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THE EFFECT OF REGULATORY PRESSURES ON EARNINGS MANAGEMENT BEHAVIOR OF NONPROFIT HOSPITALS

BY

BRIAN ADAM VANSANT

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Doctor of Philosophy

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY
ROBINSON COLLEGE OF BUSINESS
2011

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ACCEPTANCE

This dissertation was prepared under the direction of Brian Adam Vansant's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctoral of Philosophy in Business Administration in the Robinson College of Business of Georgia State University.

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ABSTRACT

THE EFFECT OF REGULATORY PRESSURES ON EARNINGS MANAGEMENT BEHAVIOR OF NONPROFIT HOSPITALS

BY

BRIAN ADAM VANSANT

April 23, 2011

Committee Chair: Dr. R. Lynn Hannan

Major Academic Unit: Accounting

My study examines the effect of regulatory pressures on the earnings management behavior of nonprofit (i.e., tax-exempt) hospitals. Prior research provides evidence that managers of nonprofit hospitals manage reported earnings to a range just above zero profit in order to conform to regulator low or zero profit expectations. I extend this research by investigating how reported performance on another accounting measure important to regulators, (i.e., charity care), further explains the earnings management behavior of nonprofit hospitals. Specifically, I develop theory to predict that nonprofit hospitals use discretionary accruals to manage positive earnings toward regulator low profit expectations less aggressively when reported performance on charity care is higher than regulator expectations. The intuition behind this prediction is that nonprofit hospital managers can benefit from reporting higher earnings (from profit-based compensation and/or enhanced reputations for operational efficiency), however, they must balance this against the costs of regulatory scrutiny. Results are consistent with my prediction. Further, I validate that my results are not alternatively explained by the mechanical relationship of my test variables, the general hospital economic environment, and/or the specific reporting environment of my sample firms. I do so by comparing the earnings management behavior of nonprofit hospitals to that of for-profit hospitals. Overall, results suggest that nonprofit managers strategically manage earnings higher when their firms are less vulnerable to regulator scrutiny of their reported chairy care. As such, my study contributes to the earnings management literature and has policy implications important to regulators, especially given the current U.S. healthcare environment.

CHAPTER I

INTRODUCTION

The healthcare industry in the United States is characterized by a mix of both nonprofit and for-profit hospitals. In response to widespread pressures to decrease health care costs, hospitals have focused on efficiency enhancement, resulting in almost identical operational behavior between nonprofit and for-profit hospitals (Singer, 1997). Nevertheless, one key difference between these two types of organizations still exists; nonprofit hospitals are exempt from paying most federal, state, and local taxes. In 2002, the Federal Joint Committee on Taxation estimated that nonprofit hospital tax exemptions represent a total of $12.6 billion annually in lost tax revenues. The similarity of nonprofit hospital operational behavior to that of for-profit hospitals, together with the economic significance of nonprofit hospital tax exemptions, has led policymakers to strongly question whether the tax advantages nonprofit hospitals receive are appropriate. Accordingly, tax regulators have imposed pressure - via mandatory reporting requirements and heightened scrutiny of reported performance - on nonprofit hospitals to justify their current tax exemptions under Section 501(c)(3) of the Internal Revenue Code (Wood, 2001; Appleby, 2004).

My study examines the effect of regulatory pressures on the earnings management behavior of nonprofit hospitals. In return for their tax exemptions, nonprofit hospitals are expected by policymakers and tax regulators to report near zero long-run economic profits and spend excess operating profits on the provision of free or discounted medical services to the poor in their communities (hereafter referred to as “charity care”). Two factors underlie these expectations. First, nonprofit organizations, by definition, are meant to provide services that are inherently unprofitable for private enterprise. Second, due to the absence of a residual claimant,

nonprofits are expected to recycle any surplus into the provison of services for the communities that they are designed to serve. Higher reported earnings performance can open nonprofit hospitals to greater regulatory scrutiny and potentially the loss of their tax exemptions. Therefore, nonprofit hospitals have an incentive to report accounting earnings in a range just above zero profit to conform to regulator low or zero profit expectations (also referred to in this paper as "low profit constraints").

Consistent with this argument, prior accounting research provides evidence that nonprofit hospitals manage their earnings to a range just above zero profit via discretionary accruals (Leone and Van Horn, 2005) and real activities (Eldenburg et al., 2008). However, there is also evidence suggesting that, in addition to their focus on reported earnings, regulators' assessments of nonprofit hospital tax exemptions are sensitive to reported levels of charity care provided by hospitals (Wilicki, 2001; Barniv et al., 2005). Regulators may expect a certain level of charity from a particular hospital based on other observable factors affecting the hospital's ability to provide charity care (e.g., hospital size and capacity, demand for charity care in the hospital's geographic market). I investigate whether reported levels of charity care that are higher than regulator expectations are perceived by nonprofit hospital managers as providing slack in terms of conformance to regulator low profit constraints.

Managing earnings towards zero may enable nonprofits to reduce the likelihood of regulatory scrutiny, providing incentives for earnings management behavior. However, an opposing force arises from nonprofit managers' compensation systems. Prior research finds that nonprofit hospitals often compensate their executive managers based on accounting measures of profitability (Lambert and Larcker, 1995; Brickley and Van Horn, 2002) and that managers of nonprofit hospitals are just as responsive to financial incentives as their counterparts in for-profit

hospitals (Duggan, 2000). Drawing on extant research, I develop theory to predict that managers of nonprofit hospitals manage positive earnings downward toward regulator low profit constraints less aggressively when contemporaneously reporting charity care that exceeds regulator expectations. The intuition behind this prediction is that managers can benefit from reporting higher earnings (via higher profit-based compensation and/or reputations for operational efficiency), however, they must weigh these benefits against the costs of regulatory scrutiny.

To test my prediction empirically, I use data reported during years 2002-2008 by nonprofit hospitals to a state regulatory agency (i.e., a State of California regulatory agency) that has mandatory reporting requirements including the reporting of charity care. Before testing my formal hypothesis, I first test whether, *ceteris paribus*, nonprofit hospitals tend to manage earnings to a range just above zero profit. Consistent with my expectation and with prior research (Leone and Van Horn, 2005; Eldenburg et al., 2008), I observe a discontinuity around zero profit in the earnings distribution of my sample of nonprofit hospitals. Specifically, I find an abnormally high number of nonprofit hospital firms reporting return on assets (ROA) within the range of 0 to 4 percent. I then estimate a discretionary accruals model, adapted from Leone and Van Horn (2005), that uses a liability account specific to the hospital industry as the dependant variable (i.e., third-party settlement liability account). Consistent with Leone and Van Horn (2005), I test for earnings management and find a negative relationship between earnings before discretionary accruals (i.e., pre-managed earnings) and discretionary accruals. Taken together, these findings are antecedent to and consistent with my central argument - that nonprofit hospital managers are motivated to manage earnings to a point above zero that maximizes firm surpluses and their personal benefits without jeopardizing the tax-exempt status of their hospital.

I then develop a model to estimate the extent that a nonprofit hospital's reported charity care deviates from regulator expectations. This measure serves as a proxy for a firm's sensitivity to regulatory scrutiny of their reported level of charity care. I use this measure to formally test my prediction that managers less aggressively manage positive earnings downward toward regulator low profit constraints when their reported charity care levels are higher than regulator expectations. I find a positive association between discretionary accruals and reported charity care levels that exceed regulator expectations. Further, I find the negative association between pre-managed earnings and discretionary accruals is moderated by higher than regulator-expected levels of charity care. These results support my prediction and suggest that nonprofit managers strategically use earnings management to report higher earnings when their firm is less vulnerable to regulatory scrutiny.

I also perform a supplemental analysis to rule out possible alternative explanations for my results. While the results support my theory and hypothesis, the results could possibly be explained by the mechanical relationship between the variables included in my empirical models and/or explained by factors related to the general business and reporting environment of my nonprofit hospital sample. I perform additional tests to investigate this by comparing the earnings management behaviors of nonprofit hospitals to those of for-profit hospitals operating in the same environment during the same time period. I posit that the nonprofit hospital reporting objective for accounting is more defined and homogeneous than that of for-profit hospitals. Specifically, I argue that the objective of a nonprofit hospital manager is to report earnings within a range close to a single benchmark (i.e., zero profit) depending on whether their reported level of charity care is consistent with regulator expectations. In contrast, given that for-profit hospitals receive no tax exemptions, I expect that managers of for-profit hospitals are not under

significant regulatory pressure to report near zero profits or provide a certain level of charity care. Consistent with this expectation, and in contrast to my results for nonprofit hospitals, I find evidence that for-profit hospital managers' decisions to manage earnings toward zero profit do not depend on their conformance with regulator expectations regarding charity care. Based on this result, I conclude that the nonprofit sample results are more likely explained by my theory than by factors related to the mechanical relationship between the accounting variables included in my empirical tests, and/or the hospital business and reporting environment for hospitals in California.

My study is important for several reasons. First, I contribute to the economics-based literature stream that examines the effects of various stakeholder pressures on nonprofit operational and reporting decisions (e.g., Jegers and Houtman, 1993; Eldenburg and Krishnan, 2003, 2008; Eldenburg and Vines, 2004; Krishnan, 2005; Leone and Van Horn 2005; Krishnan and Yetman, 2009). Recent studies suggest nonprofit hospitals manage earnings to report profits consistent with regulator low profit constraints (Leone and Van Horn, 2005; Eldenburg et al., 2008). I extend these studies by investigating how reported performance on an accounting measure important to regulators, (i.e., charity care), further explains the earnings management behavior of nonprofit hospitals. My study suggests that, when multiple measures of performance are important to stakeholders, nonprofit managers make strategic reporting decisions to conform with stakeholder expectations while also maximizing firm surpluses and their personal benefits.

Second, I contribute to prior research that investigates how political and regulatory cost incentives influence firm decisions to manage accounting measures. The positive accounting literature provides evidence that firms make income-decreasing accounting choices when subjected to political scrutiny and the threat of unfavorable regulation (e.g., Jones, 1991; Cahan,

1992; Mensah et al., 1994; Key, 1997; Patten and Trompeter, 2003). I extend this literature by providing evidence that firms threatened by political and regulatory costs may manage earnings downward less aggressively when they believe policymaker and regulator expectations have been exceeded on other reported measures.

Third, my study has implications relevant to the debate over whether nonprofit hospital behavior is consistent with the expectations of policymakers and regulators. My results suggest that managers of nonprofit hospitals believe regulatory pressures to report near zero profits depend on reported levels of charity care, resulting in strategic earnings management to maximize their personal benefits when reported charity care exceeds regulator expectations. This could result in regulators basing their tax exemption decisions on misleading accounting reports.

