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Hospitals with Accounting Experts On the Board Received Higher Charitable Contributions

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Abstract

We empirically examined the relation between the presence of accounting experts on the board and charitable contributions received by hospitals. We hypothesized that accounting experts, with their knowledge and training in financial reporting, internal control, and risk management, are able to provide fiduciary assurance to potential donors that their contributions will be used efficiently and effectively toward the charitable mission. Hospitals with accounting experts on the board, therefore, might receive higher charitable contribution as compared with hospitals without accounting experts on the board. Using data from California nonprofit hospitals, we found robust evidence that after controlling for various board and hospital characteristics, hospitals with accounting experts on the board received 40% more charitable contributions as compared with hospitals without accounting experts on the board. More importantly, in the year when an accounting expert was added to the board, charitable contributions in the same hospital on average increased by more than $1 million; in the year when an accounting expert left the board, charitable contributions on average decreased by $0.7 million. In addition, the enhanced charitable contributions that occurred in the year when accounting experts were appointed to the board did not reverse in subsequent years, indicating a sustainable effect. These results highlight the benefits of recruiting accounting experts to serve on hospital boards. They can strengthen the board's governance effectiveness and enhance its fiduciary assurance to donors.

Keywords: accounting expert; governance; charitable contribution; board of directors; hospital

Data Availability: Data is publicly available from the Office of Statewide Health Planning and Development (Sacramento, California), the U.S. Census Bureau, the Federal Audit Clearinghouse, and the U.S. Department of Agriculture.

Introduction

Nonprofit hospital boards of directors usually have representation from a wide range of constituents, such as community leaders and physicians.[1-3] Directors work together to fulfill various responsibilities, including fiduciary, monitoring, fund-raising, and communicating stakeholders' needs to management.[4] Corporate governance literature suggests that the presence of specialists on a company's board can enhance the company's governance effectiveness through their advisory and oversight roles, and thus attract investment in the equity market.[5] Two typical examples are accounting experts and outside Chief Executive Officers (CEOs). DeFond, Hann, and Xu document a positive market reaction to the appointment of accounting experts on the board, suggesting that market participants consider accounting experts on boards to be value-enhancing.[6] Fahlenbrach, Low, and Stulz find that the appointment of outside CEO directors has a higher stock-price reaction than the appointment of other outside directors, consistent with the notion that the presence of outside CEO directors leads investors to a more positive view of the firm.[7]

In this study, we focus on accounting experts and examine whether they can enhance charitable contributions to hospitals by serving on their boards. Due to information asymmetry faced by donors, managers may use charitable contributions for activities that are tangential to the organization's stated mission.[8,9] It is difficult for donors to monitor or verify whether their contributions are being expropriated or used appropriately. Donors, therefore, are concerned about the effectiveness of board governance, understanding that nonprofits with more effective governance are able to provide greater assurance that their contributions will be used appropriately.[8,9] Accounting experts on the board can provide such fiduciary assurance to donors, because they, possessing knowledge and experience in financial reporting and risk management, can increase the board's emphasis on internal control, mitigate the possibility that contributions are abused, and enhance the effectiveness of board oversight.[6] Consequently, donor might view accounting experts' presence on boards as an indicator that the hospital has effective governance and thus to pledge greater unrestricted charitable contributions. The purpose of this study, therefore, is to examine whether the presence of accounting experts on the board makes a difference to charitable contributions received by hospitals.

This research question is timely as the federal and state governments are considering imposing stringent governance requirements on nonprofit organizations. Since 2008, the Internal Revenue Service has been requiring nonprofit hospitals to disclose information on board size and compensation, indicating its recognition that the quality of board oversight determines whether nonprofit hospitals' charitable missions can be carried out effectively and efficiently. To answer this research question also has important practical implications to hospitals that seek to strengthen board governance and enhance the inflow of charitable contributions.

Due to the scarcity of available data on board director's occupational background, no previous study, to our knowledge, has examined the association between accounting expertise on serving hospital boards and charitable contributions. We used unique data from California's Office of Statewide Health Planning and Development (OSHPD) to study nonprofit hospitals located in the state of California because, to our knowledge, this is the only publicly available

dataset that contains information regarding hospitals' board directors' occupations. We first compared the amount of charitable contributions between two groups of hospitals (i.e., hospitals with accounting expertise on the board vs. hospitals without accounting expertise on the board) and examined the change in charitable contributions when a change in the presence of accounting expertise occurs. Then we develop an empirical model to quantify the association between accounting expertise on the board and charitable contributions received by hospitals.

