board affect governance.² If different types of hospitals have systematically different objectives as well as different internal and external constituencies, then we expect to observe systematic differences across ownership types in the features of their boards. When we examine the features of boards across hospitals in our sample, we find that boards vary significantly across hospital ownership types.

Because all hospitals rely on physicians to admit and treat patients, we expect hospitals, of all types, to make themselves attractive to physicians. To attract physicians, hospitals must invest in current technology and provide adequate “workshop” facilities. Unlike boards of for-profit firms, nonprofit hospital boards should have other objectives that they value in addition to profit, and these objectives are likely to vary by hospital type. For example, teaching hospitals are committed to providing health care for the poor, and

¹ Much of the existing work on hospitals compares nonprofit hospitals with for-profit hospitals. For example, [Lindsay \(1976\)](#) finds that Veterans’ Administration hospitals tend to have lower costs, but also lower quality than private hospitals. [Deneffe and Masson \(2002\)](#) analyze pricing practices and provide empirical evidence that nonprofit hospitals consider both profits and output as objectives. In contrast, [Brickley and Van Horn \(2002\)](#) find that the relation between CEO turnover and hospital performance, measured as return on assets, is statistically indistinguishable from that for a sample of for-profit hospitals and that the relation between CEO pay and hospital performance is similar to previous estimates from a sample of publicly traded firms.

² See [Hermalin and Weisbach \(2002\)](#) for a survey of such studies.

therefore provide large amounts of uncompensated care.³ In contrast, nonprofit hospitals organized by physician groups may limit charity care and emphasize profitability.

We analyze factors that lead to turnover in directors because such turnover is likely to occur when performance is substandard, and substandard performance is, by definition, a function of the factors valued by the organization. We find that board turnover is negatively related to financial performance for all hospital ownership, and significantly so for for-profit and district hospitals. Particularly with respect to for-profit hospitals, the strong relation between board turnover and financial performance is consistent with profitability being the primary objective. We find that high levels of uncompensated care decrease the probability of board turnover in government and teaching hospitals. This finding is consistent with a view that, for these hospitals, providing uncompensated care is a more pressing objective and, hence, manifests itself more in governance.

Finally, if hospital boards differ in meaningful ways, we expect the actions of hospital boards to vary across the different organizational types. To examine this hypothesis, we focus on the decision to replace a CEO, a decision that is generally considered one of the most important board functions. We estimate CEO turnover equations and examine the sensitivity of turnover to a number of variables, as well as how these sensitivities differ across hospital types. As in board turnover, financial performance is an important determinant of CEO turnover. Financial performance affects CEO turnover in all types of hospitals except government hospitals. However, different ownership types appear to value uncompensated care and administrative costs differently. In for-profit, district and teaching hospitals, high administrative costs are consistently related to CEO turnover, while uncompensated care is related to CEO turnover in teaching and government hospitals.

The next section explores potential differences in hospital objectives across ownership types and develops our empirical analyses. Section 3 describes our sample of California hospitals and presents summary statistics for this sample. Section 4 presents estimates of equations predicting both board and CEO turnover and examines their implications. Section 5 is a brief conclusion.

2. Ownership type and hospital objectives

We hypothesize that differences across ownership types will be associated with differences in board objectives. We use the nature of the relationship between the board and the CEO in our sample of hospitals to explore these potential differences in objectives. Both the determinants and actions of the board are likely to differ across organizational forms because of these differing objectives, as well as other reasons, such as differences in sources of funds. We first consider incremental changes to the board and the extent to which they are influenced by various factors. Secondly, we examine a critical action boards take, the decision to replace the CEO and the extent to which this decision differs

³ See Commonwealth Fund Report (2001), pp. 1–2, for discussion of the attitudes of academic physicians toward charity care cases.

across hospital types. The goal of each approach is to reveal differences in objectives among different ownership types.

Our data contain three variables that are likely to be related to a hospital's objective function: excess income margin, administrative expenses and uncompensated care. Excess income margin is defined as a ratio of gross operating and nonoperating income to gross revenue.⁴ Administrative expenses are the direct expenses associated with the overall management and administration of the institution and are defined here as total administrative expenses relative to total expenses. Finally, uncompensated care is equal to the sum of bad debt and charity care and is scaled by gross revenue.⁵ Since excess income margin already accounts for administrative expenses and uncompensated care, the latter two variables capture any *additional* weight that the hospital places on these two measures. All of the performance variables are scaled to control for the size of the hospital as well as to adjust for the time between reports, which varies across the hospitals in the sample.

A hospital's objective is likely to be a function of a number of different factors. Some of these factors are important in all hospitals. For example, all hospitals care about economic viability and the quality of patient care. Across ownership types, hospitals consist of two separate entities: the hospital administration manages employees and resources within the organization, and the medical staff (the Medical Director and physician department heads) manages the physicians. The medical staff has no explicit contractual relationship with the hospital, but an implicit contract in which the hospital guarantees physicians a "workshop" for patient treatment (Harris, 1977). Doctors in a specific hospital privilege other doctors through a credentialing process so that they can admit patients and practice in that hospital. These hospitals rely on patient admissions and, therefore, need to attract and retain physicians and their patients. Accordingly, all hospitals that depend primarily on patient fees (all ownership types except government) are concerned about profit margins because those funds can be used for current technology and other improvements. Therefore, we predict that excess income margin will be positively related to board and CEO turnover for all hospitals, except government hospitals.

Beyond profits, hospital objectives are likely to vary by hospital type. We follow the American Hospital Association classification system and identify hospital types as religious, other nonprofit, for-profit, government and district. We include a teaching hospital classification because the objectives of academic physicians are more consistent with each other than they are with the objectives of nonacademic physicians. While we expect all of these hospitals (except government) to be concerned about profitability, the emphasis on other objectives, such as cost control and charity care, is likely to differ among the types.

⁴ There are a number of accounting-based performance measures we potentially could have used. We focus on excess income margin rather than operating income since it captures all sources of income, including that from the pharmacy, gift shops, home health services, hotel services for outpatients or families, investments, etc. For the purposes of performance evaluation, all sources of income are relevant, so we use a measure that captures all of them.

⁵ Note that in situations where charity care is missing, the hospital likely did not differentiate between charity care and bad debt and reported them together as bad debt.

We summarize the differences in characteristics among ownership types in [Panel A of Table 1](#). For some organizations, consumer influence on governance potentially affects board composition and size. For example, church-owned hospitals were originally organized to care for church members so that important tenets of their faith could be observed ([Starr, 1982, pp. 174–176](#)). Because board composition must include some clergy as well as lay members, board size in church hospitals tends to be relatively large. The ‘Other Nonprofit Hospital’ category includes hospitals organized by community members or by physicians. The boards of these hospitals reflect these important constituencies. Community hospital boards include prominent community members, while physician-owned hospital boards include more physicians. In teaching hospitals, the academic physicians who produce services have a large influence on governance and operations. Teaching hospital boards often include members of the university’s board of regents, or their representatives, and therefore tend to be relatively larger.