The remainder of my study is organized as follows: Section 2 discusses the regulatory environment for nonprofit hospitals, nonprofit hospital manager reporting incentives, and prior research on nonprofit hospital earnings management to develop my theory and hypothesis. Section 3 describes the regulatory and reporting environment in California, my sample selection methodology, and reports summary financial data for the selected nonprofit hospital sample population. Section 4 discusses my research design and develops my empirical model. Section 5 reports and discusses my empirical results. Section 6 concludes and discusses the implications of my study to academic research and regulatory policy.

CHAPTER II

BACKGROUND AND THEORY DEVELOPMENT

Regulator Low Profit Constraints and Manager Reporting Incentives

The basic objective function of a nonprofit entity is to maximize the quantity and quality of the services it provides to its constituents, subject to a long-run economic zero profit constraint (e.g., Newhouse, 1970; Pauley, 1977; Hoerger, 1991). Nonprofit firms are granted tax-exempt status under Section 501(c)(3) of the Internal Revenue Code based on their stated missions to operate consistent with this objective function. To maintain their tax exemptions, regulators expect that nonprofit firms will operate close to breakeven, consistent with reported accounting earnings within a range close to a zero profit (i.e., low profit). Nonprofit firms reporting higher earnings could be perceived as straying from their missions and are, therefore, more likely to face regulatory scrutiny and potential loss of their tax-exempt status. Since the regulatory investigation process and loss of tax exemption can represent significant economic costs to a nonprofit firm, managers have incentives to avoid these costs. Therefore, nonprofit managers are likely motivated to manage accounting earnings towards a zero profit to conform to regulator low profit constraints and avoid scrutiny. Consistent with this prediction, prior studies provide evidence of firms (both nonprofit and for-profit) making income-decreasing abnormal accruals in response to regulatory pressure and political scrutiny (e.g., Jones, 1991; Cahan, 1992; Key, 1997; Leone and Van Horn, 2005; Eldenburg et al., 2008).

Managing earnings towards zero enables avoidance of regulatory scrutiny. However, if nonprofit managers are compensated based on accounting measures of profitability (i.e., bonuses and salary raises based on profits), they have opposing incentives to report higher earnings.

While federal tax regulations (Internal Revenue Code 4958) prohibit the payment of excessive compensation to executives of nonprofit firms, nonprofits are allowed to compensate managers based on measures of profit (see Internal Revenue Service (IRS) 1984 memorandum GC 38283).[1]

In 1983 Medicare changed from cost-based to flat-fee (by patient diagnosis) reimbursement of hospitals. As a result, the U.S. hospital operating environment became riskier (Eldenburg et al., 2009). As such, there was a subsequent shift among nonprofit hospitals towards profit-based compensation for executive managers to attract and retain talented hospital managers and compete for labor with for-profit hospitals. Lambert and Larcker (1995) provide evidence of this shift and Brickley and Van Horn (2002, p.229) find that nonprofit hospital "CEO turnover [rates] and annual compensation are strongly related to financial performance (as measured by return on assets)…and no evidence that [nonprofit hospitals] provide explicit incentives for their CEOs to focus on altruistic activities." Further, Duggan (2000) finds that nonprofit hospital managers are just as responsive to financial incentives as their counterparts in for-profit hospitals.

Specific to the compensation practices of the nonprofit hospitals in my sample (i.e., California nonprofit hospitals during the period 2002 - 2008), Eldenburg and Krishnan (2008) find that during the period 1990 - 2002 both nonprofit and for-profit hospitals in California used managerial bonuses tied to financial performance. Therefore, I assume the nonprofit hospital managers in my sample receive incentive compensation consistent with that observed during the time period immediately preceding my sample period by Eldenburg and Krishnan. Traditional economic theory predicts that such managers have incentives to manage accounting earnings

[1] The IRS ruled in 1994 that compensation of nonprofit managers would not be considered "excessive" as long as the total compensation of an individual was within a range of pay for similar services by comparable organizations.

upward to maximize their personal compensation and signal their ability to efficiently operate and manage their hospitals.

To summarize, nonprofit hospital managers are faced with two conflicting incentives; 1) reporting lower profits to avoid regulatory costs that could damage their firms' reputations, and 2) reporting higher profits to maximize personal benefits in the form of bonuses, salary raises, and their reputations for operational efficiency.

Regulator Scrutiny and Expectations for Charity Care

While conformance to regulatory low profit constraints is an important goal for maintaining tax-exempt status, reported levels of charity care are also likely to influence tax regulator decisions. Despite little scrutiny of charity care levels by federal regulators, an increase in state regulatory pressures warrant nonprofit hospital concern about the future of their tax exemptions if their reported charity care is below regulatory expectations (Burns, 2004). Armed with evidence of converging operational behavior between nonprofit hospitals and for-profit hospitals, state regulatory authorities have increasingly scrutinized reported levels of charity care and disputed nonprofit hospital tax exemptions (Appleby, 2004; Barniv et al., 2005).

Regulatory expectations that nonprofit hospitals operate at a long-run zero profit and provide charity care were first established at the federal level in a 1956 IRS Revenue Ruling (IRS Rev. Rul. 56-185, 1956-1 C.B. 202). Subsequent IRS Rulings in 1969 and 1983 relaxed the focus on charity care and suggested that hospitals are exempt from taxes as long as they provide benefits to the community and do not deny emergency care to those unable to pay.[2] Until 2010, the IRS did not require nonprofit hospitals to quantify and report charity care and was not

[2] See Rev. Rul. 69-545, 1969-2 C.B. 117, 118 and Rev. Rul. 83-157, 1983-2 C.B. 94, 95.

particularly aggressive in their scrutiny of nonprofit hospital tax-exemptions.[3] Therefore, states passed their own laws and reporting requirements so they could challenge nonprofit hospital tax exemptions based on both reported earnings and charity care performance (Wood, 2001).

As of 2008, ten states - including California - have laws requiring hospitals to annually quantify and report charity care along with a balance sheet and income statement. Accordingly, regulatory scrutiny and resulting litigation to revoke tax exemptions usually originates from state attorney general offices (Burns, 2004; Leone and Van Horn, 2005).[4] Hospital industry observers consider this increase in state regulatory oversight and scrutiny as a real and increasing threat to the future of nonprofit hospital tax exemptions (Weissentein, 1997).

Consistent with the importance many state governments have placed on charity care, prior academic research provides evidence that the level of charity care reported by nonprofit hospitals influence regulatory scrutiny and potential revocation of tax exemption. In an experimental setting, Wilicki (2001) finds that when the amount of charity care provided by a hospital is low, higher profits leads subjects (tax accountants and tax attorneys) to judge a nonprofit hospital as more likely to lose tax-exempt status. Consistent with Wilicki's experimental results, Barniv et al. (2005) use a national sample of archival data to show that the level of charity care reported by nonprofit hospitals is negatively related to the likelihood of revocation of state and local tax exemption. These results suggest nonprofit hospitals may be under less (more) regulatory pressure to report earnings that conform with regulator low profit

[3] Effective in 2010, the IRS requires that nonprofit hospitals annually report their levels of charity care in a new schedule (Schedule H) as part of their IRS Form 990 tax reports.

[4] For example: in 1985 the Utah Supreme Court revoked the tax-exempt status of Intermountain Health Care because it failed to provide an adequate level of charity care or other community benefits. In 1996 a case filed in the State of Pennsylvania by state regulators (Hospital Utilization Project v. Commonwealth) resulted in state and local municipalities challenging the tax-exempt status of over 79% of nonprofit hospital hospitals operating in the state. In 2004 the Illinois Department of Revenue revoked the tax-exempt status of Provena Covenant Medical Center based on claims made by tax authorities that the hospital was not operating like a charitable institution.

constraints when their reported level of charity care is higher (lower) than regulatory expectations.

Prior Literature on Nonprofit Hospital Earnings Management Behavior

Because regulatory pressure constrains nonprofit firms' earnings, the incentives to manage earnings are fundamentally different from those in the for-profit sector. Prior research finds that publicly-traded firms manage earnings to avoid current year losses, show a positive trend in earnings, smooth income, and meet or beat analyst forecasts (e.g., Burgstahler and Dichev, 1997; Degeorge et al., 1999). In contrast, nonprofit firms are likely to be focused on meeting just one earnings benchmark, a zero or slightly above zero profit that conforms to regulator low profit constraints. Consistent with this view, Hoergar (1991) finds that nonprofit hospitals report less earnings variance than for-profit hospitals, and Leone and Van Horn (2005) find that nonprofit hospitals manage reported earnings to a range just above zero profit. Leone and Van Horn interpret their results as evidence that part of the difference in earnings variability between nonprofit hospitals and for-profit hospitals is due to nonprofit hospital managers using discretionary accruals to manage earnings to a range that conforms to regulatory low profit constraints while also signaling the managers' abilities to manage efficiently. Corroborating the Leone and Van Horn results, Eldenburg et al. (2008) also find, using a different sample, a discontinuity around zero profit in an earnings distribution of nonprofit hospitals and evidence of nonprofit hospitals using real activities to manage earnings.[5]

[5] Management of real activities is also referred to in the academic literature as real earnings management. I use these terms interchangeably in the text.

CHAPTER III

HYPOTHESIS DEVELOPMENT

Prior studies provide evidence that nonprofit hospitals often compensate executive managers based on accounting measures of profitability (e.g., Lambert and Larcker, 1995; Brickley and Van Horn, 2002). Therefore, managers of nonprofit hospitals have incentives to make discretionary accounting and reporting decisions (i.e., earnings management decisions) to report higher accounting earnings. However, nonprofit hospital managers must balance the benefits associated with reporting higher earnings with the potential costs of regulatory scrutiny. To the extent nonprofit hospital managers believe regulatory scrutiny and tax exemption decisions are sensitive to both their reported earnings and their reported charity care, their perceptions of the net benefits from engaging in income-increasing earnings management (or less aggressive income-decreasing earnings management) behavior likely depends on the extent that reported charity care meets or exceeds regulator expectations. Therefore, nonprofit hospitals' discretionary accruals are likely based not only on the relation of earnings before discretionary accruals to a low profit constraint, but also on the relation of reported charity care to regulator expectations of charity care. In other words, nonprofit hospital managers' discretionary accrual decisions to manage positive earnings toward zero profit should depend on the extent they perceive their reported charity care deviates from regulator expectations. This leads to the following hypothesis (stated in the alternative):

H1: Managers of nonprofit hospitals use discretionary accruals to manage positive earnings toward zero profit less (more) aggressively when their contemporaneously reported charity care is higher (lower) than regulator expectations.