Methods

Data

We used a sample of nonprofit hospitals in California covering the period 2000–2008 for statistical analysis. We combined several databases to construct the sample. Board characteristics, operational and financial data are from the annual financial disclosure reports released by the California Office of Statewide Health Planning and Development (OSHPD). Population education-level data are from the U.S. Department of Agriculture. Household income data are from the U.S. Census Bureau. The sample includes 1,853 hospital-year observations from 250 hospitals.

Accounting Experts On the Board

The independent variable used in the analysis is the presence of accounting experts on the board. OSHPD requires hospitals to report each board director's name and occupation on their annual financial disclosure reports. We classify a director as an accounting expert if she has the Certificated Public Accountant (CPA) credential after her name or her occupation is reported as CPA. On average, approximately 19% percent of hospitals have CPA directors. We use a binary variable, *ACC*, to measure the presence of accounting expertise. It takes the value of one if a hospital has one or more accounting expert, and zero if otherwise.

Charitable Contributions

The amount of charitable contributions is reported as a separate line item in hospitals' annual reports filed with OSHPD. Hospitals have complete control over how the funds are used, although the funds are supposed to be allocated to where they are needed most, for example, to cover program spending and/or equipment upgrading. Because the amount of contributions is skewed to the right, we take the logarithm of one plus the amount of contributions and use it as the dependent variable (i.e., *Log_CC*) for analysis.

Control Variables

We included three sets of variables in statistical analysis to control for potential confounding factors that might be correlated with both board composition and charitable contributions. (i) Board characteristics: board size and the square of it, whether the CEO also serves on the board, and the proportion of directors with business backgrounds.[2,10-12] (ii) factors affecting charitable giving behaviors: a hospital's demand for contributions, fundraising effort, program spending efficiency, and revenues from other channels that might have a crowding-out effect;[12-14] (iii) hospital characteristics: the scale of operation, residents, church affiliation, rural location, the presence of emergency room or trauma center, system affiliation, average length of

stay, case mix index, Medicare patient proportion, and Medicaid patient proportion.[1,2,15-17] Appendix A summarizes the definitions for all variables.

Statistical Model

We developed a statistic model, Equation (1), based on a donations' demand model used extensively in health economics research.[9,12-14,18] We estimated Equation (1) by using a linear model, a hospital fixed effects model and a first-difference model. We estimated heteroscedasticity-robust White standard errors clustered at hospital level for all tests conducted in this paper.[19,20]

$$\begin{aligned} Log\_CC_{it} &= \lambda_0 + \lambda_1 ACC_{it} + \lambda_{2-5} Controls\ on\ board\ characteristics_{it} \\ &+ \lambda_{6-11} Controls\ on\ donation\ behavior_{it\ or\ it-1} \\ &+ \lambda_{12-26} Controls\ on\ hospital\ general\ characteristics_{it} + \sum \gamma_t Year_t \\ &+ \varepsilon_{it} \end{aligned} \quad (1)$$

Results

Descriptive Statistics

In Table 1 we reported descriptive statistics and performed t-tests on whether the mean value of chartable contributions between hospitals that have accounting experts on the board and hospitals that do not. As compared with hospitals without accounting experts on the board, hospitals that have on average receive more than three times charitable contributions ($1,870,030 vs. $578,640, $p < 0.01$). The two groups of hospitals also differ in other dimensions, which are presented in Appendix B.

TABLE 1: Descriptive Statistics of Accounting Experts On the Board

	Mean		**Median**		**Stddv.**	
	***ACC* = 1**	***ACC* = 0**	***ACC* = 1**	***ACC* = 0**	***ACC* = 1**	***ACC* = 0**
Charitable Contributions ($1,000)***	1,870.03	578.64	10.92	0.00	6,523.14	3,765.83