Since 1965, when Medicare began paying for the treatment of elderly patients, all hospitals have relied heavily on patient fees for funds. In addition, funds from donations are important to church- and community-owned hospitals and teaching hospitals. Consequently, donors influence governance, and large donors are likely to be included as board members. District hospitals are established by municipalities in underserved areas, and a portion of operations are subsidized by taxes. Accordingly, taxpayers elect these boards of directors, and board size is limited by state regulation. Taxpayers provide government hospitals with substantial support, but board members are appointed by local officials and often include community activists or political allies. Because teaching hospitals provide large amounts of charity care and require extra resources to train doctors, these hospitals receive grants and subsidies from governments, foundations and their associated universities.

[Panel B of Table 1](#) presents predictions about the factors valued by important constituencies in each type of hospital. These factors are likely to affect CEO and board turnover. Important constituencies within all hospitals want these organizations to survive and, consequently, value financial performance. The exception are government hospitals, whose financial survival is assured because of tax subsidization. Church-run hospitals are likely to be relatively patient-centered operations because of the influence of church-member consumers and donors. The ability of church hospitals to provide charity care will depend on the hospital’s financial status and will be done only to the extent that funds are available.

The ‘other nonprofit’ category includes two different hospital types, one influenced by consumers (the community) and the other by producers (the physicians), which makes it difficult to predict the category’s objectives concerning charity care and cost containment. Community hospitals are likely to value charity care when hospitals are performing well financially, while physicians are likely to prefer to invest in technology rather than charity care. Academic physicians, however, view charity care cases as opportunities to teach and research and therefore prefer high levels of charity-care patients, especially because subsidies and grants help defray the costs of these patients.

The owners of for-profit hospitals and district hospitals’ taxpayers are directly affected by the bottom line. These constituencies will, therefore, encourage hospital management to

Table 1
Hospital types and expected influences on the Board of Directors

(A) Important constituencies, sources of funds, board composition and board size by type of hospital

Organizational form	Important constituencies	Sources of funds	Board composition	Board size
Church	church members	patient fees and donations	includes clergy and lay members from the church	large (over 10 members) because they include a portion of church members
Other nonprofit physician-owned or community-owned	physicians/community members	patient fees and donations	includes physicians and prominent community members	large (over 10 members) because they include community members and heavier physician representation
For profit	shareholders	patient fees	business people and physicians	similar to other for-profit corporations (under 10)
Government	physicians and indigent patients; some academic physicians	substantial tax support and patient fees	appointed by government officials, often community activists or political allies	depends on the type of hospital and government entity responsible for operations
District	rural community members	patient fees, donations and limited tax support	board members publicly elected	restricted by state regulation to 5–7 members
Teaching	physicians in training and academic physicians	patient fees, donations, grants and state subsidies	high proportion of academic faculty, university regents	large (over 10 members) because of representation of academic physicians and regents

(B) Expected relation between financial performance, administrative expenses and charity care to board and CEO turnover by type of hospital

Organizational form	Financial performance	Administrative expenses	Charity care
Church	board and CEO turnover increase as performance decreases	board and CEO turnover increase as administrative expenses increase	depends on financial performance
Other nonprofit physician-owned or community-owned	board and CEO turnover increase as performance decreases	cost shifting from for-profit clinics may reduce monitoring of administrative expenses in physician-owned hospitals	depends on financial performance
For profit	board and CEO turnover increase as performance decreases	board and CEO turnover increase as administrative expenses increase	prefer profits over charity care—turnover increases as charity care increases
Government	mission is to provide free care, so poor financial performance may be acceptable—no relation between turnover and performance	under a budgeting system—may be no relation between turnover and administrative expense	mission to provide charity care—turnover increases as charity care decreases
District	board and CEO turnover increase as performance decreases	board and CEO turnover increase as administrative expenses increase	state mandate to find funds for indigent patients—turnover increases as charity care increases
Teaching	board and CEO turnover increase as performance decreases	board and CEO turnover increase as administrative expenses increase	charity care cases are complex and valued for teaching mission—turnover increases as charity care decreases

take actions that increase profitability. The implication of this preference for our data is that we expect both for-profit and district hospitals to have objective functions emphasizing high overall financial performance, low administrative expenses and low charity-care levels.

3. Sample construction and descriptive statistics

We use the American Hospital Association ownership types including for-profit, religious nonprofit, other nonprofit, hospital district and other government. Since 1976, California has required hospitals that treat Medicaid patients to submit annual hospital cost accounting reports. These data include detailed cost information and annual financial statement data for all California hospitals, except federal and HMO-owned hospitals (the Kaiser Permanente system). Included in the data are names of the CEO and the governing board members, as well as the occupations of the latter. Our sample hospitals are acute-care hospitals; we exclude long-term care facilities and providers of specialized services, such as substance abuse and mental health centers, because they provide a very different set of services.⁶ These data are available publicly through the Office of Statewide Health Planning and Development (OSHPD).

OSHPD began collecting governance data in 1980, and we use data through 1996. Table 2 presents the sample by hospital type. This sample consists of an unbalanced panel of 486 hospitals with a total of 6434 hospital-years and over 83,000 director-years. Religious hospitals contribute 581 hospital-years, other nonprofits 1873, for-profits 1959, government (city and county) 291, district hospitals 806 and teaching (of any ownership type) 926.⁷ We consider teaching hospitals a separate category because all teaching hospitals, regardless of their organization type, have similar stakeholders with similar missions.⁸ These hospitals benefitted substantially from Medicare reimbursement policies that subsidized medical education based on a formula that included the ratio of residents to beds. Additionally, several studies suggest that hospitals with residents are associated with higher levels of charity care (Young, 1996/97; Buczko, 1994). Table 2 also contains data on ownership and organizational changes. For-profit hospitals undergo the most changes, with 96 ownership changes and 29 going out of business during our sample period.

Table 3 contains summary statistics (by type of hospital) of variables used in our analysis. Observe that CEO turnover rates are substantially higher for government and for-

⁶ Other excluded hospitals specialize in only one type of treatment such as physical rehabilitation or eye disorders.

⁷ Ten hospitals (all members of one system) were characterized by an unusually large number of ownership changes, and were deleted.

⁸ The American Hospital Association annual survey information was used to identify teaching hospitals. These hospitals are approved by the Accreditation Council for Graduate Medical Education, are affiliated with medical schools as reported to the American Medical Association, or are members of the Council of Teaching Hospitals. Hospitals identified as teaching are frequently associated with two or three of these organizations. There are 63 such teaching hospitals in our sample.