It is reasonable to assume that regulators in states with mandatory and specific reporting requirements for charity care are more likely to scrutinize nonprofit hospitals who report charity

care below regulator expectations. As such, I use data from one of these states, California, to empirically test my hypothesis. I discuss the reporting requirements and regulatory environment of California in the following section.

CHAPTER IV

SAMPLE DATA AND DESCRIPTIVE STATISTICS

California Hospital Data and Sample Selection

Consistent with prior accounting studies (e.g., Krishnan, 2005; Eldenburg and Krishnan, 2003, 2008; Eldenburg et al., 2009), my sample data is from hospitals registered and operating in California. I choose California hospitals because the state's Office of Statewide Health Planning and Development (OSHPD) collects detailed financial data (including a line item for charity care) on all registered hospitals within the state and requires that all reported data reconcile with hospitals' financial statements prepared in accordance with Generally Accepted Accounting Principles (GAAP). The OSHPD website states that all hospital reports undergo a desk audit and the California Health and Human Services Agency engages the State Department of Health Services to perform on-site reviews of all California hospitals to validate each hospitals reported data (Krishnan and Yetman, 2009).

Furthermore, and importantly, I choose the OSHPD data for my study because the policymakers and regulators in California appear to consider reported levels of charity care important. In 1993, a bill was proposed in the California state legislature to tax nonprofit hospitals based on any profits earned in excess of reported charity care (Burda, 1994). While this measure ultimately failed, a statute was enacted (effective 1997) requiring all hospitals to draft a "community benefits plan," which, along with other types of community benefits, includes the provision of charity care.[6] These events suggest that regulators in California are likely to scrutinize nonprofit hospitals reporting deficient levels of charity care.

[6] See California Health & Safety Code §§ 127340-127365

The sample data include firm years 2002-2008. Consistent with prior studies (e.g., Eldenburg et al., 2008; Krishnan and Yetman, 2009), I define a nonprofit hospital as a hospital that is a registered nonprofit entity under IRS 501(c)(3), is operated by a private non-profit corporation or church, and is not considered by the OSHPD as a "non-private" (i.e., a community, state, or federal government run facility). Non-private hospitals are excluded from my sample because some of the funding for these entities comes from local, state, and/or federal municipalities. Therefore, managers of these non-private entities likely have different objective functions regarding profitability than nonprofit hospitals funded predominately through patient revenue, church funding, and/or private donations (Eldenburg and Krishnan, 2003).

While my hypothesis is only related to the earnings management behavior of nonprofit hospitals, I also select a sample of for-profit hospitals for the same years, 2002-2008, to conduct a supplemental analysis comparing the earnings management behavior of nonprofit hospitals to that of for-profit hospitals. The supplemental analysis is performed to validate that my results for nonprofit hospitals are not alternatively explained by the general nature of the California hospital business and/or the OSHPD reporting environment. I define for-profit hospitals as those labeled as investor owned. According to the OSHPD, these hospitals are owned by shareholders, pay state and local taxes, and are either publicly-traded or owned by a private investor group.

I exclude from both nonprofit hospital and for-profit hospital samples substance abuse, long-term nursing care, and psychiatric hospitals because the production function and patient mix for these types of hospitals differ from that of the acute care general hospitals I include in my sample (Eldenburg et al., 2008). I also exclude hospitals that are part of the Kaiser Foundation or registered as Shriner hospitals because the OSHPD database does not list them as comparable to other nonprofits given their unique funding mechanisms and service missions.

After all exluded hospital types, the remaining sample includes 150 nonprofit hospitals and 75 for-profit hospitals, resulting in a total of 1,063 (544) firm years for the nonprofit (for-profit) sample.

Sample Descriptive Statistics for Nonprofit Sample

A summary of key financial data for my sample of nonprofit hospital firms is reported in Table 1. The average total gross revenue is $711 million and the average net revenue is $197 million. The large difference ($514 million) between average gross and average net revenues results from significant amounts of "deductions from revenues," which include the provision for bad debts, contractual adjustments (discussed in Section 4.1), and charity care. While charity care on average accounts for $10 million of these deductions, the majority of these deductions are for contractual adjustments. The sample firms' average total assets are $232 million.

TABLE 1
Key Financial Measures
Nonprofit Hospital Sample (n=1,063 firm years)

Variable	Mean	Std. Dev.	25th Percentile	50th Percentile	75th Percentile
Total Gross Revenue	710,633,917	750,075,222	215,511,769	529,393,630	936,937,187
Charity Care	10,311,031	16,712,213	1,316,544	4,553,153	11,328,711
Net Total Gross Revenue	197,109,721	214,431,688	63,628,456	137,358,677	249,723,727
Net Income	11,825,993	27,645,199	(309,818)	4,310,166	15,352,438
Cash	13,261,710	30,001,844	314,000	2,924,068	12,946,038
Total Assets	231,810,707	311,946,769	48,213,988	123,644,830	283,882,310

CHAPTER V

RESEARCH VARIABLES AND MODEL SPECIFICATION

Discretionary Accruals and the Third-Party Settlement Liability Account

A considerable stream of accounting and finance research finds evidence that discretionary accruals are the primary vehicle used by firms to manage reported accounting earnings to "window-dress" financial statements made publicly available to stakeholders.[7] The majority of these researchers estimate discretionary accruals using models that include aggregated measures of assets and liabilities, such as the Jones (1991) model. However, some researchers identify specific financial statement accounts that require considerable managerial judgment and are suspected to be used to manage earnings in a particular setting or industry. Using a model adapted from Leone and Van Horn (2005), I follow the second approach and estimate discretionary accruals using a specific liability account common to the hospital industry, the "third-party payer settlement liability account" (TPA account).[8] Leone and Van Horn also estimate discretionary accruals using the Jones (1991) model and conclude that the TPA account specific model appears to remove a larger portion of the non-discretionary component of accruals and is more reliable.

TPAs for hospitals represent the expected difference between gross billed (both paid and unpaid) claims sent to third-party payers[9] and management estimates of expected contractual adjustments to the claims made by third-party payers. For example, inpatient hospital services

[7] See Healy and Wahlen (1999) for a review of this literature.
[8] Alternatively, another "account specific model" could use adjustments made by hospitals to their "Provision for Bad Debt" accounts to estimate discretionary accruals. Leone and Van Horn (2005) estimated discretionary accruals using both changes to TPA and Provision for Bad Debt and find the estimations yield similar results in their test of earnings management by nonprofit hospitals around a zero profit.
[9] Third-party payers include insurance companies, government payers, and/or other non-patient, third-party payers.

are billed to third parties based on a payment system known as Diagnostic Related Groups (DRGs) which relies on the patient's diagnosis at discharge. The actual payment received from the third-party payer is subject to adjustments to the gross DRG rate initially billed by the hospital. These adjustments are based on contractual agreements (that are usually very complex) between the hospital and the third-party payer. Third-party payers and hospitals are often in disagreement over the appropriate charges based on their different interpretations of the contractual agreement. Furthermore, the initial payments made by third-party payers are often later adjusted as a result of claim audits performed by the third-party payer (Leone and Van Horn, 2005). Therefore, to appropriately adhere to accrual based accounting, management to estimates the difference between the initial gross charges and the final settled-upon payment for all provided and billed medical services during an applicable reporting year. This estimation is recorded as a current year deduction from revenue (i.e., contractual adjustments) and as a liability (i.e., TPA).

The TPA liability can be substantial in relation to a hospital's total liabilities and period changes in this account can significantly affect a hospital's reported earnings. Further, this account is considered by independent auditors as the account in the hospital industry most susceptible to earnings management because it is difficult to audit given the considerable subjective judgment involved in its estimation (Leone and Van Horn, 2005).[10] The American Institute of Certified Public Accountants (AICPA) has also indicated concern over hospitals managing earnings via the TPA account. In fact, the AICPA has published a case study to raise awareness of the ethical issues related to the valuation of the TPA account. Given its materiality and the noted concerns by independent auditors and the AICPA, it is reasonable to assume that

[10] Leone and Van Horn (2005) also note that several hospital CFOs verify that manipulation of the TPA account does occur in practice.

nonprofit hospital managers are likely to bias their estimations of this liability to manage earnings.

Accordingly, I use the following model (adapted from Leone and Van Horn, 2005) to estimate discretionary accruals (DAT) using the TPA account for my dependent variable, where DAT_{it} is equal to the residual for hospital i in year t:

$$\Delta TPA_{it} = \alpha_{0t} + \alpha_1 \Delta TGR_{it} + \alpha_2 \Delta GRMED_{it} + \varepsilon_{it} \qquad (1)$$

where all variables are scaled by total assets in year *t-1*. The dependent variable, $\Delta TPA_{it,}$ is the change in TPA for hospital *i* in year *t*. TPA is not reported as a separate line item on the balance sheet, however, a contra-revenue account labeled "Contractual Adjustments" reflects the effect on income of any adjustments made to the liability account. Assuming that the nature of contractual adjustments between a hospital and its third-party payers remains relatively similar from year to year, the current year contractual adjustments account should be approximately equal to the prior year's amount, plus or minus the current year change in undiscounted gross revenue (based on Diagnostic Related Group billed rates) from the prior year. Therefore, I use the change in the contractual adjustments account in year t from year t-1 (i.e., = Contractual Adjustments in year t minus Contractual Adjustments in year t-1) consistent with Leone and Van Horn (2005). The independent variable ΔTGR_{it} is the change in total gross billed revenue from the prior year. The independent variable $\Delta GRMED_{it}$ is the change in gross billed Medi-Care and Medi-Cal revenue, and included as a control because the likelihood of payment and contractual adjustments from government payers are often different from that of insurance companies and other third-party payers (Eldenburg et al., 2008; Leone and Van Horn, 2005).[11]

[11] Note that while I do define model variables throughout the text, I also include a comprehensive list of all model variables and their definitions in the appendix.