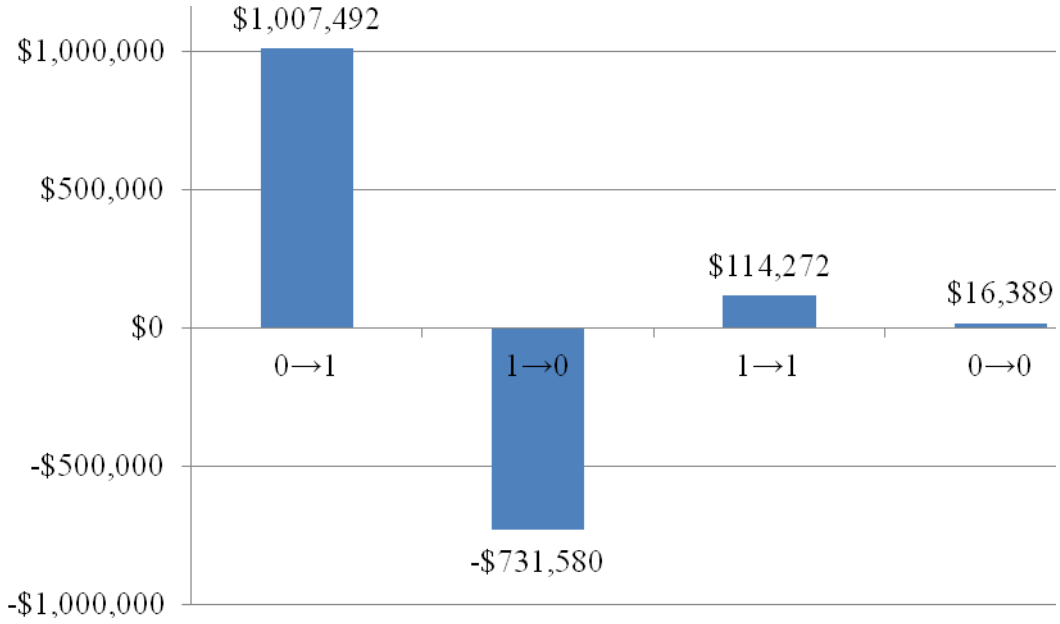
Notes:

1. ***, **, and * denote 1%, 5%, and 10% significance levels for t-tests comparing means between two groups of hospitals for each variable.

In Figure 1 we reported the change of charitable contributions for hospitals that experienced a change in the presence of accounting experts on the board between adjacent years. For hospitals that added an accounting expert to their boards, on average charitable contributions

increased by over $1 million. Given that the average charitable contributions for hospitals without accounting experts on their board are $0.6 million (as per Table 1), $1 million is equivalent to a 174 percent increase. For hospitals that removed an accounting expert from their boards, on average charitable contributions decreased by $0.7 million. The average charitable contributions for a hospital with accounting experts are $1.9 million, making $0.7 million equivalent to a 37% percent decrease. Furthermore, between the years in which either accounting experts served on the board both years or accounting experts served neither year, on average charitable contributions increased by $0.1 million and decreased by $0.02 million, respectively. This result provides strong evidence that the change of the presence of accounting expertise on the board is a powerful driver for the change in charitable contributions.

Figure 1: Changes in Charitable Contribution in Relation to Changes in the Presence of Accounting Experts On the Board



Notes:
1. This figure demonstrates the average amount of within-hospital change in CC between adjacent years (i.e., CC in year *t*+1 – CC in year *t*) for four situations as listed in the following table.
2. The X axis denotes the four situations of within-hospital changes for the presence of accounting expert on the board. The Y axis denotes the average amount of within-hospital change in CC.

	Definition	***N***
0→1	Having no ACC director in year *t* and having at least one ACC director in year *t*+1	46
1→0	Having at least one ACC director in year *t* and having no ACC director in year *t*+1	37
1→1	Having at least one ACC director in year *t* and year *t*+1	306
0→0	Having no ACC director in year *t* or year *t*+1	1,192

Estimation Results for Equation (1)

Selected regression estimation results and the full set of results are presented in Table 2 and Appendix C, respectively. In Table 2, columns (1), (2), and (5) we reported results estimated by a linear model, hospital fixed effects model, and a first-difference model. Columns (3) and (4) mirror columns (1) and (2) except that we included charitable contributions in the previous period (i.e., CC_{it-1}) to control for serial correlation of donors' behavior (List 2011).