Table 2
Organizational changes and system across hospital types

Variable	All types	Religious	Nonprofit	Profit	Government	District	Teaching
Number of hospital-years	6434	581	1873	1959	291	806	926
Number of ownership changes	157	9	35	96	4	6	7
Number of hospitals that switch to this type from another	59	8	27	19	2	3	0
Number of hospitals that switch from this type to another	59	2	23	18	8	8	0
Number of late entries	19	2	8	6	0	2	1
Number going out of business	62	6	17	29	6	4	0
Number exiting the panel through merger	16	3	4	7	0	0	2
Number exiting to long-term nursing care facilities	31	3	6	18	1	3	0
Number of hospital-years with system affiliation	3047	462	563	1357	101	109	455

This table provides statistics on organizational changes across hospitals. Our sample consists of 486 California acute-care hospitals between 1980 and 1996.

profit hospitals than for other types, *ceteris paribus*.⁹ Excess income margins are substantially lower in government hospitals than in other hospitals, which is not surprising given that government hospitals provide by far the most uncompensated care. For-profit hospitals have higher administrative expenses than other types, possibly reflecting higher salaries including bonuses for upper management. Consistent with past studies [[Government Accounting Office \(GAO\), 1990](#), for example], the level of charity care is relatively small for all hospital types, except government and teaching hospitals, which provide much higher levels of charity care. Overall, it appears that there are substantial differences across organizational forms in terms of their activities and governance.

The OSHPD data includes a brief description of each director's primary occupation. We group these occupations into a number of categories. We classify CEOs and hospital administrative personnel as insiders.¹⁰ Outsiders include business people, educators, community members, homemakers and "others." While these two categories are a sufficient

⁹ OSHPD data may include interim CEOs if these interim executives happened to hold office at the time the report was done. The presence of interim CEOs poses a potential problem with overestimating the importance of financial performance to turnover—these interim administrators follow a loss of a chief executive who contributed to poor performance. However, the majority of interim CEOs with short tenures will be omitted from the data purely by chance (e.g., on average, our data captures only 1/4 of interim CEOs with 3-month tenures).

¹⁰ One small private hospital had all board members share the same Vietnamese last name. We have assumed these board members to be insiders.

Table 3
 Statistics on CEO turnover and performance variables

Variable	All types	Religious	Nonprofit	Profit	Government	District	Teaching
Number of complete observations ^a	6163	551	1794	1847	267	789	901
CEO turnover	0.254 (0.435) <i>0</i>	0.172 (0.378) <i>0</i>	0.203 (0.404) <i>0</i>	0.346 (0.477) <i>0</i>	0.360 (0.481) <i>0</i>	0.245 (0.432) <i>0</i>	0.195 (0.394) <i>0</i>
Excess income margin	0.021 (0.079) <i>0.026</i>	0.021 (0.087) <i>0.032</i>	0.021 (0.069) <i>0.025</i>	0.022 (0.105) <i>0.031</i>	−0.006 (0.104) <i>0.000</i>	0.017 (0.075) <i>0.024</i>	0.033 (0.056) <i>0.029</i>
Administrative expenses	0.049 (0.031) <i>0.041</i>	0.049 (0.023) <i>0.046</i>	0.041 (0.022) <i>0.036</i>	0.068 (0.041) <i>0.063</i>	0.043 (0.026) <i>0.033</i>	0.040 (0.020) <i>0.036</i>	0.036 (0.020) <i>0.033</i>
Uncompensated care	0.046 (0.059) <i>0.030</i>	0.032 (0.015) <i>0.029</i>	0.034 (0.024) <i>0.030</i>	0.032 (0.031) <i>0.025</i>	0.132 (0.115) <i>0.092</i>	0.041 (0.028) <i>0.035</i>	0.084 (0.106) <i>0.037</i>
Bad debt	0.030 (0.025) <i>0.024</i>	0.023 (0.012) <i>0.021</i>	0.026 (0.015) <i>0.022</i>	0.025 (0.019) <i>0.020</i>	0.054 (0.041) <i>0.048</i>	0.031 (0.017) <i>0.028</i>	0.036 (0.037) <i>0.025</i>
Charity care	0.025 (0.062) <i>0.007</i>	0.009 (0.009) <i>0.007</i>	0.010 (0.013) <i>0.006</i>	0.007 (0.011) <i>0.002</i>	0.102 (0.115) <i>0.067</i>	0.009 (0.010) <i>0.006</i>	0.056 (0.010) <i>0.011</i>
Number of observations with complete charity care	3320	477	1176	356	186	357	768

This table presents the mean and median values of a number of variables across hospital types. Our sample consists of 486 California acute-care hospitals between 1980 and 1996. Mean values are not formatted, standard deviations are in parentheses and median values are in italics. CEO turnover is 1 in years when turnover occurs and 0 otherwise. Excess income margin is the ratio of gross operating and nonoperating income to gross revenue. Administrative expenses are total administrative expenses relative to total expenses. Uncompensated care is equal to the sum of bad debt and charity care and is scaled by total patient revenue. Bad debt and charity care are scaled by gross revenue.

^a Only excess income margin, administrative expenses and uncompensated care are considered in this statistic.

classification in most industrial firms (with the outsider category comprised mainly of business executives from other firms), hospitals typically have other types of directors who are neither insiders nor outsiders. Physicians and clinical directors can have different preferences than administration: for example, doctors often want more expensive equipment and are more interested in quality, while administrators tend to be more concerned with cost control. Therefore, we include separate categories for insiders and medical personnel.

A number of hospitals have missing data on governance. Eight hospitals (82 hospital-years) provide no board composition data for all years they appear in the panel. There are also 53 hospitals for which individual years of governance data are missing (a total of 139 hospital-years). Finally, there are 87 board entries with fewer than three directors reported. Since California's corporate law requires the board to have at least three members, we eliminate these observations. These data requirements leave us with a total of 5910 hospital-years as usable board observations. Note that all these missing board observations contain data on CEO turnover and are thus used when we estimate CEO turnover equations.