Test of Earnings Management around Zero Profit

Prior research (Leone and Van Horn, 2005; Eldenburg et al., 2004, 2008) finds a discontinuity in the earnings distributions of nonprofit hospital samples around zero profit and a negative relation between earnings before discretionary accruals and discretionary accruals. These findings support the argument that nonprofit hospitals manage earnings upward to avoid negative earnings and downward to conform to regulator low profit constraints. The results observed in these prior studies are a necessary antecedant to my prediction in H1, which implies that levels of reported charity care relative to regulator expectations will change the aggressiveness of earnings management by nonprofit hospitals to report earnings close to zero. Therefore, before formally testing my hypothisis (H1), I first replicate the prior study results using my sample of nonprofit hospitals. I describe the empirical methodology of the replication and the empircal models used in the Results chapter (i.e., Chapter VI).

Charity Care - OSHPD Reporting Requirements and Regulator Expectations

Charity care represents free or discounted medical services provided by a hospital to patients not able to pay. The OSHPD reporting guidelines require hospitals to report all charity care services rendered as a deduction from revenue using the appropriate gross DRG billing rates. Since the OSHPD also requires that all healthcare services provided (whether charity care or not) be reported as gross revenue using DRG billing rates, the effect on total net revenue for charity care is zero. While the actual costs incurred by a hospital to provide charity care are part of its total expenses reported, these costs are not separately catergorized as charity care. Therefore, the only measurement available within the OSHPD reporting database to regulators

(regarding a hospital's provided charity care) is the reported deduction from revenue valued at gross DRG billing rates.

Consistent with hospital operating and reporting guidelines issued in 1990 by the AICPA, the OSHPD requires hospitals to identify patients as recipients of charity care at the time of admission based on the hospital's assessment of the patient's ability to pay the portion of their potential gross bill (based on DRG rates) not covered by any third-party payers. Therefore, patients not determined as a charity care case at the time of admission who subsequently cannot pay their portion of the hospital's total billed charges cannot be classified as charity care. Instead, the OSHPD requires such cases be reported as bad debt expense. This requirement makes it difficult for reported charity care to be manipulated. As such, I assume that reported levels of charity care by are relatively accurate and reliable measures of the amount of charity care provided. If charity care is not manipulated, then reported amounts should be a function of managers' strategic-operational decisions based on exogenous factors affecting the demand for charity care in their communities and their firms' subjective appetites for providing charity care.

I predict that nonprofit hospitals manage positive earnings (via TPA accruals) toward regulator low profit constraints depending on the extent their reported levels of charity care deviate from regulator expectations. This implies that higher amounts of reported charity care indicate a nonprofit hospital is less likely to be scrutinized by regulators. However, the level of charity care acceptable to regulators likely to depends on both the prior year level of charity care reported by a hospital and factors specific to a particular hospital's ability to provide charity care. Consistent with this view, prior studies provide evidence that the amount of charity care a hospital provides is influenced by factors such as a hospital's size, total gross inpatient revenue, geographical market demand for charity care, and case severity (e.g., Dranove et al., 1993 ;

Lynk, 1995 ; Morrisey et al., 1996; Hassan et al., 2000 ; Clement et al., 2002 ; Eldenburg and Vines, 2004; Eldenburg et al., 2009).

Charity Care Expectations Model

Based on the intuition and prior research discussed in the previous section, I develop a "Charity Care Expectations Model" (CCE Model) that regresses a hospital's current year reported charity care on variables that prior research suggests are being associated with charity care levels. The residuals ($EXPCC_{it}$) from this model are then used to proxy for a hospital's level of charity care that deviates from regulator expectations, where a positive (negative) value indicates the extent a hospital's reported charity care is above (below) regulator expectations. The model is as follows:

$$CHARITY_{it} = \alpha_{0t} + \alpha_1 CHARITY_{it-1} + \alpha_2 TRAU_{it} + \alpha_3 UP_i + \alpha_4 TGR_{it} + \varepsilon_{it} \quad (2)$$

where:

$\underline{CHARITY_{it}}$ is equal to the reported amount of charity care by hospital *i* in year *t* scaled by total assets in year *t-1*.

$\underline{CHARITY_{it-1}}$ is the reported amount of charity care expense by hospital *i* in year *t-1* scaled by total assets in year *t-2*. I include prior year reported charity care for a hospital prior year because it is likely a baseline considered by regulators when forming an expectation about a hospital's current year reported charity care.

$\underline{TRAU_{it}}$ is a proxy for case severity and is equal to 1 if the OSHPD considers hospital *i* in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries.

Hospital charges for trauma related injuries are disproportionally expensive and prior research finds a positive association between charity care levels and whether a hospital provides trauma care (Norton and Staiger, 1994). This is because trauma related injuries often result in more expensive hospital bills and, therefore, hospitals that treat trauma patients are more likely to have patients who have large bills and, therefore, more likely to qualify for charity care.

$\underline{UP_i}$ is a proxy for a hospital's geographical market demand for charity care and is equal to the percent of the population that was uninsured in the Health Service Area[12] (HSA) where hospital *i* is located. Since charity care is reported the the OSHPD based on gross charges less any amounts recoverable from third-party payers, regulators are likely to expect greater levels of charity care by hospitals in areas with larger proportions of individuals bearing greater amounts of their hospital charges. This variable is not likely to be a statistically significant predictor of reported charity care in my model given the variable $CHARITY_{it-1}$ (i.e., a hospital's prior year reported charity care) is also in the model. Prior year charity care likely captures a hospital's historical demand for charity. Nevertheless, I include UP in the model as a control variable for any demand for charity care not captured by $CHARITY_{it-1}$.

$\underline{TGR_{it}}$ is equal to the reported amount of total gross revenue by hospital *i* in year *t* scaled by total assets in year *t-1*. I include this variable given that charity care is reported to the OSHPD based on gross revenue rates for the medical services provided to patients deemed by hospitals as

[12] A Health Service Areas (HSA) is defined by the National Center for Health Statistics, part of the Centers for Disease Control and Prevention, to be a single county or cluster of contiguous counties which are relatively self-contained with respect to hospital care. The resident population of a particular HSA where a specific hospital is located approximates a hospital's "patient market." Population data regarding the percent of residents uninsured and percent of residents below poverty is not compiled by HSA every calendar year. I use data compiled in 2006, as this is a year included in my sample period.

charity care cases. Therefore, the comparison by regulators of reported charity care to total gross revenue is a natural way to common size reported charity care among different hospitals.

Test of Reported Charity Care Effects on Earnings Management

H1 formally states my prediction regarding the effect of contemporaneously reported levels of charity care on nonprofit hospital earnings management behavior. My hypothesis is based on the intuition that managers will assess the potential regulatory scrutiny for higher reported earnings depending on their perceptions of potential regulator scrutiny resulting from their reported level of charity care. Specifically, I predict that managers of nonprofit hospital firms use discretionary accruals to manage positive earnings downward toward zero profit less (more) aggressively when their contemporaneously reported charity care is higher (lower) than regulator expectations. Equation (3) below incorporates into the equation used to test for earnings management by prior studies (this equation is described in footnote 11) the extent a nonprofit hospitals reported charity care is below or above the regulator expectations.

$$DAT_{it} = \lambda_{0t} + \lambda_1 EBDA_{it} + \lambda_2 ROA_{it-1} + \lambda_3 DAT_{it-1} + \lambda_4 EXPCC_{it} + \lambda_5 EXPCC_{it} * EBDA_{it} + \varepsilon_{it} \quad (3)$$

where, DAT_{it} is discretionary accruals estimated in Equation (1) for hospital *i* in period *t* scaled by total assets in period *t-1*, $EBDA_{it}$ is net income before discretionary accruals for hospital *i* in period *t* scaled by total assets in period *t-1*, ROA_{it-1} is net income for hospital *i* in period *t-1* scaled by total assets at the end of period *t-2*, DAT_{it-1} is included to control for the first-order autocorrelation in discretionary accruals, and $EXPCC_{it}$ proxies for extent charity care reported by hospital *i* in year *t* is either above or below regulator expectations and is equal to the residual for hospital *i* in year *t* from a regression of the CCE model (i.e., Equation 2)

CHAPTER VI

RESULTS

Earnings Management around Zero Profit

If nonprofit hospital managers use discretionary accruals to report lower positive earnings to conform to regulator low profit expectations or to avoid small losses, then: 1) discretionary accruals (DAT) will have a negative contemporaneous relationship with earnings before discretionary accruals (EBDA), and 2) there will be a discontinuity in the earnings distribution of firms for ranges around zero profit. This result was first documented by Leone and Van Horn (2005). I replicate this test as a first step in my analysis as it is a necessary antecedent to my theory regarding the effects of reported charity care on nonprofit hospital earnings management behavior.

Using a pooled sample of nonprofit hospital firms after estimation of discretionary accruals (DAT), I estimate the following equation (adapted from Leone and Van Horn, 2005) to formally test the relation between EBDA and DAT:

$$DAT_{it} = \lambda_{0t} + \lambda_1 EBDA_{it} + \lambda_2 ROA_{it-1} + \lambda_3 DAT_{it-1} + \varepsilon_{it}$$

Results (not separately reported in a Table) for my sample of 1,063 nonprofit hospital firm years show that the coefficient on EBDA is negative (-.759) and highly significant (p-value <.001). This result provides evidence consistent with nonprofit hospital managers making discretionary accrual choices based on their “pre-managed” earnings. However, this test by itself does not support a conclusion that nonprofit hospital managers are using discretionary accruals to report earnings close to the zero profit benchmark.

To determine if results reported in the results I report in the previous paragraph are consistent with nonprofit hospital managers managing earnings to report close to zero-profits, I separate firms, consistent with Leone and Van Horn (2005) into intervals based on ROA using the DeGeorge et al. (1999) method to calculate bin width for the intervals. Using this method I determine that the bin width for ROA in my sample is appropriately .02. I then use this as my bin width to construct intervals and assign each nonprofit hospital firm year into a bin/interval based on its reported ROA. I then compare the actual percentage of firms in each interval to the expected percentage of firms in each interval (assuming a normal distribution). Next, I calculate a z-score for the difference between the actual and expected percentages for each interval. A statistically significant z-score for a given interval is interpreted as existence of an interval where a discontinuity in the actual ROA distribution. Based on an interval width of .02, no statistically significant z-sores are observed. While this result seems to suggest no discontinuity in the ROA distribution, it is possible that intervals ranging by .02 do not capture the nature of how nonprofit hospital firms report ROA to a range acceptable to tax regulators.