TABLE 2: Estimation Results for Charitable Contributions

	(1) Linear model	**(2) Fixed effects**	**(3) Linear model**	**(4) Fixed effects**	**(5) First-difference**
Independent Variable					
ACC	1.67**	1.57**	0.40**	1.24**	1.24**
N	1,550	1,550	1,550	1,550	1,318
Adjusted/Pseudo R^2	0.11	0.07	0.59	0.21	0.04

Notes:

1. This table reports regression results using various models. The dependent variable is *Log_CC* for Columns (1)–(4) and is Δ*Log_CC* in Column (5). In Columns (1) and (2) we use the linear model and the hospital fixed effects model, respectively, to estimate Equation (1). Columns (3) and (4) mirror Column (1) and (2) except that CC in the previous period, Log_CC_{t-1}, is controlled for. In Column (5) we report estimation results for Equation (2) using a first-difference model.
2. All standard errors are based on two-tailed tests and clustered at hospital level (Peterson 2009).
3. *p* values are reported in parentheses.
4. ***, **, and * denote 1%, 5%, and 10% significance levels.
5. Estimates of year dummies are not reported.

In all columns the coefficient for *ACC* is positive and significantly different from zero, consistent with the hypothesis that the presence of accounting experts on boards is associated with higher charitable contributions. After controlling for charitable contributions in the previous period, estimated coefficient for *ACC* is between 40 percent and 124 percent, with the lower bound reported in Column (3) and upper bound reported in columns (4) and (5). Given that hospitals with accounting experts on the board on average received $1.9 million in chartable contributions, a 40 percent and a 124 percent increase are translated to approximately a $0.7 million increase and a $2.3 million increase, respectively. The magnitude of this effect is unlikely to be caused by accounting experts' personal contributions.

Supplementary Analysis

We also tested whether the enhanced charitable contributions in response to the presence of accounting experts, if any, reflects a sustainable effect or a temporary effect. If the appointment of an accounting expert on the board has a temporary effect on donors, then increased charitable contributions in the first year will not be sustainable and be reversed in subsequent years. To test this question empirically, we modified Equations (1) by replacing CC

with the CC_{t+1} and then CC_{t+2}. As shown Table 3, the one-year or two-year lagged effect of the change of accounting expert directorship on the change of charitable contributions is not significantly different from zero in either column.[1] Overall, the result suggests that the effect of having accounting experts on the board is sustainable and that donors do not reverse charitable contributions in subsequent years.

Table 3: Change of Charitable Contributions in Subsequent Years in Relation to Change in the Presence of Accounting Experts On the Board

	Dependent Variable		
	$Log\_CC_t - Log\_CC_{t-1}$	$Log\_CC_{t+1} - Log\_CC_t$	$Log\_CC_{t+2} - Log\_CC_{t+1}$
$ACC_t - ACC_{t-1}$	1.24	0.06	0.63
	(0.03)	(0.93)	(0.35)
N	1,318	1,109	907
Adjusted/Pseudo R^2	0.04	0.04	0.09

Notes:
1. This table reports regression results for using a first-differenced model to estimate Equation (2), with the dependent variable as the one of the three specifications.
2. All standard errors are based on two-tailed tests and clustered at hospital level (Peterson 2009).
3. Estimates of control variables and year dummies are not reported.

Discussion

In today's rapidly evolving health care environment, hospitals face increasing pressure to expand the inflow of financial resources. The board of directors plays a critical role in hospital governance and its composition has important implications to donors' behavior. We postulated that because of their expertise in financial reporting, internal control, and risk management, accounting experts can provide assurance to potential donors by mitigating their concern that their contribution might not be used appropriately and thus induce greater charitable contributions.

Using econometric analysis of data from California hospitals, we found that hospitals with accounting experts on the board received 40% more charitable contributions as compared with hospitals without accounting experts on the board. We also found that, on average, in the year when an accounting expert was added to the board, charitable contributions increased by more than $1 million as compared with the previous year. In contrast, in the year when accounting experts left the board, charitable contributions decreased by $0.7 million as compared with the previous year.

Several limitations of this study have to be taken into consideration. First, because of the limited availability of data regarding the occupation of individual board directors, this study is confined to only one state, California. Second, directors' occupational information is self-reported by hospitals to OSHPD and thus might suffer data measurement errors. It is possible,

[1] The result is similar whether we use a linear model or a hospital fixed effects model.

for example, that some accounting experts reported their occupation as consultant or financial analyst. Finally, although various control variables have been included in the statistical model, we cannot be completely certain that no important factors have been omitted.