Table 4
Board of directors of different types of hospitals

Variable	All types	Religious	Nonprofit	Profit	Government	District	Teaching
Number of complete observations	5910	545	1757	1717	257	783	851
Board turnover	0.201 (0.234) <i>0.147</i>	0.210 (0.177) <i>0.180</i>	0.174 (0.176) <i>0.133</i>	0.256 (0.306) <i>0.167</i>	0.181 (0.268) <i>0.1</i>	0.168 (0.207) <i>0.1</i>	0.175 (0.193) <i>0.143</i>
Board size	11.15 (5.79) <i>10</i>	13.47 (4.22) <i>14</i>	13.61 (5.10) <i>13</i>	9.81 (4.65) <i>9</i>	5.91 (2.06) <i>5</i>	5.29 (1.25) <i>5</i>	14.24 (7.22) <i>15</i>
Fraction of insiders	0.101 (0.167) <i>0</i>	0.356 (0.208) <i>0.333</i>	0.055 (0.079) <i>0</i>	0.136 (0.196) <i>0.077</i>	0.023 (0.077) <i>0</i>	0.014 (0.054) <i>0</i>	0.062 (0.101) <i>0</i>
Fraction of medical personnel	0.275 (0.235) <i>0.231</i>	0.196 (0.112) <i>0.2</i>	0.259 (0.148) <i>0.25</i>	0.421 (0.302) <i>0.4</i>	0.051 (0.111) <i>0</i>	0.243 (0.220) <i>0.2</i>	0.160 (0.146) <i>0.158</i>
Fraction outsiders							
All outsiders	0.555 (0.284) <i>0.6</i>	0.396 (0.179) <i>0.4</i>	0.642 (0.191) <i>0.667</i>	0.323 (0.245) <i>0.308</i>	0.860 (0.267) <i>1</i>	0.713 (0.224) <i>0.8</i>	0.705 (0.247) <i>0.722</i>
Fraction of outside executives	0.065 (0.142) <i>0</i>	0.069 (0.122) <i>0</i>	0.052 (0.115) <i>0</i>	0.108 (0.192) <i>0</i>	0.007 (0.047) <i>0</i>	0.015 (0.062) <i>0</i>	0.069 (0.133) <i>0</i>
Fraction of other business people	0.223 (0.209) <i>0.2</i>	0.192 (0.130) <i>0.182</i>	0.297 (0.197) <i>0.278</i>	0.117 (0.165) <i>0.054</i>	0.178 (0.244) <i>0</i>	0.370 (0.229) <i>0.4</i>	0.188 (0.189) <i>0.154</i>
Fraction of nonbusiness outsiders	0.179 (0.245) <i>0.102</i>	0.065 (0.080) <i>0.053</i>	0.155 (0.144) <i>0.125</i>	0.052 (0.090) <i>0</i>	0.646 (0.378) <i>0.6</i>	0.245 (0.223) <i>0.2</i>	0.359 (0.349) <i>0.231</i>
Fraction of bankers, lawyers and financial advisors	0.086 (0.103) <i>0.059</i>	0.069 (0.070) <i>0.063</i>	0.139 (0.100) <i>0.125</i>	0.046 (0.081) <i>0</i>	0.029 (0.075) <i>0</i>	0.084 (0.120) <i>0</i>	0.089 (0.107) <i>0.056</i>
Fraction of directors with unknown occupation	0.070 (0.175) <i>0</i>	0.050 (0.103) <i>0</i>	0.043 (0.120) <i>0</i>	0.119 (0.227) <i>0</i>	0.065 (0.237) <i>0</i>	0.030 (0.091) <i>0</i>	0.073 (0.193) <i>0</i>

This table presents statistics on the board of directors of hospitals of different types. Our sample consists of 486 California acute-care hospitals between 1980 and 1996. Standard deviations are in parenthesis. Board turnover is defined as:

$$\frac{(\text{Number of new directors at } t) + (\text{Number of directors that left the board between } t \text{ and } t - 1)}{2 \times (\text{Number of board size at } t - 1)}$$

We classify CEOs and hospital administrative personnel as insiders. Nonbusiness outsiders include educators, community members, homemakers and clergy. Clergy board members in a religious hospital are considered as insiders.

Hospitals of different organizational forms exhibit substantial differences in their boards of directors. Boards of religious hospitals are quite large (see Table 4). Our interview with a Carondelet hospital in Tucson, AZ (not in our sample) revealed that its board has a composition that historically has been constant, made up of six lay members, six physicians and six sisters. Each position may turn over, but the hospital's tradition is

that the number of board members in each category remains constant. Table 4 presents pooled statistics on the board of directors for our sample. These differences persist over time and are consistent with our casual observation that many hospitals have predetermined ratios for board composition. As indicated by Table 4, religious, teaching and nonprofit hospital boards are nearly twice as large as government and district hospital boards. For-profit hospitals rely heavily on medical personnel, who comprise 35–45% of the for-profit directors. In contrast, the percentage of medical staff on government hospital boards is only about 5%. Religious hospitals have a relatively high percentage of insiders on the board, who are often members of the religious orders that operate the hospitals. In contrast, for-profit hospitals have only 10–15% insiders on the board, while government hospitals appear to consist mainly of nonbusiness outsiders (judges, city officials, police chiefs, housewives and other community members). For-profit hospital boards include the largest percentage of business executives; however, this percentage decreased following the 1984 Medicare Reform. Other nonprofit hospitals have the largest percentage of professionals such as lawyers, bankers and accountants.

4. Empirical results

4.1. Determinants of board changes

At any point in time, board membership is the result of a sequence of incremental changes, each of which is a function of the environment at the time of the change. The first part of our empirical work examines these changes and the factors that are associated with them.

A difficult issue is how one measures changes in the structure of the board. A logical starting point would be to focus on observable changes in board composition, in terms of the percentages of insiders, outsiders and other types. However, the nature of our data precludes a focus on changes in composition. Hospitals appear to have compositions that are set by tradition and therefore tend to be constant over time. Accordingly, to investigate the factors that lead to board changes, we use board turnover (regardless of director type) as our independent variable. Using this measure is consistent with the notion that hospitals change the level of board independence by choosing new directors from the same category but with different levels of ability or willingness to question the administration's policies. That is, a successful administration could bargain for a businessperson friendlier to its position when filling a vacancy in a board seat "reserved" for local business people. Conversely, a less successful administration might have to take a less favorably disposed businessperson for that seat.

We estimate a model that predicts board turnover as a function of the following variables: an indicator (0:1) variable to control for changes in ownership, an indicator variable for whether the hospital is a member of a hospital system, the value of the excess income margin (total income scaled by revenue) in the previous year, excess income margin in the previous year times the indicator variable for membership in a hospital system, the value of the ratio of administrative expenses to operating expenses in the previous year, the value of charity care and bad debt expense (scaled by revenue) in the previous year, dummy

variables for the years and the percentages of insiders and outsiders already on the board in the previous year.¹¹ New ownership is included because it is highly likely that director turnover occurs at the time of an ownership change for reasons unrelated to factors we are focusing on. Membership in a system is included because the performance of these hospitals is likely to be affected by their relationship with other hospitals in the systems through economies of scale in purchasing, better information systems, or other such factors. For all hospital ownership types except government hospitals, we expect board turnover to be negatively related to lagged excess income margin.