To test whether there is a wider ROA range acceptable to tax regulators, I separate firms into intervals based on two times the calculated bin width (i.e., .04). This bin width is more likely to capture the positive earnings range acceptable to regulators given that I observe a median ROA in my sample of approximately 4%. The results using intervals of .04 reveal that a discontinuity in the ROA distribution exists between the interval just before zero-profit (i.e., -.04 to -.0001) and the interval just after zero-profit (i.e., .00 to .04). The z-score for the difference between the actual percentage of firms and the expected percentage of firms is negative for the interval -.04 to -.001 and positive for the interval .00 to .04, with both z-scores being significant at the .001 level. This result, along with the observed negative and significant relation between

EBDA and DAT in the regression I discuss and report above, is materially consistent with prior research (i.e., Leone and Van Horn 2005, Eldenburg et al. 2008)) and provides evidence that the nonprofit hospitals in my sample manage earnings around a regulator imposed low profit constraint.

Effect of Reported Charity Care on Earnings Management

H1 predicts that nonprofit hospital firms manage positive earnings toward a zero profit less aggressively when their contemporaneously reported charity care is higher than regulator expectations. To formally test H1, I first develop a "Charity Care Expectations Model" (i.e., CCE Model, Equation 2), to estimate a proxy for the extent nonprofit hospital managers perceive they have met (or have not met) regulator expectations regarding the level of charity care provided by their hospital. I do so by taking the residual from a regression of reported charity care on factors that would likely influence the amount of charity care a nonprofit hospital is expected by regulators to provide and report in the current year. The regression results for this model are reported in Table 2A. The r-squared for this model is 77%. I also report descriptive statistics and Pearson correlations for all variables included in the CCE model in Tables 2B and 2C, respectively. I then use the residuals (EXPCC) from the regression in my formal test of H1, where an EXPCC of zero indicates a hospital has met the regulator expected level of charity care, an EXPCC of less than zero measures the extent a hospital has not met regulator expectations, and an EXPCC of greater than zero measures the extent a hospital has exceeded regulator expectations for current year charity care. The EXPCC variable has a range from -.334 to .521 with a mean of .000.

TABLE 2A
Descriptive Statistics for Variables in CCE Model (Equation 2)
Nonprofit Hospital Sample

	Mean	Std. Dev.	25th percentile	50th percentile	75th percentile
CHARITY	0.07	0.10	0.01	0.04	0.08
TRAU	0.17	0.38	0.00	0.00	0.00
UP	0.21	0.03	0.18	0.19	0.24
TGR	4.60	2.44	2.77	4.23	6.05

where: CHARITY = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, TRAU is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

TABLE 2B
Results for CCE Model (Equation 2)
Nonprofit Hospital Sample

Dependent variable = $CHARITY_{it}$

Variable	Coeff	SE	t-ratio	
Intercept	-0.021	0.011	-1.954	
$CHARITY_{it-1}$	0.920	0.020	45.370	***
$TRAU_{it}$	0.015	0.004	3.662	***
UP_i	0.044	0.050	0.878	
TGR_{it}	0.006	0.001	8.058	***
r-squared	76.7%			
n	1,063			

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: $CHARITY_{it}$ = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, $CHARITY_{it-1}$ = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2* , $TRAU_{it}$ is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP_i = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR_{it} = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

TABLE 2C
Pearson Correlations for Variables in CCE Model (Equation 2)
Nonprofit Hospital Sample

	CHARITY	CHARITY_PY	TRAU	UP
CHARITY	1			
CHARITY_PY	.867**	1		
TRAU	.187**	.179**	1	
UP	.121**	.126**	.087**	1
TGR	.502**	.467**	-.089**	.026

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: CHARITY = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, CHARITY_PY = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2* , TRAU is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

I then use the EXPCC variable in a regression of Equation (3) to test H1. Specifically, I regress DAT on EBDA, lagged ROA, lagged DAT, EXPCC, and the interaction of EXPCC and EBDA. Descriptive statistics and Peason Correlations for variables included in Equations (1) and (3), along with other related variables are reported in Tables 3A and 3B, respectively. Results from the regression of Equation (3), as reported in Table 4 (labeled as Model 1) support H1. Consistent with prior studies and as expected, the coefficient for EBDA is negative and significant (-.749, p-value <.001).[13] The coefficient for EXPCC is significant and positive (.137, p-value <.05), suggesting that managers make income increasing accruals when reported charity care is higher. However, the EXPCC main effect result alone is not sufficient to conclude support for H1. Recall my prediction in H1 is related to the effect EXPCC has on the aggressiveness of nonprofit hospitals to manage EBDA toward zero. Therefore, the interaction between EBDA and EXPCC is the appropriate test variable for my prediction. In support of H1,

[13] Note that EBDA is also negative and significant (-.759, p-value<.001) in the estimation of the equation used to test for earnings management by prior studies (see footnote 11) which does not include EXPCC as an independent variable.

the interaction between EBDA and EXPCC is positive and significant (.363, p-value <.05), indicating that the effect of EBDA on manager discretionary accrual decisions depends on the extent reported charity care is above (below) regulator expectations, where charity care above (below) regulator expectations decreases (increases) the negative effect of EBDA on discretionary accruals. This result suggests that nonprofit hospitals manage positive earnings towards zero profit less (more) aggressively when managers perceive they are less (more) sensitive to regulatory scrutiny of their reported charity care.

TABLE 3A
Descriptive Statistics for Variables in Equations (1) and (3)
Nonprofit Hospital Sample (n=1,063 firm years)

Variable	Mean	Std. Dev.	25th percentile	50th percentile	75th percentile
TPA	3.16	1.86	1.78	2.92	4.29
TPA_CG	0.39	0.61	0.14	0.31	0.56
TGR	4.60	2.44	2.76	5.53	6.03
TGR_CG	0.53	0.78	0.22	0.44	0.74
GRMED	2.84	1.69	1.49	2.51	3.74
GRMED_CG	0.49	0.69	0.14	0.32	0.69
DAT	0.00	0.13	(0.06)	0.00	0.04
EBDA	0.04	0.16	(0.02)	0.06	0.12
ROA	0.04	0.13	(0.01)	0.05	0.10
EXPCC	0.00	0.05	(0.02)	0.00	0.01

where: TPA = third party settlement adjustments for year t divided by total assets in year t-1, TPA_CG = change in third party settlement adjustments from year t-1 divided by total assets in year t-1, TGR = total gross patient revenue in year t divided by total assets in year t- 1, TGR_CG = change in total gross patient revenue from year t-1 divided by total assets in year t-1, GRMED = total gross Medi-cal and Medi-care patient revenue in year t divided by total assets in year t-1, GRMED_CG = change in Medi-cal and Medi-care revenue from year t-1 divided by total assets in year t-1, DAT = estimated discretionary accruals for year t divided by total assets in year t-1, EBDA = net income before estimated DAT for year t divided by total assets in year t-1, ROA = net income in year t divided by total assets in year t-1, EXPCC = estimated variance to "regulator-expected" charity care (i.e., residual from Equation 2) in year t divided by total assets in year t-1.

TABLE 3B
Pearson Correlations for Variables in Equations (1) and (3)
Nonprofit Hospital Sample (n=1,063 firm years)

	DAT	DAT_PY	TPA	TPA_CG	TGR_CG	GRMED_CG	ROA	CHARITY	CHARITY_PY	EBDA	GRMED	TGR
DAT	1											
DAT_PY	.034	1										
TPA	-.037	.109**	1									
TPA_CG	-.226**	.061*	.518**	1								
TGR_CG	-.011	.072*	.523**	.976**	1							
GRMED_CG	-.007	.096**	.524**	.732**	.753**	1						
ROA	.218**	-.074*	.059	.059	.111**	.079*	1					
CHARITY	.214**	-.057	.455**	.113**	.164**	.226**	-.022	1				
CHARITY_PY	.109**	-.142**	.421**	.068*	.094**	.177**	-.018	.867**	1			
EBDA	-.639**	-.086**	.076*	.230**	.096**	.068*	.612**	-.191**	-.103**	1		
GRMED	.052	.061*	.939**	.467**	.492**	.500**	-.028	.542**	.506**	-.064*	1	
TGR	.066*	.035	.979**	.504**	.532**	.522**	.070*	.502**	.467**	.001	.958**	1
EXPCC	.244**	.104**	-.022	-.024	.036	.036	-.016	.475**	.000	-.230**	.000	.000

* and ** denote correlations significant at the .05 level, and .01 level, respectively.

where: DAT = estimated discretionary accruals for year t divided by total assets in year t-1, DAT_PY = estimated discretionary accruals for year t-1 divided by total assets in year t-2, TPA = third party settlement adjustments for year t divided by total assets in year t-1, TPA_CG = change in third party settlement adjustments from year t-1 divided by total assets in year t-1, TGR_CG = change in total gross patient revenue from year t-1 divided by total assets in year t-1, GRMED_CG = change in Medi-cal and Medi-care revenue from year t-1 divided by total assets in year t-1, EBDA = earnings before estimated DAT for year t divided by total assets in year t-1, ROA = earnings in year t divided by total assets in year t-1, CHARITY = charity care for year t divided by total assets in year t-1, CHARITY_PY = charity care for year t-1 divided by total assets in year t-2, GRMED = total gross Medi-cal and Medi-care patient revenue in year t divided by total assets in year t-1, TGR = total gross patient revenue in year t divided by total assets in year t- 1, and EXPCC is a proxy for the amount of charity care reported by hospital *i* in year *t* that is above or below regulator expectations and is the residual for hospital *i* in year *t* from a regression of actual reported charity care on variables that are associated with how much charity care a hospital is expected to provide based on its size, the demographics of its community, etc., as follows: $CHARITY_{it} = \alpha_{0t} + \alpha_1 CHARITY_{it-1} + \alpha_2 TRAU_{it} + \alpha_3 UP_i + \varepsilon_{it}$, where: $CHARITY_{it}$ = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, $CHARITY_{it-1}$ = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2* , $TRAU_{it}$ is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP_i = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR_{it} = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

To provide a further test of H1, I estimate an equation that incorporates into Equation (3) a dummy variable for EBDA (equal to 1 if EBDA is equal to or above zero) and an interaction of the EBDA dummy variable (EBDA_DUMMY) with EXPCC. The equation is as follows:

$$DAT_{it} = \lambda_{0t} + \lambda_1 EBDA_{it} + \lambda_2 ROA_{it-1} + \lambda_3 DAT_{it-1} + \lambda_4 EXPCC_{it} + \lambda_5 EBDA_DUMMY_{it} + \lambda_6 EXPCC_{it} * EBDA_DUMMY_{it} + \varepsilon_{it} \quad (4)$$

The results for Equation (4) are also reported in Table 4, (labeled as Model 2). The coefficient for EBDA, as in the previous test using Equation (3), is negative and significant (-

.759, p-value <.001). However, the coefficient for EXPCC becomes insignificant (as opposed to the significant EXPCC coefficient in the estimation of Equation 3). The coefficient for EBDA_DUMMY is also insignificant. However, important to my prediction in H1, the interaction between EXPCC and EBDA_DUMMY is positive and significant (.413, p-value <.001). This result supports H1, and suggests that when EBDA is positive, nonprofit hospitals manage earnings upward (downward) when EXPCC is positive (negative).