This study has important implications to hospitals that seek to enhance governance effectiveness. Recruiting accounting experts to serve as board directors can bring financial and risk management expertise to the board, enabling the board to advise and oversee hospital management more effectively. In addition, the presence of accounting experts provides fiduciary assurance to potential donors, which may induce charitable contributions. This is a useful finding for hospitals facing financial challenges and seeking additional sources to cover various community-oriented charity programs. Since 2003 the US Securities and Exchange Commission (SEC) has been requiring publicly traded companies to disclose whether they have at least one "financial expert" on their boards and to provide the reason if a company has no such expert, under the assumption that these professionals can improve board governance quality. In the same spirit, it might be beneficial for hospitals to recruit accounting experts as part of their director selection strategy for the purpose of improving governance effectiveness, providing assurance to potential donors, and enhancing charitable contributions.

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REFERENCES

1. Bai G, Krishnan R. Do hospitals without physicians on the board deliver lower quality of Care? *American Journal of Medical Qual.* 2015;30(1):58-65.

2. Bai G. How do board size and occupational background of directors influence social performance in for-profit and non-profit organizations? Evidence from California hospitals. *J Business Ethics*. 2013;118:171-187.

3. Prybil LD. Size, composition, and culture of high-performing hospital boards. *Am J Med Qual*. 2006;21:224-229.

4. Alexander J, Weiner B, Bogue R. Changes in the structure, composition, and activity of hospital governing boards, 1989-1997: evidence from two national surveys. *Milbank Q*. 2001;79:254-279.

5. Adams R, Hermalin B, Weisbach M. The role of boards of directors in corporate governance: a conceptual framework and survey. *Journal of Economic Literature.* 2010;48 (1):58-107.

6. DeFond ML, Hann RN, Hu X. Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research.* 2005;43(2):153-193.

7. Fahlenbrach R, Low A, Stulz RM. Why do firms appoint CEOs as outside directors? *Journal of Financial Economics* 2010;97(1):12-32.

8. Fama E, Jensen M. Agency problems and residual claims. *Journal of Law and Economics.* 1983;26(2):327–349.

9. Petrovits C, Shakespeare C, Shih A. The causes and consequences of internal control problems in nonprofit organizations. *The Accounting Review.* 2011;86(1):325-357.

10. Coles JL, Daniel ND, Naveen L. Boards: Does one size fit all? *Journal of Financial Economics.* 2008;87(2):329-356.

11. Yermack D. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics.* 1996; 40(2):185-211.

12. Yetman MH, Yetman RJ. Do donors discount low-quality accounting information? *The Accounting Review.* 2013;88(3):1041-1067.

13. Weisbrod B, Dominguez N. Demand for collective goods in private nonprofit markets: can fundraising expenditures help overcome free-rider behavior? *Journal of Public Economics.* 1986;30:83-95.

14. Okten C, Weisbrod BA. Determinants of donations in private nonprofit markets. *Journal of Public Economics.* 2000;75:255-272.

15. Gruber J. The effect of competitive pressure on charity: hospital responses to price shopping in California. *Journal of Health Economics*. 1994;13:183-212.

16. Baker LC, Corts KS. HMO penetration and the cost of health care: Market discipline or market segmentation? *American Economic Review.* 1996; 86(2):389-394.

17. Eldenburg, L, Hermalin B, Weisbach M, Wosinska M. Governance, performance objectives and organizational form: evidence from hospitals. *Journal of Corporate Finance*. 2004;10:527-548.

18. Brown E, Slivinski A. Nonprofit organizations and the market. In W. Powell and R. Steinberg (Ed.), *The Nonprofit Sector: A Research Handbook (2nd Edition)*:140-158. 2006; New Haven, CT: Yale University Press.

19. Petersen MA. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies.* 2009;22(1):435-480.

20. White H. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica.* 1980: 817-838.

Appendix A: Variable Definition

Variable Name	Definition
Dependent Variable	
Log_CC	= Log (1+ Charitable Contributions)
Independent Variable	
ACC	= 1 if at least one board member is an accounting expert, 0 if otherwise
ACC%	= Number of accounting expert directors / Number of board members
Control Variable on Board Characteristics	
Board size	= Number of board members
Size_sqr	= Square of *Board size*
CEO director	= 1 if the hospital's CEO also serves on its board, 0 if otherwise
Business%	= Number of board members with business background / Number of board members
Control Variable on Donation Behavior	
High school	= Proportion of residents not completing high school in the county where the hospital is located
House income	= Median household income in the county where the hospital is located
Log_pr	= Log (1+ public relations expense)
PS ratio	= Program service expense/ Total expenses
Surplus ratio$_{t-1}$	= Surplus / Total operating expenses in the previous period
Log_charity $_{t-1}$	= Log (1+ charity care) in the previous period
Control Variable on Hospital General Characteristics	
Log_assets	= Log (total assets)
Log_expenses	= Log (total operating expenses)