Uncompensated care captures two performance variables with potentially conflicting effects—charity care and bad debt. All organizations place a negative weight on bad debt; however, different types of organizations value charity care differently. For-profit hospitals are likely to treat it as equivalent to bad debt, while government and teaching hospitals may value charity care as part of their mission. Therefore, bad debt and charity care could have potentially opposite effects on CEO and board turnover. Variation in emphasis on charity care across hospital types potentially leads to varying signs for uncompensated care. In particular, we expect for-profit hospitals to consider high levels of uncompensated care as being at odds with its objectives. We also expect that teaching and government hospitals value uncompensated care because of the charity-care effect.

We measure board turnover as:

$$\frac{(\text{Number of new directors at } t) + (\text{Number of directors that left the board between } t \text{ and } t - 1)}{2 \times \text{board size at } t - 1}$$

This measure has an intuitive interpretation: if 2 directors leave a board of 10 and are replaced by 2 new directors, turnover will be equal to 20%; if there are no additions and no departures, turnover is zero. Although this measure is bounded below by zero, turnover greater than 100% is possible.¹²

Table 5 contains estimates of the determinants of turnover. The first column presents the results for all organization types except district hospitals. We exclude district hospitals from this equation because district hospital directors are elected rather than appointed. This equation indicates that, in this sample, excess income and uncompensated care are negatively related to board turnover. In this model, we interact the system dummy with excess income margin. There is no significant difference between system hospitals and others. These findings are consistent with the view that board turnover occurs when a hospital is not fulfilling its objective, because regardless of type, hospitals invariably prefer high accounting income.

We estimate this equation separately by hospital type in the remaining columns of Table 5.¹³ The coefficient on excess income is negative for five of the six hospital types and is significant at the 1% level for district hospitals and at the 10% level for the for-profits. The coefficient on excess income of -0.394 for district hospitals is significantly more negative

¹¹ We include lagged percentages of various board categories to distinguish hospital type preference for certain occupational categories from the turnover variation due to different opportunity costs of time among occupational categories.

¹² Turnover greater than 100% will occur, for example, if 8 directors in a board of 10 leave, and 14 are added to the board (resulting in turnover of $(8 + 14)/(2 \times 10) = 110\%$).

¹³ Our use of a linear regression is justified by the fact that no fitted values are negative.

Table 5
Estimated equations predicting board turnover

Variable	All types but districts	Religious	Nonprofit	Profit	Government	District	Teaching
New ownership	0.424*** (0.046)	0.420*** (0.048)	0.408*** (0.084)	0.374*** (0.060)	0.779*** (0.186)	0.615*** (0.195)	0.493*** (0.150)
System	0.029*** (0.008)	0.003 (0.021)	0.009 (0.011)	0.065*** (0.016)	-0.009 (0.027)	0.048** (0.021)	0.019 (0.017)
Excess income* system	0.084 (0.090)	-0.212 (0.160)	-0.048 (0.163)	0.196 (0.176)	0.872*** (0.298)	-0.126 (0.248)	-0.147 (0.225)
Excess income	-0.165*** (0.066)	-0.135 (0.086)	-0.116 (0.097)	-0.269* (0.152)	-0.181 (0.191)	-0.394*** (0.132)	0.097 (0.196)
Uncompensated care	-0.256*** (0.051)	0.171 (0.514)	0.338 (0.227)	0.072 (0.292)	-0.327*** (0.121)	0.107 (0.292)	-0.236*** (0.070)
Administrative expenses	0.130 (0.148)	-0.745** (0.359)	0.346 (0.246)	-0.026 (0.215)	-0.902*** (0.497)	0.060 (0.365)	0.712 (0.511)
Fraction of outsiders on board	-0.081** (0.035)	-0.063 (0.057)	-0.051 (0.053)	-0.087 (0.059)	-0.067 (0.188)	-0.088 (0.164)	0.088 (0.056)
Fraction of doctors on board	-0.169*** (0.037)	-0.060 (0.082)	-0.028 (0.057)	-0.202*** (0.054)	-0.149 (0.267)	-0.103 (0.165)	0.074 (0.095)
Fraction of unknown occupations	0.006 (0.044)	-0.039 (0.104)	0.036 (0.073)	0.015 (0.070)	-0.081 (0.195)	0.197 (0.180)	0.133** (0.061)
Number of observations	5127	545	1757	1717	257	783	851
R-squared	0.13	0.11	0.09	0.14	0.40	0.23	0.09

This regression presents the results of ordinary least-squares regressions, where the dependent variable is board turnover defined as:

$$\frac{(\text{Number of new directors at } t) + (\text{Number of directors that left the board between } t \text{ and } t - 1)}{2 \times (\text{Number of board size at } t - 1)}$$

Our sample consists of 486 California acute-care hospitals between 1980 and 1996. White robust standard errors are in parentheses. Intercepts are not reported (all were positive and significant) and neither are time-fixed effects and hospital-type dummies in the “all types” regression. System is an indicator variable for system affiliation. Excess income margin is the ratio of gross operating and nonoperating income to gross revenue. Administrative expenses are total administrative expenses relative to total expenses. Uncompensated care is the sum of bad debt and charity care scaled by gross revenue. For-profit hospitals are the baseline in the ‘all types’ regression. Insiders are the omitted category in all regressions. All variables except ‘new owner’ and time dummies are lagged.

* Significant at 10% level.

** Significant at 5% level.

*** Significant at 1% level.

than the corresponding coefficients for profit, government and teaching hospitals. The highly significant negative coefficient on district hospital excess income suggests that when the hospital is performing poorly, district hospital directors may be forced to hold elections for tax increases and are then less likely be reelected to the board when their term expires.

Surprisingly, religious and government hospitals have significantly negative coefficients on administrative expenses. That is, lowering administrative expenditures, presumably a “good” event, increases board turnover. One potential explanation for this finding

is that in the mid-1980s (after the change in Medicare reimbursement) and again in the early 1990s, occupancy levels dropped as length of stay dropped in the hospital industry (Prospective Payment Assessment Commission (ProPAC), 1994). Hospitals responded by cutting back on personnel, and it is plausible that inefficient hospitals sustained greater cutbacks in administrative expenses and turned over more board members at the same time. As a sensitivity test, we removed hospitals that exited during the period and reestimated the equation. The coefficient on religious hospitals loses significance, suggesting that this result is at least partially driven by the exiting hospitals.

Although the coefficient on uncompensated care for the entire sample is negative—increased uncompensated care is associated with lower board turnover—this effect is significant only for government and teaching hospitals. A consistent explanation for this finding is that government and teaching hospitals value uncompensated care (presumably the charity-care component), and that it is these two hospital types that are driving the overall sample coefficient. Consistent with this explanation, Eldenburg and Vines (2002) find that, for many hospitals, charity care is a small percentage of uncompensated care. It is, however, a large part of uncompensated care for teaching and government hospitals, which do the bulk of charity care in a community.