TABLE 4
Test of H1 – Effect of Reported Charity Care on Earnings Management
Nonprofit Hospital Sample

Dependent Variable = DAT_{it}

		Model 1(Equation 3)				*Model 2 (Equation 4)*			
Variable	Prediction	Coeff	SE	t-ratio		Coeff	SE	t-ratio	
Intercept	?	0.011	0.003	3.971	**	0.008	0.006	1.437	
$EBDA_{it}$	-	-0.749	0.021	-35.897	***	-0.759	0.026	-29.692	***
ROA_{it-1}	?	0.577	0.029	19.746	***	0.574	0.029	19.688	***
DAT_{it-1}	+	0.059	0.020	2.995	*	0.057	0.020	2.888	*
$EXPCC_{it}$	+	0.137	0.063	2.176	*	-0.070	0.069	-1.003	
$EXPCC_{it}$ x $EBDA_{it}$	**+**	**0.363**	**0.167**	**2.177**	*****				
$EBDA_DUMMY_{it}$	-					0.006	0.008	0.784	
$EXPCC_{it}$ x $EBDA_DUMMY_{it}$	**+**					**0.413**	**0.113**	**3.638**	*******
r-squared		58.0%				58.3%			
n		1,063				1,063			

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: DAT_{it} = discretionary accruals estimated for hospital *i* in period *t* scaled by total assets in period *t-1*, $EBDA_{it}$ = net income before discretionary accruals (i.e. "pre-managed earnings") for hospital *i* in period *t* scaled by total assets in period *t-1*, ROA_{it} = net income for hospital *i* in period *t-1* scaled by total assets at the end of period *t-2*, and DAT_{it-1} = discretionary accruals estimated for hospital *i* in period *t-1* scaled by total assets in period *t-2* is included to control for the first-order autocorrelation in discretionary accruals, and $EXPCC_{it}$ is a proxy for the amount of charity care reported by hospital *i* in year *t* that is above or below regulator expectations and is the residual for hospital *i* in year *t* from a regression of actual reported charity care on variables that are associated with how much charity care a hospital is expected to provide based on its size, the demographics of its community, etc.,[14] as follows:

$CHARITY_{it} = \alpha_{0t} + \alpha_1 CHARITY_{it-1} + \alpha_2 TRAU_{it} + \alpha_3 UP_i + \varepsilon_{it}$
where: $CHARITY_{it}$ = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, $CHARITY_{it-1}$ = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2* , $TRAU_{it}$ is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP_i = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR_{it} = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

[14] Results for this model are reported in Table 3B.

Supplemental Analysis – Ruling Out Alternative Explanations for Nonprofit Results

While the results I report in the above section support H1, it is possible the results I observe regarding the relationship between EXPCC, EBDA, and DAT (which is estimated using the changes in the TPA liability account), all of which are correlated with total gross revenue, can be alternatively explained by the mechanical relationship between these variables. Also, there may be factors related to the hospital industry and/or the business, economic, and reporting environment in California that may alternatively explain the results I observe for my nonprofit hospital sample. To rule out these alternative explanations and validate that my results are more likely explained by the theory I use to motivate H1, I compare the earnings management behavior of nonprofit hospitals to that of for-profit hospitals also reporting to the OSHPD in California during my sample years.

Because for-profit hospitals are not under regulatory pressure to report near zero-profits and certain levels of charity care (because they are tax paying entities with no risk of losing tax exemptions) they likely have a different objective function in regards to the association between reported profits and reported charity care. Consistent with my nonprofit results, and because of the likely mechanical relationship between charity care and discretionary accruals (i.e. higher amounts of charity care likely affect a hospitals' need to manage earnings upward to report positive net income or meet certain earnings' benchmarks), I expect EXPCC to have a positive and significant main effect on discretionary accruals. However, and unlike my prediction for nonprofit hospitals, I do not expect for-profit hospitals' to manage earnings upwards away from zero profit more (less) aggressively to the extent EXPCC is positive (negative). More specifically, I do not expect a positive and significant interaction between EBDA and EXPCC or

between EBDA and EXPCC.[15] To test my expectations, I estimate regressions of Equations (1) through (4) using my for-profit hospital sample and compare the results to those I observe for my nonprofit hospital sample.

Recall that my first test of H1 in Equation (3) regresses DAT on EBDA, lagged ROA, lagged DAT, EXPCC, and the interaction of EXPCC and EBDA. The results of Equation (3) for the for-profit hospital sample are reported in Table 5 (labeled as Model 1). The coefficient for EBDA is negative and significant (-.194, p-value <.001) and the coefficient for EXPCC is positive and significant (.573, p-value <.001). These results are consistent with my expectations and similar to the results reported for the nonprofit hospital sample. However, as also expected, the interaction between EBDA and EXPCC for the for-profit sample is not positive and significant. In fact the coefficient for this interaction is *negative and significant* (-.903, p-value<.001). This result is the opposite of the results for the nonprofit sample and suggests that for-profit hospitals do not manage earnings via discretionary accruals upward away from zero more aggressively when they are in conformance with regulator expectations for their reported level of charity care. Furthermore, the results for the for-profit sample using Equation (4), which includes a dummy variable for EBDA (i.e., EBDA_DUMMY, = to 1 if EBDA is positive) and an interaction term of EBDA_DUMMY with EXPCC, suggests for-profit hospital managers' decisions to manage either positive or negative earnings before accruals do not depend on their conformance with regulator-expected levels of charity care. As expected, and unlike the my results for nonprofit hospitals, the coefficient for the interaction between EBDA_DUMMY and

[15] It is possible that for-profit hospitals are under some degree of normative pressure to appear "charitable" relative to their reported income. However, I do not expect such behavior to be systematic because the commitments and incentives of for-profit firms to meet such expectations instead of reporting higher positive income to their stakeholders likely varies across hospitals.

EXPCC in the for-profit sample, as reported in Table 5 (labeled as Model 2) is *not significant* (-.192, p-value =.473).

Therefore, given these key differences in the results between the nonprofit and for-profit hospital samples, I conclude that my results for nonprofit hospitals are most likely explained by the theory I use to motivate H1. The differences in the results between my nonprofit and for-profit samples provide evidence that the nonprofit results I report are not driven by the mechanical relationship between the empirical test variables in my models, and/or the specific reporting and economic environment for all hospitals reporting to the OSHPD in California.

TABLE 5
Supplemental Analysis - Model Results for Sample of For-profit Hospitals (Equations 3&4)

Dependent Variable = DAT_{it}

		Model 1(Equation 3)				*Model 2(Equation 4)*			
Variable	Prediction	Coeff	SE	t-ratio		Coeff	SE	t-ratio	
Intercept	?	-0.010	0.018	-0.551		0.199	0.029	6.824	***
$EBDA_{it}$	-	-0.194	0.017	-11.217	***	-0.030	0.009	-3.161	*
ROA_{it-1}	?	-0.075	0.073	-1.036		-0.049	0.076	-0.639	
DAT_{it-1}	+	0.267	0.043	6.272	***	0.244	0.044	5.587	***
$EXPCC_{it}$	+	0.573	0.131	4.366	***	0.741	0.199	3.730	***
$EXPCC_{it}$ x $EBDA_{it}$	?	**-0.903**	**0.089**	**-10.186**	***				
$EBDA_DUMMY_{it}$	?					-0.344	0.040	-8.617	***
$EXPCC_{it}$ x $EBDA_DUMMY_{it}$	?					**-0.192**	**0.268**	**-0.719**	
r-squared		29.9%				26.6%			
n		544				544			

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: DAT_{it} = discretionary accruals estimated for hospital *i* in period *t* scaled by total assets in period *t-1*, $EBDA_{it}$ = net income before discretionary accruals (i.e. "pre-managed earnings") for hospital *i* in period *t* scaled by total assets in period *t-1*, ROA_{it} = net income for hospital *i* in period *t-1* scaled by total assets at the end of period *t-2*, and DAT_{it-1} = discretionary accruals estimated for hospital *i* in period *t-1* scaled by total assets in period *t-2* is included to control for the first-order autocorrelation in discretionary accruals, and $EXPCC_{it}$ is a proxy for the amount of charity care reported by hospital *i* in year *t* that is above or below regulator expectations and is the residual for hospital *i* in year *t* from a regression of actual reported charity care on variables that are associated with how much charity care a hospital is expected to provide based on its size, the demographics of its community, etc.,[16] as follows:

$$CHARITY_{it} = \alpha_{0t} + \alpha_1 CHARITY_{it-1} + \alpha_2 TRAU_{it} + \alpha_3 UP_i + \varepsilon_{it}$$

where: $CHARITY_{it}$ = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, $CHARITY_{it-1}$ = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2* , $TRAU_{it}$ is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, UP_i = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, and TGR_{it} = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*.

[16] Results of this model (i.e., the "CCE Model") for the for-profit sample are not reported formally in this manuscript.

Robustness Check – Effect of Reported Charity Care Using Alternative Model

Recall that to formally test H1, I first develop a "Charity Care Expectations Model" (i.e., CCE Model, Equation 2), to estimate a proxy for the extent nonprofit hospital managers perceive they have met (or have not met) regulator expectations regarding the level of charity care provided by their hospital. I do so by taking the residual from a regression of reported charity care on factors that would likely influence the amount of charity care a nonprofit hospital is expected by regulators to provide. This residual (i.e., EXPCC) is then included in Equations 3 and 4 to test H1. To explore whether my results for H1 are robust to an alternative measure of EXPCC (hereafter referred to as EXPCC_A), I add additional control variables to the CCE Model specification. Like the independent variables included in the original CCE Model (Equation 2), the added control variables are also possible determinants of regulator expectations of a hospital charity care. The added control variables are as follows:

$\underline{GRMED_{it}}$ is a proxy for payer mix and equal to the reported amount of total Medi-Care and Medi-Cal[17] revenue by hospital *i* in year *t* scaled by total assets in year *t-1*. The profitability for patients with government payers such as Medi-Care and Medi-Cal is likely lower because they pay at lower rates than other third-party payers (Eldenburg and Krishnan 2003). Therefore, the portion of the total charges a patient is responsible for is likely to be greater for Medi-Care and Medi-Cal patients than patients with other third-party payers. Hospitals with greater amounts of revenue associated with government payers should, therefore, have higher average per-patient charges that are unrecoverable, which could lead to higher numbers of charity cases.