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Appendix A (continues from previous page)

Variable Name	Definition
Log_beds	= Log (the number of staffed beds)
Log_residents	= Log (1 + the number of residents)
Church	= 1 if the hospital is affiliated with a church, 0 if otherwise
Rural	= 1 if the hospital is located in a rural area, 0 if otherwise
ER	= 1 if the hospital operates a 24-hour emergency room, 0 if otherwise
Trauma	= 1 if the hospital is a designated trauma center, 0 if otherwise
System	= 1 if the hospital belongs to a health-care system, 0 if otherwise
ALOS	= Total patient days / Total discharges
CMI	A measure of the relative cost or resources needed to treat the mix of patients
Medicare_t	= Medicare patient traditional plan revenue / Total gross patient revenue
Medicare_m	= Medicare patient managed-care plan revenue / Total gross patient revenue
MediCal_t	= MediCal patient traditional plan revenue / Total gross patient revenue
MediCal_m	= MediCal patient managed-care plan revenue / Total gross patient revenue

Appendix B: Descriptive Statistics

	Mean		Median		Stddv.	
	***ACC* = 1**	***ACC* = 0**	***ACC* = 1**	***ACC* = 0**	***ACC* = 1**	***ACC* = 0**
Dependent Variable						
CC ($1,000)***	1,870.03	578.64	10.92	0.00	6,523.14	3,765.83
Control Variable on Board Governance						
*CEO director****	0.53	0.41	1.00	0.00	0.50	0.49
*Board size***	16.55	14.99	16.00	15.00	4.94	5.29
Business%	0.60	0.59	0.59	0.59	0.15	0.18
Control Variable on Donor Behavior						
*High school****	24.02	22.58	22.70	20.50	6.26	7.00
House income ($1,000)***	49.82	51.90	48.17	51.40	10.95	12.03
PS ratio	0.76	0.77	0.77	0.77	0.05	0.06
PR ($1,000,000)	0.83	0.97	0.46	0.36	1.12	1.71
*Surplus ratio***	0.02	0.04	0.03	0.04	0.12	0.13
Charity ($1,000,000)**	5.56	7.10	2.88	2.00	7.76	13.97
Control Variable on Hospital Characteristics						
Assets ($1,000,000)	0.17	0.19	0.08	0.10	0.26	0.27
Expenses ($1,000,000)***	1.28	1.70	0.89	1.07	1.14	2.09
*Beds***	188.01	209.92	172.00	175.00	131.04	162.72
*Residents****	5.57	28.15	0.00	0.00	17.77	92.42
Church	0.17	0.19	0.00	0.00	0.38	0.39
Rural	0.16	0.13	0.00	0.00	0.37	0.34
*ER***	0.89	0.85	1.00	1.00	0.32	0.36
*Trauma***	0.31	0.41	0.00	0.00	0.78	0.87
*System****	0.39	0.52	0.00	1.00	0.49	0.50
*ALOS***	20.50	11.15	4.92	5.05	122.77	46.48
CMI	1.10	1.10	1.06	1.08	0.25	0.30
*Medicare_t***	0.33	0.31	0.35	0.32	0.14	0.14
Medicare_m	0.07	0.06	0.05	0.04	0.07	0.07
*MediCal_t****	0.17	0.14	0.14	0.11	0.15	0.13
MediCal_m	0.04	0.04	0.02	0.02	0.05	0.05

Notes:

2. ***, **, and * denote 1%, 5%, and 10% significance levels for t-tests comparing means between two groups of hospitals for each variable.