As a potential improvement of our model specification, we separate the excess income measure into its positive and negative components, thereby allowing us to treat gains and losses asymmetrically. When we estimate this equation (not reported), we obtain a significant negative coefficient on “negative excess income” and an insignificant coefficient on “positive excess income” in the pooled regression. This finding indicates that bad performance is the more important determinant of the significant negative coefficient on excess income in the equations reported in Table 5.

4.2. Analysis of CEO turnover

As a framework for understanding CEO turnover in hospitals, suppose that boards evaluate CEOs’ abilities on multiple dimensions. Each dimension has some value to the board, so the overall value of the CEO is a weighted sum of her abilities. CEOs whose sums fall below some threshold lose their jobs. We, of course, cannot observe these scores, nor do we know the corresponding weights attached to them. We can, however, observe certain variables that are correlated with abilities. This allows us to “estimate” the composite score as a weighted sum of the observable variables, where the weights are estimated treating CEO turnover as the dependent variable.

Specifically, we analyze the determinants of CEO turnover for hospitals of various ownership types. Our approach follows a large literature that has examined the factors leading to CEO turnover (see, e.g., Warner et al., 1988; Weisbach, 1988; Barro and Barro, 1990; Gibbons and Murphy, 1990; Jensen and Murphy, 1990; Kaplan, 1994; Blackwell et al., 1994). The underlying assumption of our analysis here—in fact, of this entire literature—is that noise in the turnover relationship is uncorrelated with the independent variables.¹⁴ Given this underlying assumption, any association we measure

¹⁴ To be more specific, any turnover other than dismissal is due to factors uncorrelated with performance measures (e.g., death) or is done in anticipation of dismissal (i.e., the “you can’t fire me, I quit” scenario).

Table 6
Estimated equations predicting CEO turnover

Variable	All types	Religious	Nonprofit	Profit	Government	District	Teaching
New ownership	1.074*** (0.192)	1.949** (0.907)	1.814*** (0.423)	0.704*** (0.249)	2.762*** (0.887)	− 0.910 (0.991)	3.011*** (1.133)
System	0.274*** (0.071)	− 0.680** (0.300)	0.205 (0.139)	0.531*** (0.124)	− 0.132 (0.306)	0.191 (0.239)	0.007 (0.197)
Excess income* system	0.738 (0.773)	2.549 (2.215)	1.153 (1.918)	− 0.302 (1.298)	− 6.039** (3.139)	5.426** (2.755)	7.636*** (3.039)
Excess income	− 2.294*** (0.584)	− 0.453 (1.508)	− 4.076*** (1.196)	− 2.385** (1.064)	3.609** (1.486)	− 3.913** (1.752)	− 6.181** (2.532)
Uncompensated care	0.699 (0.571)	14.063* (7.620)	− 1.249 (3.160)	0.980 (1.660)	0.004 (1.307)	6.236* (3.419)	0.494 (0.791)
Administrative expenses	4.181*** (1.051)	7.165 (6.007)	3.283 (3.066)	3.004** (1.317)	6.671 (5.579)	11.526*** (4.403)	11.662*** (4.333)
Number of observations	6162	551	1794	1847	267	789	914
Log likelihood	− 3330.03	− 231.08	− 864.75	− 1148.94	− 158.71	− 416.10	− 432.98

This table presents the results of logistic regressions predicting CEO turnover. The dependent variable is CEO turnover and is 1 if a change in CEO has occurred since the previous year and 0 if the same person is the CEO. Our sample consists of 486 California acute-care hospitals between 1980 and 1996. Standard errors calculated using a Huber–White sandwich estimator are in parentheses. System is an indicator variable for system affiliation. Excess income margin is the ratio of gross operating and nonoperating income to gross revenue. Administrative expenses are total administrative expenses relative to total expenses. Uncompensated care is the sum of bad debt and charity care scaled by gross revenue. All variables except ‘new owner’ and time dummies are lagged.

* Significant at 10% level.

** Significant at 5% level.

*** Significant at 1% level.

reflects a relation between involuntary turnover and the independent variables in our equation.¹⁵

We use a logit model to estimate the probability of CEO turnover as a function of hospital characteristics and performance. Consistent with the model of board turnover, we include indicator variables for new ownership, system membership, the lagged value of excess income margin, an interaction term for systems and excess income margin, the lagged value of the ratio of administrative expenses to operating expenses, the lagged value of charity care and bad debt expense (scaled by revenue) and dummy variables for each year. The system dummy could potentially capture the visibility of an individual CEO's performance, because idiosyncratic behavior is more readily identified by comparison with performance at other hospitals in the system. In addition, CEOs in system hospitals can also be "fired" upward; that is, promoted within the system.

Table 6 presents estimates of this equation for all hospital types pooled and for each type individually. The coefficients in the pooled equation on excess income and administrative costs are statistically significant at conventional levels, implying that CEO turnover is higher when excess income is lower and administrative expenses are higher. CEO turnover is also higher in system hospitals. The effects for excess income margin tend to mirror those for board turnover in that poor performance leads to higher turnover.

There is cross-sectional variation across hospital types in terms of the factors predicting CEO turnover. The coefficient on excess income is negative and significant for all hospitals except religious and government nonsystem hospitals. The incremental effect of system hospitals for government and district hospitals suggests that they behave differently from nonsystem hospitals. When we estimated the equation without the interaction term, the net effects of the coefficients on excess income margin were negative for other nonprofit ($p < 0.001$), for-profit ($p < 0.001$) and district hospitals ($p < 0.10$). In religious, government and teaching hospitals, the coefficients on excess income margin were insignificant.

Higher administrative expenses increase the likelihood of CEO turnover in for-profit, district and teaching hospitals. Recall that this measure captures the additional weight placed on administrative expenses beyond how they contribute to excess income. These positive coefficients suggest that for-profit, district and teaching hospital boards are most prone to view administrative expenses as waste and to discipline managers for excessive expenses.

The quality of our data for uncompensated care limits the extent to which they can predict management turnover. We do, however, find a marginally significant positive coefficient for religious and district hospitals, suggesting that an increase in uncompensated care is associated with increased CEO turnover in these hospitals.