[17] Medi-Cal refers to revenue and expenses for patients covered by a State of California funding administration, similar to that of the federal Medi-Care administration, which supplements private insurance for low income individuals.

$YEAR_{it...}$ are dummy variables included in the model for all firm years during the sample period. This variable is included to proxy for general economic and business conditions that may effect the level of charity care provided by all hospitals in California during a specific reporting year.

PP_i like UP, can also proxy for a hospital's geographical market demand for charity care and equal to the percent of the population with income below 200% of the poverty level in the HSA where hospital *i* is located. Since it is possible for someone to have insurance coverage but still be unable to pay their portion of hospital charges, I include this variable as an additional proxy for charity care demand within a hospital's market area. Further, prior studies document a negative relationship between income levels in hospital market areas and levels of charity care reported (Hassan et al., 2000, Clement et al., 2002).

BED_{it} is a proxy for hospital size and is equal to the total number of licensed and available beds for hospital *i* in year *t*. Hospitals with larger facilities and capacity available for providing inpatient medical services would be able to provide a greater amount of charity care. Further, prior studies find a positive relationship between licensed beds and charity care (e.g., Morrisey et al., 1996).

$ALOS_{it}$ is equal to the average number of days for which patients receiving inpatient care occupied a bed in hospital *i* in year *t*. ALOS can influence hospital performance in a number of ways (Link, 1995). ALOS likely captures the average severity of cases among inpatients and should be positively related to the average charges per patient.

$\underline{DTOT_{it}}$ is the total number of days for which all patients receiving inpatient care occupied beds in hospital *i* in year *t* and should be positively related to number of charity care cases for a hospital.

$\underline{DMED_{it}}$ is a equal to the total number of days for which Medi-Care and Medi-Cal patients receiving inpatient care occupied a bed in hospital *i* in year *t*. I include this variable as an additional proxy for payer mix since I also include the total number of days for all patients (i.e., DTOT) in my model.

$\underline{DIS_{it}}$ is the total number of patient discharges by hospital *i* in year *t* and should be positively related to the number of charity care cases for a hospital.

$\underline{TEACH_{it}}$ is a proxy for case severity and equal to 1 if hospital *i* in year *t* is labeled as a teaching hospital in the OSHPD database. Prior research finds that teaching hospitals provide for charity care than non-teaching hospitals (Thorpe and Phelps, 1991).

$\underline{SMALL_{it}}$ is a proxy for size and geographical market demand for charity care and equal to 1 if hospital *i* in year *t* is labeled as a small or rural hospital in the OSHPD database. Hospitals small in size and in rural areas likely face less competition in their markets and often treat disproportionately large shares of uninsured patients (Eldenburg et al., 2009).

After including the additional control variables listed above in the original CCE Model (i.e., Equation 2), the alternative CCE model is as follows:

$$CHARITY_{it} = \alpha_{0t} + \alpha_1 TGR_{it} + \alpha_2 GRMED_{it} + \alpha_3 YEAR_{it\ldots} + \alpha_4 UP_{it} + \alpha_5 PP_{it} + \alpha_6 BED_{it} + \alpha_7 TRAU_{it} + \alpha_8 ALOS_{it} + \alpha_9 DATOT_{it} + \alpha_{10} DMED_{it} + \alpha_{11} ALOS_{it} + \alpha_{12} DIST_{it} + \alpha_{13} TEACH_{it} + \alpha_{14} SMALL_{it} + \alpha_{15} CHARITY_{it-1} + \varepsilon_{it}$$

Recall that to formally test H1 I estimate a regressions of Equations (3) and (4). Specifically, I regress DAT on EBDA, lagged ROA, lagged DAT, EXPCC, and the interaction of EXPCC and EBDA (in Equation 3), and the interaction of EXPCC and EBDA_DUMMY (in Equation 4). The results from these tests are discussed in the previous sub-section titled "Effect of Reported Charity Care on Earnings Management" and are reported in Table 4. To determine whether the results I observe in my formal test of H1 are robust to an alternative measurement of EXPCC (i.e., EXPCC_A) I calculate EXPCC_A as the residual from the alternative CCE Model described above. Descriptive statistics and the results for the alternative CCE Model are shown in Tables 6A and 6B, respectively.

Table 6A
Robustness Check
Descriptive Statistics for Variables in Alternative CCE Model
Nonprofit Hospital Sample

	Mean	Std. Dev.	25th percentile	50th percentile	75th percentile
CHARITY	0.07	0.10	0.01	0.04	0.08
TGR	4.60	2.44	2.77	4.23	6.05
GRMED	2.84	1.69	1.51	2.51	3.79
UP	0.21	0.03	0.18	0.19	0.24
PP	0.34	0.07	0.26	0.36	0.39
BED	243	167	109	217	334
TRAU	0.19	0.39	0.00	0.00	0.00
ALOS	4.52	1.28	3.90	4.40	5.00
DTOT	58725	45758	22178	51038	82854
DMED	39758	29854	15944	33968	56325
DIST	11029	8199	4130	10027	15939
TEACH	0.09	0.29	0.00	0.00	0.00
SMALL	0.16	0.37	0.00	0.00	0.00

where: CHARITY = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, TGR = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*, GRMED = the reported amount of total Medi-Care and Medi-Cal revenue by a hospital in year *t* divided by total assets in year *t-1*, UP = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, PP = the percent of the population with income below 200% of the poverty level during 2006 in the HSA where a hospital is located, BED = the total number of licensed and available beds for a hospital in year *t*, TRAU is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, ALOS = the average number of days for which patients receiving inpatient care occupied a bed in a hospital in year *t*, DTOT = the total number of days for which all patients receiving inpatient care occupied a bed in a hospital in year *t*, DMED = the total number of days for which Medi-Care and Medi-Cal patients receiving inpatient care occupied a bed in a hospital in year *t*, DIS = the total number of patient discharges by a hospital in year *t*, TEACH = a dummy variable equal to 1 if a hospital in year *t* is labeled as a teaching hospital in the OSHPD database, SMALL = a dummy variable equal to 1 if a hospital in year *t* is labeled as a small or rural hospital in the OSHPD database

TABLE 6B
Robustness Check - Results for Alternative CCE Model (Equation 5)
Nonprofit Hospital Sample

Dependent variable = $CHARITY_t$

Variable	Coeff	SE	t-ratio	
Intercept	-0.010	0.014	-0.713	
TGR_t	-0.003	0.003	-1.124	
$GRMED_t$	0.014	0.004	3.278	***
UP	0.005	0.005	0.991	
PP	0.006	0.005	1.042	
YEAR_2004	0.011	0.005	1.985	*
YEAR_2005	0.000	0.005	-0.007	
YEAR_2006	0.000	0.005	0.070	
YEAR_2007	0.048	0.059	0.815	
YEAR_2008	-0.022	0.025	-0.851	
BED_t	0.000	0.000	-0.488	
$TRAU_t$	0.018	0.005	3.536	***
ALOSt	-0.001	0.001	-0.966	
$DATOT_t$	0.000	0.000	-0.627	
$DMED_t$	0.000	0.000	0.386	
$DIST_t$	0.000	0.000	1.167	
$TEACH_t$	0.010	0.007	1.470	
$SMALL_t$	0.003	0.005	0.523	
$CHARITY_{t-1}$	0.891	0.022	39.789	***
r-squared	77.5%			
n	1,063			

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: $CHARITY_t$ = the reported amount of charity care expense by a hospital in year *t* scaled by total assets in year *t-1*, TGR_t = the reported amount of total gross revenue in year *t* divided by total assets in year *t-1*, $GRMED_t$ = the reported amount of total Medi-Care and Medi-Cal revenue by a hospital in year *t* divided by total assets in year *t-1*, YEAR_... variables represent dummy variables included in the model for all firm years during the sample period, UP = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where a hospital is located, PP = the percent of the population with income below 200% of the poverty level during 2006 in the HSA where a hospital is located, BED_t = the total number of licensed and available beds for a hospital in year *t*, $TRAU_t$ is a dummy variable equal to 1 if the OSHPD considers a hospital in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, $ALOS_t$ = the average number of days for which patients receiving inpatient care occupied a bed in a hospital in year *t*, $DTOT_t$ = the total number of days for which all patients receiving inpatient care occupied a bed in a hospital in year *t*, $DMED_t$ = the total number of days for which Medi-Care and Medi-Cal patients receiving inpatient care occupied a bed in a hospital in year *t*, DIS_t = the total number of patient discharges by a hospital in year *t*, $TEACH_t$ = a dummy variable equal to 1 if a hospital in year *t* is labeled as a teaching hospital in the OSHPD database, $SMALL_t$ = a dummy variable equal to 1 if a hospital in year *t* is labeled as a small or rural hospital in the OSHPD database, and $CHARITY_{it-1}$ = the reported amount of charity care expense by a hospital in year *t-1* divided by total assets in year *t-2*

I then use the EXPCC_A in the formal tests of H1 (i.e., Equations 3 and 4). Results from this robustness check are reported in Table 7 and are consistent with the results reported in Table 4 for Equations 3 and 4 using my originally estimated EXPCC variable. Consistent with the results from my original tests of H1, the coefficient for EXPCC_A is significant and positive, EBDA is negative and significant, and the interactions between EBDA and EXPCC_A (in Equation 3) and EBDA_DUMMY and EXPCC_A (in Equation 4) are both positive and significant. These results are consistent with my original tests of H1, and likewise suggest that when EBDA is positive, nonprofit hospital managers manage earnings upward (downward) when reported charity care is higher (lower) than regulator expectations.