Appendix C: Estimation Results for Charitable Contributions

	(1) Linear model	(2) Fixed effects	(3) Linear model	(4) Fixed effects	(5) First-difference
Independent Variable					
ACC	1.67**	1.57**	0.40**	1.24**	1.24**
	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)
Control Variable on Board Governance					
Board size	0.11*	0.14	0.04	0.02	0.10
	(0.66)	(0.58)	(0.60)	(0.91)	(0.56)
Size_sq	0.00	-0.00	-0.00	-0.00	-0.00
	(0.97)	(0.65)	(0.89)	(0.86)	(0.55)
CEO director	-0.09	-0.39	-0.39*	-0.44	-0.36
	(0.88)	(0.34)	(0.07)	(0.17)	(0.27)
Business%	1.57	-1.41	0.91	-0.38	0.87
	(0.37)	(0.43)	(0.15)	(0.78)	(0.49)
Control Variable on Donor Behavior					
High school	0.03	-	0.00	-	-
	(0.61)	(.)	(0.92)	(.)	(.)
House income	0.06	-0.16*	0.01	-0.14**	0.15**
($1,000)	(0.20)	(0.08)	(0.44)	(0.04)	(0.03)
Log_pr	0.12*	0.22***	0.02	0.15**	0.18**
	(0.09)	(<0.01)	(0.32)	(0.01)	(0.02)
PS ratio $_{t-1}$	-1.11	-2.62	-2.06	-1.17	1.76
	(0.77)	(0.61)	(0.31)	(0.78)	(0.73)
Surplus ratio$_{t-1}$	3.10	0.16	-0.26	-0.87	-1.43
	(0.17)	(0.93)	(0.78)	(0.57)	(0.48)
Log_charity$_{t-1}$	0.02	0.01	-0.02	0.00	-0.03

	(0.80)	(0.90)	(0.49)	(0.99)	(0.53)
Control Variable on Hospital Characteristics					
Log_assets	-0.26	-0.67	-0.19	-0.66	-1.27
	(0.69)	(0.48)	(0.43)	(0.37)	(0.18)
Log_expenses	-0.87	-1.34	-0.11	-0.93	2.06
	(0.38)	(0.46)	(0.78)	(0.54)	(0.19)
Log_beds	0.64	0.92	0.34	0.68	0.46
	(0.33)	(0.52)	(0.18)	(0.56)	(0.68)
Log_residents	0.24**	-0.03	0.07	-0.01	0.30*
	(0.05)	(0.88)	(0.12)	(0.94)	(0.08)
Church	2.10***	-0.99	0.60*	-0.48	-0.30
	(<0.01)	(0.47)	(0.05)	(0.65)	(0.82)
Rural	-0.09	-	-0.24	-	-
	(0.93)	(.)	(0.50)	(.)	(.)
ER	2.19	5.00**	0.87*	3.59**	3.99**
	(0.12)	(0.02)	(0.06)	(0.02)	(0.03)
Trauma	-0.39	0.15	-0.04	0.23	-0.00
	(0.29)	(0.44)	(0.74)	(0.21)	(0.99)
System	-1.88**	-	-0.16	-	-
	(0.01)	(.)	(0.54)	(.)	(.)
ALOS	0.00	-0.01**	-0.00	-0.01***	0.00
	(0.52)	(0.02)	(0.30)	(<0.01)	(0.32)
CMI	2.28	-0.82	0.34	-0.78	-1.42
	(0.16)	(0.79)	(0.51)	(0.70)	(0.36)
Medicare_t	0.57	5.71	0.00	3.82	-1.35

	(0.88)	(0.34)	(0.99)	(0.40)	(0.80)
Medicare_m	-2.26	12.95**	-1.78	8.04	0.87
	(0.69)	(0.05)	(0.35)	(0.11)	(0.84)
MediCal_t	1.60	-7.28	0.03	-6.72	-2.10
	(0.63)	(0.30)	(0.98)	(0.23)	(0.74)
MediCal_m	-1.38	11.61	-1.01	9.56	7.77
	(0.86)	(0.30)	(0.71)	(0.28)	(0.48)
Log_CC_{t-1}			0.75***	0.38***	
			(<0.01)	(<0.01)	
Hospital fixed effects	No	Yes	No	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	1,550	1,550	1,550	1,550	1,318
Adjusted/Pseudo R^2	0.11	0.07	0.59	0.21	0.04

Notes:

1. This table reports regression results using various models. The dependent variable is *Log_CC* for Columns (1)–(4) and is Δ*Log_CC* in Column (5). In Columns (1) and (2) we use the linear model and the hospital fixed effects model, respectively, to estimate Equation (1). Columns (3) and (4) mirror Column (1) and (2) except that CC in the previous period, Log_CC_{t-1}, is controlled for. In Column (5) we report estimation results for Equation (2) using a first-difference model.
2. All standard errors are based on two-tailed tests and clustered at hospital level (Peterson 2009).
3. *p* values are reported in parentheses.
4. ***, **, and * denote 1%, 5%, and 10% significance levels.
5. Estimates of year dummies are not reported.

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