Overall, the results on CEO turnover are consistent with the joint hypotheses that hospital CEOs are more likely to turn over when the hospital does not achieve its objectives, and that these objectives vary across hospital types. Financial performance, uncompensated care and administrative expenses appear to be correlated with factors reflecting stakeholder values and hospital objective functions. Consistent with the results of Brickley and Van Horn (2002), our findings suggest that the differences between for-

¹⁵ Another possibility is that higher quality CEOs are more likely to leave, since they have better outside opportunities. To the extent that voluntary departures are positively associated with turnover, the coefficient on performance will be biased towards zero.

profit hospitals and nonprofit hospitals are not as stark as one might imagine. Rather, they suggest that the most important differences in stakeholder groups and hospital objectives are among different types of nonprofit hospitals.

4.3. Further analysis of uncompensated care

As noted earlier, the data for charity care and bad debt are available separately for about half of the hospital-years. However, this availability varies by organizational type over time (see Table 2). Hospitals that used a federal program (The Hill–Burton program) to insure debt for capital expenditures (which lowered their interest rates) were required to maintain charity care at contracted-upon levels and to report charity care to the state on an annual basis. Data for these hospitals are relatively complete. Accounting regulations changed in 1990, and all hospitals were required to report charity care and bad debt expense separately to meet Generally Accepted Accounting Principles for hospitals. The most complete charity data after 1990 are provided by religious, teaching and other nonprofit hospitals.¹⁶

We reestimate CEO turnover equations similar to those in Table 6 using religious, teaching and other nonprofit hospitals, using charity care and bad debt when it is available, and uncompensated care otherwise. The coefficients on charity care across all hospital types are negative and the coefficients on bad debt positive. Only the coefficient on bad debt in religious hospitals is significant, however. When exiting hospitals are removed from the regression, religious hospitals exhibit a negative ($p < 0.10$) coefficient for charity care and a positive ($p < 0.10$) coefficient for bad debt. For-profit hospitals have positive (but insignificant) coefficients on both charity care and bad debt. A Wald test of the hypothesis that the coefficients on bad debt and charity care in religious hospitals are the same rejects at the 5% level, indicating that religious hospitals value these two components of uncompensated care differently.

We also examine the possibility that hospitals respond differently to uncompensated care depending on their excess income margins. Our hypothesis is that hospitals will place less emphasis on uncompensated care when financial performance is poor relative to when they are performing well. We separate uncompensated care into two variables: uncompensated care when excess income margin is nonnegative (zero otherwise), and uncompensated care when excess income margin is negative (zero otherwise). The coefficient for uncompensated care under loss conditions for religious and district hospitals is significantly positive (p -value < 0.05).

Because district boards are elected and taxes may be raised if the hospital is financially constrained, it is plausible that monitoring increases when there are losses. Government hospitals exhibit a positive coefficient ($p < 0.10$) on uncompensated care when excess income margin is nonnegative. The sample of government hospitals is small and this result may reflect hiring away of competent CEOs who are able to increase margin and uncompensated care simultaneously.

¹⁶ Only 1.6% of religious hospital-years have missing charity data after 1990. The percentages are 3.5 and 8.7 for teaching and nonprofit, respectively. Requiring data on charity care causes us to lose 3, 11 and 51 hospital-years in religious, teaching and nonprofit hospital samples, respectively.

Table 7
Analysis of hospitals that exit early

(A) Turnover rates by hospital type

Hospital type	Entire sample		Hospitals remaining in for the 1980–1996 period		Hospitals departing prior to 1996 ^a		Hospitals closing prior to 1996	
	Number of observations	CEO turnover rate (%)	Number of observations	CEO turnover rate (%)	Number of observations	CEO turnover rate (%)	Number of observations	CEO turnover rate (%)
Religious	551	17.2	504	15.3	47	38.3	21	42.9
Nonprofit	1794	20.3	1619	20.0	175	23.4	103	26.2
Profit	1847	34.6	1466	32.3	381	43.3	207	44.4
Government	267	36.0	211	33.6	56	44.6	46	41.3
District	789	24.5	712	22.9	77	39.0	43	48.8
Teaching	914	19.5	888	19.1	26	31.0	0	not applicable
All	6162	25.4	5400	23.7	762	37.7	420	40.0

(B) Performance variables by entry/exit status

Variable	Entire sample	Hospitals remaining in for the 1980–96 period	Hospitals departing prior to 1996 ^a	Hospitals closing down prior to 1996
Number of complete observations	6162	5400	762	420
System affiliation	3047	2669	378	186
Lagged excess income margin	0.018 (0.086)	0.026 (0.071)	−0.014 (0.114)	−0.011 (0.107)
	<i>0.025</i>	<i>0.028</i>	<i>0.006</i>	<i>0.002</i>
Lagged administrative expenses	0.050 (0.032)	0.048 (0.030)	0.060 (0.035)	0.061 (0.032)
	<i>0.041</i>	<i>0.040</i>	<i>0.052</i>	<i>0.054</i>
Lagged uncompensated care	0.045 (0.059)	0.047 (0.061)	0.038 (0.044)	0.046 (0.052)
	<i>0.030</i>	<i>0.030</i>	<i>0.028</i>	<i>0.030</i>

Standard deviations are in parentheses; median values are italicized.

This table presents statistics on hospitals that exit our sample prior to the end of the sample period. The sample consists of 486 California acute-care hospitals between 1980 and 1996. Excess income margin is the ratio of gross operating and nonoperating income to gross revenue. Administrative expenses are total administrative expenses relative to total expenses. Uncompensated care is the sum of bad debt and charity care scaled by gross revenue. All variables except ‘new owner’ and time dummies are lagged.

^a This category includes 62 hospitals that closed down, 31 that changed into a long-term status and 16 that are acquired.

4.4. Hospitals that exit the sample early

As mentioned earlier, the panel used in this study is not balanced. Relatively few hospitals (16) begin operations during the period we are studying. However, the number of early exits from our panel (110) raises the possibility of selection bias. The early exits can be broken into three separate categories: hospitals (62) that go out of business,¹⁷ hospitals (32) that change their primary service to long-term care (i.e., nursing homes) and hospitals (16) that exit the panel through merger with another facility.

Table 7 provides statistics on the hospitals that exit the sample early. These hospitals differ in important ways from other hospitals. In particular, they have worse average performance, higher CEO and board turnovers, higher administrative expenses and more numerous ownership changes.

To investigate the effects of early exit hospitals, we run the board turnover and CEO turnover regressions from Tables 5 and 6, including only those hospitals that were in the sample for the entire period. The results from these regressions are very similar to those reported earlier; the signs on the coefficients and significance levels do not change in a noticeable way.¹⁸

4.5. Other sensitivity analysis

An alternative measure for teaching hospitals is to classify only members of the Council of Teaching Hospitals (COH) as teaching hospitals. To test the robustness of a broader definition (all hospitals with residency programs resulting in 901 complete CEO observations), we reran regression using only COH hospitals. These results indicated that the hospitals in our teaching subsample behaved similarly to the COH hospitals and were less similar to hospitals in their organizational type (religious, nonprofit, government or district).