TABLE 7
Robustness Check
Test of H1 - Using EXPCC Variable from Alternative CCE Model
Nonprofit Hospital Sample

Dependent Variable = DAT_t

		Model 1(Equation 3)				Model 2 (Equation 4)			
Variable	Prediction	Coeff	SE	t-ratio		Coeff	SE	t-ratio	
Intercept	?	0.007	0.003	2.661	**	0.006	0.005	0.855	
$EBDA_t$	-	-0.725	0.021	-34.205	***	-0.734	0.026	-27.785	***
ROA_{t-1}	?	0.592	0.029	20.359	***	0.588	0.029	20.308	***
DAT_{t-1}	+	0.035	0.020	1.737		0.034	0.020	1.680	*
$EXPCC_t$	+	0.200	0.061	3.299	**	0.009	0.069	0.124	
$EXPCC_t$ x $EBDA_t$	**+**	**0.342**	**0.162**	**2.113**	*****				
EBDA_DUMMY	-					0.005	0.008	0.690	
$EXPCC_t$ x EBDA_DUMMY	**+**					**0.376**	**0.110**	**3.425**	******
r-squared		58.1%				58.5%			
n		1,063				1,063			

* denotes coefficient is significant at the .05 level, **denotes coefficient is significant at the .01 level, and ***denotes coefficient is significant at the .001 level.

where: DAT_t = discretionary accruals estimated for hospital *i* in period *t* scaled by total assets in period *t-1*, $EBDA_t$ = net income before discretionary accruals (i.e. "pre-managed earnings") for hospital *i* in period *t* scaled by total assets in period *t-1*, ROA_t = net income for hospital *i* in period *t-1* scaled by total assets at the end of period *t-2*, and DAT_{t-1} = discretionary accruals estimated for hospital *i* in period *t-1* scaled by total assets in period *t-2* is included to control for the first-order autocorrelation in discretionary accruals, and $EXPCC_t$ is a proxy for the amount of charity care reported by hospital *i* in year *t* that is above or below regulator expectations and is the residual for hospital *i* in year *t* from a regression of actual reported charity care on variables that are associated with how much charity care a hospital is expected to provide based on its size, the demographics of its community, etc.,[18] as follows:

$$CHARITY_{it} = \alpha_{0t} + \alpha_1 TGR_{it} + \alpha_2 GRMED_{it} + \alpha_3 YEAR_{it...} + \alpha_4 UP_i + \alpha_5 PP_i + \alpha_6 BED_{it} + \alpha_7 TRAU_{it} + \alpha_8 ALOS_{it} + \alpha_9 DATOT_{it} + \alpha_{10} DMED_{it} + \alpha_{11} DIST_{it} + \alpha_{12} TEACH_{it} + \alpha_{13} SMALL_{it} + \alpha_{14} CHARITY_{it-1} + \varepsilon_{it}$$

where: $CHARITY_{it}$ = the reported amount of charity care expense by hospital *i* in year *t*, TGR_{it} = the reported amount of total gross revenue by hospital *i* in year *t*, $GRMED_{it}$ = the reported amount of total Medi-Care and Medi-Cal revenue by hospital *i* in year *t*, $YEAR_{it}$ represents dummy variables included in the model for all years during the sample period, UP_i = the percent of the population that was uninsured during 2006 in the Health Service Area (HSA) where hospital *i* is located, PP_i = the percent of the population with income below 200% of the poverty level during 2006 in the HSA where hospital *i* is located, BED_{it} = the total number of licensed and available beds for hospital *i* in year *t*, $TRAU_{it}$ is a dummy variable equal to 1 if the OSHPD considers hospital *i* in year *t* a hospital with the facilities and personnel to provide care for emergency trauma related injuries, $ALOS_{it}$ = the average number of days for which patients receiving inpatient care occupied a bed in hospital *i* in year *t*, $DTOT_{it}$ = the total number of days for which all patients receiving inpatient care occupied a bed in hospital *i* in year *t*, $DMED_{it}$ = the total number of days for which Medi-Care and Medi-Cal patients receiving inpatient care occupied a bed in hospital *i* in year *t*, DIS_{it} = the total number of patient discharges by hospital *i* in year *t*, $TEACH_{it}$ = a dummy variable equal to 1 if hospital *i* in year *t* is labeled as a teaching hospital in the OSHPD database, $SMALL_{it}$ = a dummy variable equal to 1 if hospital *i* in year *t* is labeled as a small or rural hospital in the OSHPD database, and $CHARITY_{it-1}$ = the reported amount of charity care expense by hospital *i* in year *t-1*

[18] Results for this model are reported in Table 6B.

CHAPTER 7

CONCLUSIONS AND IMPLICATIONS

My study provides insight regarding the effect on reporting decisions when tensions between firms' regulatory concerns and managers' incentives to manage earnings exist. More specifically, I examine the effects of these tensions on the earnings management behavior of nonprofit hospitals. Prior research (i.e., Leone and Van Horn, 2005; Eldenburg et al., 2008) provides evidence that nonprofit hospital managers manage reported earnings to a range just above zero profit in order to conform to regulator low or zero profit constraints. I extend this research by investigating how another reported accounting measure important to regulators, (i.e., charity care), affects nonprofit hospital manager decisions to manage earnings toward regulator low profit expectations. Results suggest that nonprofit hospital managers alter their conformance to regulatory constraints on one dimension (i.e., ROA within an acceptable range above zero profit), depending on whether they are able to show conformance to regulatory expectations on another dimension (i.e., level of charity care provided).

Before investigating the affects of reported charity care on managers' earnings management behavior, I first replicate results of prior research (Leone and Van Horn, 2005) and document that, *ceteris paribus*, nonprofit hospitals use discretionary accruals to manage earnings to a range just above zero profit. I then predict that nonprofit hospital managers use discretionary accruals to manage positive earnings toward regulator low profit constraints less aggressively when reported performance on charity care is favorable to (i.e., higher than) regulator expectations. The intuition behind this prediction is that managers can benefit from reporting higher earnings (via higher profit-based compensation and/or enhanced reputations for operational efficiency) however they must balance this against the costs of regulatory scrutiny.

Results are consistent with my prediction. My results also complement prior research, which finds that tax regulators attend to both a nonprofit's earnings variance to zero-profit and the level of reported charity care (i.e., Wilicki, 2001; Barniv et al., 2005). My results suggest that nonprofit hospital managers' are aware of this and respond strategically when making earnings mangement decisions.

Finally, to validate that my results are appropriately explained by my theory, I compare the earnings management behavior of nonprofit hospitals to that of investor owned, for-profit hospitals. The results of this analysis provide evidence that nonprofit hospitals' earnings management behavior is more likely explained by the effects of regulatory pressures to report low profits and high levels of charity care alternatively by the mechanical relationship between my empirical test variables or by factors related to the more general operating conditions, reporting environment, and economic factors affecting the hospitals in California during my sample years.

My study contributes to the economics-based literature stream that examines the effects of stakeholder pressures on nonprofit managers' operational and reporting decisions (e.g., Jegers and Houtman, 1993; Eldenburg and Krishnan, 2003, 2008; Eldenburg and Vines, 2004; Krishnan, 2005; Leone and Van Horn 2005; Krishnan and Yetman, 2009). Specifically, I extend upon prior evidence that nonprofit hospitals manage reported earnings in order to conform to regulator low profit expectations (Leone and Van Horn, 2005). I provide new evidence suggesting that the earnings management behavior of nonprofit hospitals is further explained by their level of conformance to regulator expectations on another reported accounting measure, (i.e., charity care). My study suggests that, when multiple measures of performance are important

to stakeholders, nonprofit managers make strategic reporting decisions so as to satisfy stakeholder expectations while also maximizing firm surplus and their personal benefits.

My study also contributes to the positive accounting research literature that investigates firms' use of earnings management to reduce or avoid political and regulatory costs (e.g., Jones, 1991; Cahan, 1992; Mensah et al., 1994; Key, 1997; Patten and Trompeter, 2003). This literature suggests firms manage earnings downward when they are vulnerable to significant political scrutiny and unfavorable regulation. The results of my study suggest that such firms' are likely to manage earnings downward less aggressively when their reported performance on other politically important measures are favorable to policymaker and regulator expectations.

Finally, my study contributes to the debate over whether nonprofit hospital behavior is consistent with the socially accepted, and regulator imposed, objective function for nonprofit firms. My study suggests that manager incentives for reporting higher profits and opposing regulatory pressures to report lower profits lead to nonprofit hospitals strategically manipulating reported earnings upward when they are able to avoid regulatory scrutiny via reporting higher levels of charity care. As such, regulators may be their basing tax exemption decisions on misleading accounting reports. Furthermore, the direction of future legislation regarding the role of nonprofit hospitals in the U.S. healthcare industry could be misguided if policymakers use these misleading accounting reports to assess the efficiency of having a mixture of both nonprofit and for-profit hospitals competing in the same markets.

My study is timely given the economic significance of nonprofit hospitals (which currently account for the majority of hospitals) in the United States and the recent healthcare system reform debate among lawmakers and the American public. In fact, the recently enacted 2010 Healthcare Reform Bill (HRB) imposes new federal level requirements for nonprofit

hospitals regarding provisions of community benefits (which include charity care) and reporting requirements similar to those currently imposed in California. The HRB also requires the IRS to review the tax-exempt status of all nonprofit hospitals every three years. The results of my study suggest that, if the new federal regulations impose added regulatory pressures to report low profits high levels of charity care, nonprofit hospitals may be even more likely to manage their reported earnings.

APPENDIX A

VARIABLE DEFINITIONS

ALOS = average number of days for which patients receiving inpatient care occupied a bed in hospital *i* in year *t*

BED = total number of licensed and available beds for hospital *i* in year *t*

CHARITY = charity care for year t divided by total assets in year t-1

DAT = estimated discretionary accruals for year t divided by total assets in year t-1

DIS = total number of patient discharges by hospital *i* in year *t*

DMED = total number of days for which Medi-Care and Medi-Cal patients receiving inpatient care occupied a bed in hospital *i* in year *t*

DTOT = total number of days for which all patients receiving inpatient care occupied a bed in hospital *i* in year *t*

EBDA = net income before estimated DAT for year t divided by total assets in year t-1

EXPCC = estimated variance to "regulator-expected" charity care (i.e., residual from CCE Model) in year t divided by total assets in year t-1

GRMED = total gross Medi-cal and Medi-care patient revenue in year t divided by total assets in year t-1

PP = % of the population with income below 200% of the poverty level during 2006 in the Health Service Area (HSA) where hospital *i* is located

ROA = net income in year t divided by total assets in year t-1

SMALL = 1 if hospital *i* in year *t* is labeled as a small or rural, 0 otherwise

TEACH = 1 if hospital *i* in year *t* is labeled as a teaching hospital, 0 otherwise

TGR = total gross patient revenue in year t divided by total assets in year t- 1

TPA = third party settlement adjustments for year t divided by total assets in year t-1

TRAU = 1 if hospital *i* in year *t* can treat emergency trauma related injuries, 0 otherwise

UP = % of the population that was uninsured during 2006 in the Health Service Area (HSA) where hospital *i* is located

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