We included dummy variables for each year to control for economic and technological changes that might affect all hospitals in our sample. We performed sensitivity analysis by splitting the time period into three periods, pre-1984 (when most insurers paid on a cost-plus basis), 1984–1989 (immediately after Medicare's change to flat-fee reimbursement for inpatients) and post-1990 (characterized by high penetration of HMOs). The pooled regression results (not reported) suggest that hospitals were more sensitive to excess income margin prior to 1984 and again after 1990. Because West Coast hospitals have lower average costs than national hospitals, Medicare reimbursement (which incorporated national averages) more than covered costs for California hospitals in the first few years after the reimbursement change in 1983. Hospitals may have geared up for a more difficult reimbursement environment by emphasizing excess income margin, then eased off when the new payment system was favorable, but reemphasized margin in the 1990s when HMOs penetrated the market. The results for administrative expenses are consistent across

¹⁷ In five cases, the facility opens several years later under new ownership.

¹⁸ The only exception is uncompensated care in the 'all types' pooled regression where the coefficient estimated without exit hospitals increases to 1.04 and becomes significant at the 10% level. In the regression for district hospitals only, the uncompensated care coefficient also increases in both size and significance level.

time, and uncompensated care was given positive weight prior to 1990, after which it was viewed negatively.¹⁹

5. Conclusions

In this paper, we examined the proposition that ownership type reflects heterogeneity across constituencies, and that differences in these groups lead to differences in the organization's objectives and governance. Hospitals are a natural place to examine for this proposition because they represent a set of organizations that are similar in many dimensions and exist simultaneously as a number of alternative ownership forms.

We documented a number of empirical relations consistent with this view. First, we found that the composition of the board of directors varies systematically across hospital ownership types. These differences in board composition and size are marked and appear to be stable over a period of time with major changes in the industry. Second, we estimated the factors that affect the turnover in the board of directors. We found that poor performance and low levels of uncompensated care increase board turnover. The sensitivity of board turnover to these factors varies by ownership type. Finally, we considered the determinants of CEO turnover in our sample of hospitals. We found that poor performance, high administrative costs and high uncompensated care lead to higher CEO turnover. Again, different hospital types appear to place different weights on each of these variables. These results are largely consistent with the view that hospital governance reflects the interests of the hospital's constituencies.

In addition to their implications for governance, our results also add to the healthcare literature. We confirm the findings of other researchers that performance measures valued by nonprofit hospitals are similar to performance measures valued by for-profits. We disaggregated uncompensated care into bad debt and charity care and find that these two components are not valued similarly by hospital management, suggesting that healthcare researchers may inappropriately use uncompensated care as a proxy for charity care.

The findings in this paper raise a number of additional questions: What process is used and what factors are considered when a nonprofit organization chooses an objective function? What is the "market" equilibrium regarding nonprofits, in terms of which organizations survive, and what distribution of objectives exists in equilibrium? What is it about organizations of different ownership types and their presumed differences in objectives that lead them to adopt different governance structures? To what extent should we expect to see convergent or divergent evolution in the governance structures? What omitted factors differ across hospital types that could potentially provide alternative explanations for our results? Are there any other implications of different objective functions one might reasonably expect to observe in the data? A deeper understanding of these issues certainly warrants further research.

¹⁹ In 1990, the American Institute of CPAs (AICPA) required hospitals to report bad debt expense and charity care separately, rather than aggregated as uncompensated care. This new reporting practice provides stronger incentives to reduce bad debt since the dollar amounts are now subject to public scrutiny.

References

- Alchian, A., Demsetz, H., 1972. Production, information costs, and economic organization. *American Economic Review* 62, 777–795.
- Barro, J., Barro, R., 1990. Pay, performance, and turnover of bank CEOs. *Journal of Labor Economics* 8, 448–481.
- Blackwell, D., Brickley, J., Weisbach, M., 1994. Accounting information and internal performance evaluation: evidence from Texas banks. *Journal of Accounting and Economics* 17, 331–358.
- Brickley, J., Van Horn, R.L., 2002. Incentives in nonprofit organizations: evidence from hospitals. *Journal of Law and Economics* 45, 227–249.
- Buczko, W., 1994. Factors affecting charity care and bad debt charges in Washington hospitals. *Hospital and Health Services Administration* 39, 179–191.
- Commonwealth Fund Report #443, 2001. A shared responsibility: academic health centers and the provision of care to the poor and uninsured. Task Force on Academic Health Centers, New York, NY (available for download on-line at <http://www.cmwf.org/>).
- Deneffe, D., Masson, R., 2002. What do not-for-profit hospitals maximize? *International Journal of Industrial Organization* 20, 461–492.
- Eldenburg, L., Vines, C., 2002. Nonprofit Classification Decisions in Response to a Change in Accounting Rules. Working Paper, University of Arizona.
- Fama, E., Jensen, M., 1983a. Agency problems and residual claims. *Journal of Law and Economics* 26, 327–349.
- Fama, E., Jensen, M., 1983b. Separation of ownership and control. *Journal of Law and Economics* 26, 301–325.
- Gibbons, R., Murphy, K., 1990. Relative performance evaluation for chief executive officers. *Industrial and Labor Relations Review* 43, 30–51.
- Government Accounting Office (GAO), 1990. Report to the Chairman, Select Committee on Aging, House of Representatives: Non-Profit Hospitals—Better Standards Needed for Tax Exemption, GAO/HRD-90-84, May, Washington, DC.
- Harris, J.E., 1977. The internal organization of hospitals: some economic implications. *The Bell Journal of Economics* 8, 467–482.
- Hermalin, B.E., Weisbach, M.S., 2002. Boards of directors as an endogenously determined institution: a survey of the economic literature. *Economic Policy Review* 8 (in press).
- Jensen, M., Murphy, K., 1990. Performance pay and top-management incentives. *Journal of Political Economy* 98, 225–264.
- Kaplan, S., 1994. Top executive rewards and firm performance: a comparison of Japan and the US. *Journal of Political Economy* 102, 510–546.
- Lindsay, C., 1976. A theory of government enterprise. *Journal of Political Economy*, 1061–1077.
- Prospective Payment Assessment Commission (ProPAC), 1994. Medicare and the American health care system. Report to Congress (Commerce Clearing House, Chicago, IL), June.
- Starr, P., 1982. *The Social Transformation of American Medicine*. Basic Books, New York.
- Wamer, J., Watts, R., Wruck, K., 1988. Stock prices and top-management changes. *Journal of Financial Economics* 20, 461–492.
- Weisbach, M., 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20, 431–460.
- Young, G., 1988. Insider representation on the governing boards of nonprofit hospitals: trends and implications for charitable care. *Inquiry* 33, 352–362.